

รายการอ้างอิง

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ภาคผนวก

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ภาคผนวก ก

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## ตัวอย่างข้อมูลที่บันทึกอยู่ในแฟ้มข้อมูล TEST1

DEPT	CODE	NAME
Math	1000	Atchara Prasanchati
Math	1100	Somrudee Ragdee
Math	1200	Benjaporn Somsri
Math	1300	Somsri Chokdee
Math	1400	Pornpun Unvijit
Math	1500	Wena Chanpibul
Biology	1600	Petcharat Srikaew
Biology	1700	Somchai thongdee
Biology	1800	Somsak Reannam
Biology	1900	Wanchai Pongsri
Biology	2000	Wassana Suntatarak
Biology	2100	Malinee Chupsuwan
Biology	2200	Nongnut Sombat
Biology	2300	Warinee Arunmongkon
Biology	2400	Nucharee Chareanthap
Biology	2500	Jaruwan Witayawatanapisal

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ตัวอย่างข้อมูลที่บันทึกอยู่ในแฟ้มข้อมูล TEST2

CODE	SALARY
1000	10000.50
1100	11000.00
1200	12000.75
1300	13000.25
1400	14500.25
1500	15000.50
1600	15000.50
1700	17000.00
1800	18500.75
1900	19000.00
2000	20000.00
2100	21000.00
2200	22000.00
2300	23000.00
2400	24000.00
2500	25000.00

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ภาคผนวก 'ข'

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## ตัวอย่างโปรแกรมภาษาระดับที่ 4 ที่ถูกสร้างขึ้นจากแฟ้มข้อมูล dBASE

```

database dbase.
pagewidth 132.
pagelong 30.
filename c:\dbase\test1.dbf
  fileindex c:\dbase\test1.ndx
  filenumber 0 .
filename c:\dbase\test2.dbf
  fileindex c:\dbase\test2.ndx
  filenumber 1 .
relation 0.code = 1.code.
detailgap 0.
lineperpage 10.
ct 0.dept .
rh row 1 col 30 value 'จุฬาลงกรณ์มหาวิทยาลัย' with boldface.
ph row 2 col 32 value 'คณะวิทยาศาสตร์' with boldface
  row 2 col 67 value 'หน้า' with boldface
  row 2 col 71 compute pageno = 1 with boldface pic z9.
cl row 3 col 5 value 'ภาควิชา' with boldface
  row 3 col 18 value 'รหัส' with boldface
  row 3 col 36 value 'ชื่อ' with boldface
  row 3 col 57 value 'เงินเดือน' with boldface
  row 3 col 74 value 'ภาษี' with boldface.
ch by 0.dept row 4 col 5 source 0.dept with boldface.
de row 4 col 18 source 0.code
  row 4 col 25 source 0.name
  row 4 col 56 source 1.salary pic zz,zz9.99
  row 4 col 71 compute tax = 0.7 * 1.salary pic zz,zz9.99.
cf by 0.dept row 14 col 19 value 'ผลรวมทั้งหมดของภาควิชา'
  with boldface row 14 col 40 source 0.dept with boldface
  row 14 col 53 compute sum1 = sum(1.salary) with boldface
  pic z,zzz,zz9.99
  row 14 col 68 compute sum2 = sum(tax) with boldface
  pic z,zzz,zz9.99.
pf row 15 col 19 value 'ผลรวมทั้งหมดของหน้า' with boldface
  row 15 col 53 compute sum3 = sum(1.salary) with boldface

```

```
pic z,zzz,zz9.99
row 15 col 68 compute sum4 = sum(tax) with boldface
pic z,zzz,zz9.99.
rf row 16 col 19 value 'ผลรวมทั้งหมดของรายงาน' with boldface
row 16 col 53 compute sum5 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 16 col 68 compute sum6 = sum(tax) with boldface
pic z,zzz,zz9.99.
```



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ภาคผนวก ค

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จุฬาลงกรณ์มหาวิทยาลัย

## ตัวอย่างโปรแกรมภาษาระดับที่ 4 ที่ถูกสร้างขึ้นจากแฟ้มข้อมูล Foxbase

```

database foxbase.
pagewidth 132.
pagelong 30.
filename c:\foxbase\test1.dbf
  fileindex c:\foxbase\test1.ndx
  filenumber 0 .
filename c:\foxbase\test2.dbf
  fileindex c:\foxbase\test2.ndx
  filenumber 1 .
relation 0.code = 1.code.
detailgap 0.
lineperpage 10.
ct 0.dept .
rh row 1 col 30 value 'จุฬาลงกรณ์มหาวิทยาลัย' with boldface.
ph row 2 col 32 value 'คณะวิทยาศาสตร์' with boldface
  row 2 col 67 value 'หน้า' with boldface
  row 2 col 71 compute pageno = 1 with boldface pic z9.
cl row 3 col 5 value 'ภาควิชา' with boldface
  row 3 col 18 value 'รหัส' with boldface
  row 3 col 36 value 'ชื่อ' with boldface
  row 3 col 57 value 'เงินเดือน' with boldface
  row 3 col 74 value 'ภาษี' with boldface.
ch by 0.dept row 4 col 5 source 0.dept with boldface.
de row 4 col 18 source 0.code
  row 4 col 25 source 0.name
  row 4 col 56 source 1.salary pic zz,zz9.99
  row 4 col 71 compute tax = 0.7 * 1.salary pic zz,zz9.99.
cf by 0.dept row 14 col 19 value 'ผลรวมทั้งหมดของภาควิชา'
  with boldface row 14 col 40 source 0.dept with boldface
  row 14 col 53 compute sum1 = sum(1.salary) with boldface
  pic z,zzz,zz9.99
  row 14 col 68 compute sum2 = sum(tax) with boldface
  pic z,zzz,zz9.99.
pf row 15 col 19 value 'ผลรวมทั้งหมดของหน้า' with boldface
  row 15 col 53 compute sum3 = sum(1.salary) with boldface

```

```
pic z,zzz,zz9.99
row 15 col 68 compute sum4 = sum(tax) with boldface
pic z,zzz,zz9.99.
rf row 16 col 19 value 'ผลรวมทั้งหมดของรายงาน' with boldface
row 16 col 53 compute sum5 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 16 col 68 compute sum6 = sum(tax) with boldface
pic z,zzz,zz9.99.
```



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ภาคผนวก ง

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## ตัวอย่างโปรแกรมภาษาระดับที่ 4 ที่ถูกสร้างขึ้นจากแฟ้มข้อมูล Btrieve

```

database btrieve.
pagewidth 132.
pagelong 30.
filename c:\btr\test1.dat
  filestru c:\btr\test1.stc
  filenumber 0 .
filename c:\btr\test2.dat
  filestru c:\btr\test2.stc
  filenumber 1 .
relation 0.code = 1.code.
detailgap 0.
lineperpage 10.
ct 0.dept .
rh row 1 col 30 value 'จุฬาลงกรณ์มหาวิทยาลัย' with boldface.
ph row 2 col 32 value 'คณะวิทยาศาสตร์' with boldface
  row 2 col 67 value 'หน้า' with boldface
  row 2 col 71 compute pageno = 1 with boldface pic z9.
cl row 3 col 5 value 'ภาควิชา' with boldface
  row 3 col 18 value 'รหัส' with boldface
  row 3 col 36 value 'ชื่อ' with boldface
  row 3 col 57 value 'เงินเดือน' with boldface
  row 3 col 74 value 'ภาษี' with boldface.
ch by 0.dept row 4 col 5 source 0.dept with boldface.
de row 4 col 18 source 0.code
  row 4 col 25 source 0.name
  row 4 col 56 source 1.salary pic zz,zz9.99
  row 4 col 71 compute tax = 0.7 * 1.salary pic zz,zz9.99.
cf by 0.dept row 14 col 19 value 'ผลรวมทั้งหมดของภาควิชา'
  with boldface row 14 col 40 source 0.dept with boldface
  row 14 col 53 compute sum1 = sum(1.salary) with boldface
  pic z,zzz,zz9.99
  row 14 col 68 compute sum2 = sum(tax) with boldface
  pic z,zzz,zz9.99.
pf row 15 col 19 value 'ผลรวมทั้งหมดของหน้านี้' with boldface
  row 15 col 53 compute sum3 = sum(1.salary) with boldface

```

```
pic z,zzz,zz9.99
row 15 col 68 compute sum4 = sum(tax) with boldface
pic z,zzz,zz9.99.
rf row 16 col 19 value 'ผลรวมทั้งหมดของรายงาน' with boldface
row 16 col 53 compute sum5 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 16 col 68 compute sum6 = sum(tax) with boldface
pic z,zzz,zz9.99.
```



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ภาคผนวก จ

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## ตัวอย่างโปรแกรมภาษาระดับที่ 4 ที่ถูกสร้างขึ้นจากแฟ้มข้อมูล ISAM

```

database isam.
pagewidth 132.
pagelong 30.
filename c:\isam\test1.dat
  filestru c:\isam\test1.stc
  filenumber 0 .
filename c:\isam\test2.dat
  filestru c:\isam\test2.stc
  filenumber 1 .
relation 0.code = 1.code.
detailgap 0.
lineperpage 10.
ct 0.dept .
rh row 1 col 30 value 'จุฬาลงกรณ์มหาวิทยาลัย' with boldface.
ph row 2 col 32 value 'คณะวิทยาศาสตร์' with boldface
  row 2 col 67 value 'หน้า' with boldface
  row 2 col 71 compute pageno = 1 with boldface pic z9.
cl row 3 col 5 value 'ภาควิชา' with boldface
  row 3 col 18 value 'รหัส' with boldface
  row 3 col 36 value 'ชื่อ' with boldface
  row 3 col 57 value 'เงินเดือน' with boldface
  row 3 col 74 value 'ภาษี' with boldface.
ch by 0.dept row 4 col 5 source 0.dept with boldface.
de row 4 col 18 source 0.code
  row 4 col 25 source 0.name
  row 4 col 56 source 1.salary pic zz,zz9.99
  row 4 col 71 compute tax = 0.7 * 1.salary pic zz,zz9.99.
cf by 0.dept row 14 col 19 value 'ผลรวมทั้งหมดของภาควิชา'
  with boldface row 14 col 40 source 0.dept with boldface
  row 14 col 53 compute sum1 = sum(1.salary) with boldface
  pic z,zzz,zz9.99
  row 14 col 68 compute sum2 = sum(tax) with boldface
  pic z,zzz,zz9.99.
pf row 15 col 19 value 'ผลรวมทั้งหมดของหน้านี้' with boldface
  row 15 col 53 compute sum3 = sum(1.salary) with boldface

```



```
pic z,zzz,zz9.99
row 15 col 68 compute sum4 = sum(tax) with boldface
pic z,zzz,zz9.99.
rf row 16 col 19 value 'ผลรวมทั้งหมดของรายงาน' with boldface
row 16 col 53 compute sum5 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 16 col 68 compute sum6 = sum(tax) with boldface
pic z,zzz,zz9.99.
```



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ภาคผนวก ฉ

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ตัวอย่างโปรแกรมภาษาระดับที่ 4 ที่ถูกสร้างขึ้นจากแฟ้มข้อมูล TEXT  
ประเภท COBOL Variable Length Record

```

database cobolvar.
pagewidth 132.
pagelong 30.
filename c:\coboltex\test1.dat
  filestru c:\coboltex\test1.stc
  filenumber 0 .
filename c:\coboltex\test2.dat
  filestru c:\coboltex\test2.stc
  filenumber 1 .
relation 0.code = 1.code.
detailgap 0.
lineperpage 10.
ct 0.dept .
rh row 1 col 30 value 'จุฬาลงกรณ์มหาวิทยาลัย' with boldface.
ph row 2 col 32 value 'คณะวิทยาศาสตร์' with boldface
  row 2 col 67 value 'หน้า' with boldface
  row 2 col 71 compute pageno = 1 with boldface pic z9.
cl row 3 col 5 value 'ภาควิชา' with boldface
  row 3 col 18 value 'รหัส' with boldface
  row 3 col 36 value 'ชื่อ' with boldface
  row 3 col 57 value 'เงินเดือน' with boldface
  row 3 col 74 value 'ภาษี' with boldface.
ch by 0.dept row 4 col 5 source 0.dept with boldface.
de row 4 col 18 source 0.code
  row 4 col 25 source 0.name
  row 4 col 56 source 1.salary pic zz,zz9.99
  row 4 col 71 compute tax = 0.7 * 1.salary pic zz,zz9.99.
cf by 0.dept row 14 col 19 value 'ผลรวมทั้งหมดของภาควิชา'
  with boldface row 14 col 40 source 0.dept with boldface
  row 14 col 53 compute sum1 = sum(1.salary) with boldface
  pic z,zzz,zz9.99
  row 14 col 68 compute sum2 = sum(tax) with boldface
  pic z,zzz,zz9.99.
pf row 15 col 19 value 'ผลรวมทั้งหมดของหน้านี้' with boldface

```

```
row 15 col 53 compute sum3 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 15 col 68 compute sum4 = sum(tax) with boldface
pic z,zzz,zz9.99.
rf row 16 col 19 value 'ผลรวมทั้งหมดของรายงาน' with boldface
row 16 col 53 compute sum5 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 16 col 68 compute sum6 = sum(tax) with boldface
pic z,zzz,zz9.99.
```



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ภาคผนวก ช

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จุฬาลงกรณ์มหาวิทยาลัย

ตัวอย่างโปรแกรมภาษาระดับที่ 4 ที่ถูกสร้างขึ้นจากแฟ้มข้อมูล TEXT  
ประเภท COBOL Fixed Length Record

```

database cobolfixed.
pagewidth 132.
pagelong 30.
filename c:\fixcobol\test1.dat
  filestru c:\fixcobol\test1.stc
  filenumber 0 .
filename c:\fixcobol\test2.dat
  filestru c:\fixcobol\test2.stc
  filenumber 1 .
relation 0.code = 1.code.
detailgap 0.
lineperpage 10.
ct 0.dept .
rh row 1 col 30 value 'จุฬาลงกรณ์มหาวิทยาลัย' with boldface.
ph row 2 col 32 value 'คณะวิทยาศาสตร์' with boldface
  row 2 col 67 value 'หน้า' with boldface
  row 2 col 71 compute pageno = 1 with boldface pic z9.
cl row 3 col 5 value 'ภาควิชา' with boldface
  row 3 col 18 value 'รหัส' with boldface
  row 3 col 36 value 'ชื่อ' with boldface
  row 3 col 57 value 'เงินเดือน' with boldface
  row 3 col 74 value 'ภาษี' with boldface.
ch by 0.dept row 4 col 5 source 0.dept with boldface.
de row 4 col 18 source 0.code
  row 4 col 25 source 0.name
  row 4 col 56 source 1.salary pic zz,zz9.99
  row 4 col 71 compute tax = 0.7 * 1.salary pic zz,zz9.99.
cf by 0.dept row 14 col 19 value 'ผลรวมทั้งหมดของภาควิชา'
  with boldface row 14 col 40 source 0.dept with boldface
  row 14 col 53 compute sum1 = sum(1.salary) with boldface
  pic z,zzz,zz9.99
  row 14 col 68 compute sum2 = sum(tax) with boldface
  pic z,zzz,zz9.99.
pf row 15 col 19 value 'ผลรวมทั้งหมดของหน้านี้' with boldface

```

```
row 15 col 53 compute sum3 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 15 col 68 compute sum4 = sum(tax) with boldface
pic z,zzz,zz9.99.
rf row 16 col 19 value 'ผลรวมทั้งหมดของรายงาน' with boldface
row 16 col 53 compute sum5 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 16 col 68 compute sum6 = sum(tax) with boldface
pic z,zzz,zz9.99.
```



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ภาคผนวก ๗

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



ตัวอย่างโปรแกรมภาษาระดับที่ 4 ที่ถูกสร้างขึ้นจากระบบข้อมูล TEXT  
ประเภท Other Fixed Length Record

```

database otherfixed.
pagewidth 132.
pagelong 30.
filename c:\othertext\test1.dat
  filestru c:\othertext\test1.stc
  filenumber 0 .
filename c:\othertext\test2.dat
  filestru c:\othertext\test2.stc
  filenumber 1 .
relation 0.code = 1.code.
detailgap 0.
lineperpage 10.
ct 0.dept .
rh row 1 col 30 value 'จุฬาลงกรณ์มหาวิทยาลัย' with boldface.
ph row 2 col 32 value 'คณะวิทยาศาสตร์' with boldface
  row 2 col 67 value 'หน้า' with boldface
  row 2 col 71 compute pageno = 1 with boldface pic z9.
cl row 3 col 5 value 'ภาควิชา' with boldface
  row 3 col 18 value 'รหัส' with boldface
  row 3 col 36 value 'ชื่อ' with boldface
  row 3 col 57 value 'เงินเดือน' with boldface
  row 3 col 74 value 'ภาษี' with boldface.
ch by 0.dept row 4 col 5 source 0.dept with boldface.
de row 4 col 18 source 0.code
  row 4 col 25 source 0.name
  row 4 col 56 source 1.salary pic zz,zz9.99
  row 4 col 71 compute tax = 0.7 * 1.salary pic zz,zz9.99.
cf by 0.dept row 14 col 19 value 'ผลรวมทั้งหมดของภาควิชา'
  with boldface row 14 col 40 source 0.dept with boldface
  row 14 col 53 compute sum1 = sum(1.salary) with boldface
  pic z,zzz,zz9.99
  row 14 col 68 compute sum2 = sum(tax) with boldface
  pic z,zzz,zz9.99.
pf row 15 col 19 value 'ผลรวมทั้งหมดของหน้านี้' with boldface

```

```
row 15 col 53 compute sum3 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 15 col 68 compute sum4 = sum(tax) with boldface
pic z,zzz,zz9.99.
rf row 16 col 19 value 'ผลรวมทั้งหมดของรายงาน' with boldface
row 16 col 53 compute sum5 = sum(1.salary) with boldface
pic z,zzz,zz9.99
row 16 col 68 compute sum6 = sum(tax) with boldface
pic z,zzz,zz9.99.
```



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ภาคผนวก ฅ

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จุฬาลงกรณ์มหาวิทยาลัย

## ตัวอย่างโปรแกรมภาษาโคบอลที่ถูกสร้างขึ้นจากแฟ้มข้อมูล dBASE

```

IDENTIFICATION DIVISION.
PROGRAM-ID. OUTPUT1-CBL.
DATE-WRITTEN. 1-03-1993.
ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT OUTPUT-FILE ASSIGN TO DISK
    ACCESS MODE IS SEQUENTIAL
    ORGANIZATION IS SEQUENTIAL.
DATA DIVISION.
FILE SECTION.
FD OUTPUT-FILE
    LABEL RECORD IS STANDARD
    VALUE OF FILE-ID IS "REPORT.TXT"
    DATA RECORD IS OUT-REC.
01 OUT-REC PIC X(132).
WORKING-STORAGE SECTION.
77 CHANDDE PIC 9 VALUE 0.
77 FIRSTPAGE PIC 9 VALUE 1.
77 LINENO PIC 9(2) VALUE 0.
77 LINECOUNT PIC 9(2) VALUE 0.
77 PAGELONG PIC 9(2) VALUE 30.
77 PAGENO PIC 9(2) VALUE 1.
77 TAX PIC 9(5)V99 VALUE 0.
77 SUM1 PIC 9(7)V99 VALUE 0.
77 SUM2 PIC 9(7)V99 VALUE 0.
77 SUM3 PIC 9(7)V99 VALUE 0.
77 SUM4 PIC 9(7)V99 VALUE 0.
77 SUM5 PIC 9(7)V99 VALUE 0.
77 SUM6 PIC 9(7)V99 VALUE 0.
01 MORE-DATA-SWITCH PIC X VALUE 'Y'.
    88 THERE-IS-MORE-DATA VALUE 'Y'.
    88 THERE-IS-NO-MORE-DATA VALUE 'N'.
01 NEWLINE.
02 FILLER PIC X(130) VALUE SPACE.

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02 FILLER PIC X(2) VALUE X"0A0D".
01 FNAMEO.
02 FILLER PIC X(18) VALUE "C:\DBASE\TEST1.DBF".
02 FILLER PIC X VALUE X"00".
01 FNAMEIDX0.
02 FILLER PIC X(18) VALUE "C:\DBASE\TEST1.NDX".
02 FILLER PIC X VALUE X"00".
01 FNAME1.
02 FILLER PIC X(18) VALUE "C:\DBASE\TEST2.DBF".
02 FILLER PIC X VALUE X"00".
01 FNAMEIDX1.
02 FILLER PIC X(18) VALUE "C:\DBASE\TEST2.NDX".
02 FILLER PIC X VALUE X"00".
01 BUFFER PIC X(25).
01 RECLEN PIC XX.
01 FHAND OCCURS 2 PIC XX.
01 COUNTREC OCCURS 2 PIC X VALUE X"00".
01 HEADERDBF OCCURS 2 PIC XX.
01 HBUFF OCCURS 2.
02 FILLER PIC X(4).
02 TOTALREC PIC X(4).
02 FILLER PIC X(122).
01 COUNTTOTALREC OCCURS 2 PIC X(4) VALUE X"00000000".
01 FHANDNDX OCCURS 2 PIC XX.
01 HBUFFNDX OCCURS 2.
02 FILLER PIC X(14).
02 RECNO PIC X.
02 FILLER PIC X(3).
02 RECLENNDX PIC X.
02 FILLER PIC X(493).
01 INO.
02 DEPTINO PIC X(10).
02 CODEINO PIC 9(4).
02 NAMEINO PIC X(10).
01 IN1.
02 CODEIN1 PIC 9(4).
02 SALARYIN1 PIC 9(5)V99.
01 RHO.
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02 FILLER PIC X(29) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(21) VALUE "จุฬาลงกรณ์มหาวิทยาลัย".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(78) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 PHO.
02 FILLER PIC X(31) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(14) VALUE "คณะวิทยาศาสตร์".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(23) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "หน้า".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(1) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 PAGENOPHO PIC Z9.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(49) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 CLO.
02 FILLER PIC X(4) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(7) VALUE "ภาควิชา".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(7) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "รหัส".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(15) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "ชื่อ".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(19) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(9) VALUE "เงินเดือน".
02 FILLER PIC X(1) VALUE X"02".

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02 FILLER PIC X(10) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(4) VALUE "ภาชี".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(37) VALUE SPACE.  
02 FILLER PIC X(2) VALUE X"0A0D".  
01 CHO.  
02 FILLER PIC X(4) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 DEPTCHO PIC X(10).  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(3) VALUE SPACE.  
02 CODECHO PIC 9(4).  
02 FILLER PIC X(3) VALUE SPACE.  
02 NAMECHO PIC X(10).  
02 FILLER PIC X(21) VALUE SPACE.  
02 SALARYCHO PIC ZZ,ZZ9.99.  
02 FILLER PIC X(6) VALUE SPACE.  
02 TAXCHO PIC ZZ,ZZ9.99.  
02 FILLER PIC X(49) VALUE SPACE.  
02 FILLER PIC X(2) VALUE X"0A0D".  
01 DEO.  
02 FILLER PIC X(17) VALUE SPACE.  
02 CODEDEO PIC 9(4).  
02 FILLER PIC X(3) VALUE SPACE.  
02 NAMEDEO PIC X(10).  
02 FILLER PIC X(21) VALUE SPACE.  
02 SALARYDEO PIC ZZ,ZZ9.99.  
02 FILLER PIC X(6) VALUE SPACE.  
02 TAXDEO PIC ZZ,ZZ9.99.  
02 FILLER PIC X(51) VALUE SPACE.  
02 FILLER PIC X(2) VALUE X"0A0D".  
01 CFO.  
02 FILLER PIC X(18) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของภาควิชา".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(2) VALUE SPACE.

02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCF0 PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM1CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM2CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของหน้า".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM3PF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM4PF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 RF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(21) VALUE "ผลรวมทั้งหมดของรายงาน".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM5RF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.



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02 FILLER PIC X(1) VALUE X"02".
02 SUM6RFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(43) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 CT.
    02 DEPTCT PIC X(10).
PROCEDURE DIVISION.
INIT-RTN.
    MOVE X"0082" TO HEADERDBF(1).
    MOVE X"0062" TO HEADERDBF(2).
OPEN-OUTPUT-RTN.
    OPEN OUTPUT OUTPUT-FILE.
OPEN-INPUT-RTN.
    CALL "_OPEN" USING FNAMEO,FHAND(1).
    CALL "_OPEN" USING FNAMENDXO,FHANDNDX(1).
    CALL "_OPEN" USING FNAME1,FHAND(2).
    CALL "_OPEN" USING FNAMENDX1,FHANDNDX(2).
    MOVE X"0082" TO RECLEN.
    CALL "_READHEAD" USING FHAND(1),HBUFF(1),RECLEN.
    MOVE X"0200" TO RECLEN.
    CALL "_READHEAD" USING FHANDNDX(1),HBUFFNDX(1),RECLEN.
    PERFORM READ-RTNO.
    PERFORM MAIN-RTN
        UNTIL COUNTTOTALREC(1) > TOTALREC(1)
        OR THERE-IS-NO-MORE-DATA.
END-REPORT-RTN.
    PERFORM CF-DEPTRTN.
    PERFORM PF-RTN .
    PERFORM RF-RTN .
CLOSE-FILES-RTN.
    CALL "_CLOSE" USING FHAND(1).
    CALL "_CLOSE" USING FHANDNDX(1).
    CALL "_CLOSE" USING FHAND(2).
    CALL "_CLOSE" USING FHANDNDX(2).
    CLOSE OUTPUT-FILE.
    STOP RUN.
MAIN-RTN.

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MOVE CODEINO TO CODEDEO.
MOVE NAMEINO TO NAMEDEO.
CALL "_REWIND" USING FHAND(2).
MOVE X"00000000" TO COUNTTOTALREC(2).
CALL "_REWIND" USING FHANDNDX(2).
MOVE X"00" TO COUNTREC(2).
MOVE X"00" TO RECNO(2).
MOVE X"0200" TO RECLEN.
CALL "_READHEAD" USING FHANDNDX(2),HBUFFNDX(2),RECLEN.
MOVE X"0062" TO RECLEN.
CALL "_READHEAD" USING FHAND(2),HBUFF(2),RECLEN.
PERFORM READ-RTN1 UNTIL CODEINO = CODEIN1
OR THERE-IS-NO-MORE-DATA.
MOVE SALARYIN1 TO SALARYDEO.
COMPUTE TAX = 0.7 * SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF TAX ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM1 = SUM1 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM1 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM2 = SUM2 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM2 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM3 = SUM3 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM3 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM4 = SUM4 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM4 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM5 = SUM5 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM5 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM6 = SUM6 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM6 ERROR'
    GO TO CLOSE-FILES-RTN.
IF FIRSTPAGE = 1
    PERFORM CTLBRK-RTN
    PERFORM RH-RTN
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PERFORM PH-RTN
PERFORM CL-RTN
PERFORM CH-DEPTDERTN
MOVE 1 TO LINENO
MOVE 0 TO FIRSTPAGE.
IF LINENO >= 10
    PERFORM NEWPAGE-RTN.
IF CHANDDE = 0
    PERFORM DE-RTN
ELSE
    MOVE 0 TO CHANDDE.
PERFORM CTLBRKCF-RTN.
PERFORM READ-RTNO.
PERFORM CONTROL-RTN.
CONTROL-RTN.
    IF DEPTCT NOT = DEPTINO
        PERFORM CF-DEPTRTN
        PERFORM CTLBRK-RTN
        PERFORM CH-DEPTDERTN.
READ-RTNO.
    MOVE X"0019" TO RECLEN.
    CALL "_READNDX" USING FHANDNDX(1), RECLENNDX(1), BUFFER,
        COUNTREC(1), RECNO(1), FHAND(1), HEADERDBF(1), RECLEN,
        COUNTTOTALREC(1), TOTALREC(1).
    MOVE BUFFER TO INO.
    IF COUNTTOTALREC(1) > TOTALREC(1)
        MOVE 'N' TO MORE-DATA-SWITCH
        GO TO END-REPORT-RTN.
READ-RTN1.
    MOVE X"000D" TO RECLEN.
    CALL "_READNDX" USING FHANDNDX(2), RECLENNDX(2), BUFFER,
        COUNTREC(2), RECNO(2), FHAND(2), HEADERDBF(2), RECLEN,
        COUNTTOTALREC(2), TOTALREC(2).
    MOVE BUFFER TO IN1.
    IF COUNTTOTALREC(2) > TOTALREC(2)
        MOVE 'N' TO MORE-DATA-SWITCH
        DISPLAY "CAN'T RETRIEVE DATA FROM FILE C:\DBASE\
- "TEST2.NDX"
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GO TO END-REPORT-RTN.

RH-RTN.

WRITE OUT-REC FROM RHO.

PH-RTN.

MOVE PAGENO TO PAGENOPHO.

WRITE OUT-REC FROM PHO.

CL-RTN.

WRITE OUT-REC FROM CLO.

CF-DEPTRTN.

MOVE SUM1 TO SUM1CFO.

MOVE SUM2 TO SUM2CFO.

WRITE OUT-REC FROM CFO.

MOVE 0 TO SUM1.

MOVE 0 TO SUM1CFO.

MOVE 0 TO SUM2.

MOVE 0 TO SUM2CFO.

ADD 1 TO LINENO.

CH-DEPTDERTN.

MOVE TAX TO TAXCHO.

WRITE OUT-REC FROM CHO.

ADD 1 TO LINENO.

MOVE 1 TO CHANDDE.

DE-RTN.

MOVE TAX TO TAXDEO.

WRITE OUT-REC FROM DEO.

ADD 1 TO LINENO.

PF-RTN.

MOVE SUM3 TO SUM3PFO.

MOVE SUM4 TO SUM4PFO.

WRITE OUT-REC FROM PFO.

MOVE 0 TO SUM3.

MOVE 0 TO SUM3PFO.

MOVE 0 TO SUM4.

MOVE 0 TO SUM4PFO.

RF-RTN.

MOVE SUM5 TO SUM5RFO.

MOVE SUM6 TO SUM6RFO.

WRITE OUT-REC FROM RFO.

MOVE 0 TO SUM5.  
MOVE 0 TO SUM5RF0.  
MOVE 0 TO SUM6.  
MOVE 0 TO SUM6RF0.

CTLBRK-RTN.

MOVE DEPTINO TO DEPTCT.  
MOVE DEPTINO TO DEPTCHO.  
MOVE CODEINO TO CODECHO.  
MOVE NAMEINO TO NAMECHO.  
MOVE SALARYIN1 TO SALARYCHO.

CTLBRKCF-RTN.

MOVE DEPTINO TO DEPTCFO.

NEWPAGE-RTN.

PERFORM PF-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 16.  
PERFORM CTLBRK-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 1.  
ADD 1 TO PAGENO.  
PERFORM PH-RTN .  
PERFORM CL-RTN .  
PERFORM CH-DEPTDERTN.  
MOVE 0 TO LINENO.

NEWLINE-RTN.

WRITE OUT-REC FROM NEWLINE.

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



ภาคผนวก ก

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## ตัวอย่างโปรแกรมภาษาโคบอลที่ถูกสร้างขึ้นจากแฟ้มข้อมูล Foxbase

IDENTIFICATION DIVISION.

PROGRAM-ID. OUTPUT-CBL.

DATE-WRITTEN. 1-03-1993.

ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT OUTPUT-FILE ASSIGN TO DISK  
ACCESS MODE IS SEQUENTIAL  
ORGANIZATION IS SEQUENTIAL.

DATA DIVISION.

FILE SECTION.

FD OUTPUT-FILE

LABEL RECORD IS STANDARD  
VALUE OF FILE-ID IS "REPORT.TXT"  
DATA RECORD IS OUT-REC.

01 OUT-REC PIC X(132).

WORKING-STORAGE SECTION.

77 CHANDDE PIC 9 VALUE 0.

77 FIRSTPAGE PIC 9 VALUE 1.

77 LINENO PIC 9(2) VALUE 0.

77 LINECOUNT PIC 9(2) VALUE 0.

77 PAGELONG PIC 9(2) VALUE 30.

77 PAGENO PIC 9(2) VALUE 1.

77 TAX PIC 9(5)V99 VALUE 0.

77 SUM1 PIC 9(7)V99 VALUE 0.

77 SUM2 PIC 9(7)V99 VALUE 0.

77 SUM3 PIC 9(7)V99 VALUE 0.

77 SUM4 PIC 9(7)V99 VALUE 0.

77 SUM5 PIC 9(7)V99 VALUE 0.

77 SUM6 PIC 9(7)V99 VALUE 0.

01 MORE-DATA-SWITCH PIC X VALUE 'Y'.

88 THERE-IS-MORE-DATA VALUE 'Y'.

88 THERE-IS-NO-MORE-DATA VALUE 'N'.

01 NEWLINE.

02 FILLER PIC X(130) VALUE SPACE.

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02 FILLER PIC X(2) VALUE X"0A0D".
01 FNAMEO.
02 FILLER PIC X(20) VALUE "C:\FOXBASE\TEST1.DBF".
02 FILLER PIC X VALUE X"00".
01 FNAMEIDX0.
02 FILLER PIC X(20) VALUE "C:\FOXBASE\TEST1.NDX".
02 FILLER PIC X VALUE X"00".
01 FNAME1.
02 FILLER PIC X(20) VALUE "C:\FOXBASE\TEST2.DBF".
02 FILLER PIC X VALUE X"00".
01 FNAMEIDX1.
02 FILLER PIC X(20) VALUE "C:\FOXBASE\TEST2.NDX".
02 FILLER PIC X VALUE X"00".
01 BUFFER PIC X(25).
01 RECLN PIC XX.
01 FHAND OCCURS 2 PIC XX.
01 COUNTREC OCCURS 2 PIC X VALUE X"00".
01 HEADERDBF OCCURS 2 PIC XX.
01 HBUFF OCCURS 2.
02 FILLER PIC X(4).
02 TOTALREC PIC X(4).
02 FILLER PIC X(122).
01 COUNTTOTALREC OCCURS 2 PIC X(4) VALUE X"00000000".
01 FHANDIDX OCCURS 2 PIC XX.
01 HBUFFIDX OCCURS 2.
02 FILLER PIC X(12).
02 RECLNIDX PIC X.
02 FILLER PIC X(499).
01 RECNO OCCURS 2 PIC X VALUE X"00".
01 INO.
02 DEPTINO PIC X(10).
02 CODEINO PIC X(4).
02 NAMEINO PIC X(10).
01 IN1.
02 CODEIN1 PIC X(4).
02 SALARYIN1 PIC 9(5)V99.
01 RHO.
02 FILLER PIC X(29) VALUE SPACE.
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02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(21) VALUE "จุฬาลงกรณ์มหาวิทยาลัย".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(78) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PHO.  
 02 FILLER PIC X(31) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(14) VALUE "คณะวิทยาศาสตร์".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(23) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "หน้า".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(1) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 PAGENOPHO PIC Z9.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CLO.  
 02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE "ภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "รหัส".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ชื่อ".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(19) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(9) VALUE "เงินเดือน".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(10) VALUE SPACE.

02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ภาษี".  
  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(37) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CH0.  
 02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCH0 PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 CODECH0 PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMECH0 PIC X(10).  
 02 FILLER PIC X(21) VALUE SPACE.  
 02 SALARYCH0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXCH0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 DE0.  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 CODEDE0 PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMEDE0 PIC X(10).  
 02 FILLER PIC X(21) VALUE SPACE.  
 02 SALARYDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(51) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(2) VALUE SPACE.

02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCF0 PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM1CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM2CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของหน้า".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM3PF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM4PF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 RF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(21) VALUE "ผลรวมทั้งหมดของรายงาน".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM5RF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.

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02 FILLER PIC X(1) VALUE X"02".
02 SUM6RF0 PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(43) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".

01 CT.
    02 DEPTCT PIC X(10).
PROCEDURE DIVISION.
INIT-RTN.
    MOVE X"0082" TO HEADERDBF(1).
    MOVE X"0062" TO HEADERDBF(2).
OPEN-OUTPUT-RTN.
    OPEN OUTPUT OUTPUT-FILE.
OPEN-INPUT-RTN.
    CALL "_OPEN" USING FNAMEO,FHAND(1).
    CALL "_OPEN" USING FNAMEIDXO,FHANDIDX(1).
    CALL "_OPEN" USING FNAME1,FHAND(2).
    CALL "_OPEN" USING FNAMEIDX1,FHANDIDX(2).
    MOVE X"0082" TO RECLN.
    CALL "_READHEAD" USING FHAND(1),HBUFF(1),RECLN.
    MOVE X"0200" TO RECLN.
    CALL "_READHEAD" USING FHANDIDX(1),HBUFFIDX(1),RECLN.
    PERFORM READ-RTNO.
    PERFORM MAIN-RTN
        UNTIL COUNTTOTALREC(1) > TOTALREC(1)
        OR THERE-IS-NO-MORE-DATA.
END-REPORT-RTN.
    PERFORM CF-DEPTRTN.
    PERFORM PF-RTN .
    PERFORM RF-RTN .
CLOSE-FILES-RTN.
    CALL "_CLOSE" USING FHAND(1).
    CALL "_CLOSE" USING FHANDIDX(1).
    CALL "_CLOSE" USING FHAND(2).
    CALL "_CLOSE" USING FHANDIDX(2).
    CLOSE OUTPUT-FILE.
    STOP RUN.
MAIN-RTN.

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MOVE CODEINO TO CODEDEO.
MOVE NAMEINO TO NAMEDEO.
CALL "_REWIND" USING FHAND(2).
MOVE X"00000000" TO COUNTTOTALREC(2).
CALL "_REWIND" USING FHANDIDX(2).
MOVE X"00" TO COUNTREC(2).
MOVE X"00" TO RECNO(2).
MOVE X"0200" TO RECLEN.
CALL "_READHEAD" USING FHANDIDX(2),HBUFFIDX(2),RECLEN.
MOVE X"0062" TO RECLEN.
CALL "_READHEAD" USING FHAND(2),HBUFF(2),RECLEN.
PERFORM READ-RTN1 UNTIL CODEINO = CODEIN1
OR THERE-IS-NO-MORE-DATA.
MOVE SALARYIN1 TO SALARYDEO.
COMPUTE TAX = 0.7 * SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF TAX ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM1 = SUM1 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM1 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM2 = SUM2 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM2 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM3 = SUM3 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM3 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM4 = SUM4 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM4 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM5 = SUM5 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM5 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM6 = SUM6 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM6 ERROR'
    GO TO CLOSE-FILES-RTN.
IF FIRSTPAGE = 1
    PERFORM CTLBRK-RTN
    PERFORM RH-RTN
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PERFORM PH-RTN
PERFORM CL-RTN
PERFORM CH-DEPTDERTN
MOVE 1 TO LINENO
MOVE 0 TO FIRSTPAGE.
IF LINENO >= 10
    PERFORM NEWPAGE-RTN.
IF CHANDDE = 0
    PERFORM DE-RTN
ELSE
    MOVE 0 TO CHANDDE.
PERFORM CTLBRKCF-RTN.
PERFORM READ-RTNO.
PERFORM CONTROL-RTN.
CONTROL-RTN.
    IF DEPTCT NOT = DEPTINO
        PERFORM CF-DEPTRTN
        PERFORM CTLBRK-RTN
        PERFORM CH-DEPTDERTN.
READ-RTNO.
    MOVE X"0019" TO RECLEN.
    CALL "_READIDX" USING FHANDIDX(1), RECLENIDX(1), BUFFER,
        COUNTREC(1), RECNO(1), FHAND(1), HEADERDBF(1), RECLEN,
        COUNTTOTALREC(1), TOTALREC(1).
    MOVE BUFFER TO INO.
    IF COUNTTOTALREC(1) > TOTALREC(1)
        MOVE 'N' TO MORE-DATA-SWITCH
        GO TO END-REPORT-RTN.
READ-RTN1.
    MOVE X"000D" TO RECLEN.
    CALL "_READIDX" USING FHANDIDX(2), RECLENIDX(2), BUFFER,
        COUNTREC(2), RECNO(2), FHAND(2), HEADERDBF(2), RECLEN,
        COUNTTOTALREC(2), TOTALREC(2).
    MOVE BUFFER TO IN1.
    IF COUNTTOTALREC(2) > TOTALREC(2)
        MOVE 'N' TO MORE-DATA-SWITCH
        DISPLAY "CAN'T RETRIEVE DATA FROM FILE C:\FOXBASE\
        - "TEST2.NDX"

```

GO TO END-REPORT-RTN.

RH-RTN.

WRITE OUT-REC FROM RHO.

PH-RTN.

MOVE PAGENO TO PAGENOPHO.

WRITE OUT-REC FROM PHO.

CL-RTN.

WRITE OUT-REC FROM CLO.

CF-DEPTRTN.

MOVE SUM1 TO SUM1CFO.

MOVE SUM2 TO SUM2CFO.

WRITE OUT-REC FROM CFO.

MOVE 0 TO SUM1.

MOVE 0 TO SUM1CFO.

MOVE 0 TO SUM2.

MOVE 0 TO SUM2CFO.

ADD 1 TO LINENO.

CH-DEPTDERTN.

MOVE TAX TO TAXCHO.

WRITE OUT-REC FROM CHO.

ADD 1 TO LINENO.

MOVE 1 TO CHANDDE.

DE-RTN.

MOVE TAX TO TAXDEO.

WRITE OUT-REC FROM DEO.

ADD 1 TO LINENO.

PF-RTN.

MOVE SUM3 TO SUM3PFO.

MOVE SUM4 TO SUM4PFO.

WRITE OUT-REC FROM PFO.

MOVE 0 TO SUM3.

MOVE 0 TO SUM3PFO.

MOVE 0 TO SUM4.

MOVE 0 TO SUM4PFO.

RF-RTN.

MOVE SUM5 TO SUM5RFO.

MOVE SUM6 TO SUM6RFO.

WRITE OUT-REC FROM RFO.

MOVE 0 TO SUM5.  
MOVE 0 TO SUM5RFO.  
MOVE 0 TO SUM6.  
MOVE 0 TO SUM6RFO.

CTLBRK-RTN.

MOVE DEPTINO TO DEPTCT.  
MOVE DEPTINO TO DEPTCHO.  
MOVE CODEINO TO CODECHO.  
MOVE NAMEINO TO NAMECHO.  
MOVE SALARYIN1 TO SALARYCHO.

CTLBRKCF-RTN.

MOVE DEPTINO TO DEPTCFO.

NEWPAGE-RTN.

PERFORM PF-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 16.  
PERFORM CTLBRK-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 1.  
ADD 1 TO PAGENO.  
PERFORM PH-RTN .  
PERFORM CL-RTN .  
PERFORM CH-DEPTDERTN.  
MOVE 0 TO LINENO.

NEWLINE-RTN.

WRITE OUT-REC FROM NEWLINE.

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย





ภาคผนวก ๓

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## ตัวอย่างโปรแกรมภาษาโคบอลที่ถูกสร้างขึ้นจากแฟ้มข้อมูล Btrieve

IDENTIFICATION DIVISION.  
PROGRAM-ID. OUTPUT-CBL.  
DATE-WRITTEN. 1-03-1993.  
ENVIRONMENT DIVISION.  
INPUT-OUTPUT SECTION.  
FILE-CONTROL.  
    SELECT OUTPUT-FILE ASSIGN TO DISK  
    ACCESS MODE IS SEQUENTIAL  
    ORGANIZATION IS SEQUENTIAL.  
DATA DIVISION.  
FILE SECTION.  
FD OUTPUT-FILE  
    LABEL RECORD IS STANDARD  
    VALUE OF FILE-ID IS "REPORT.TXT"  
    DATA RECORD IS OUT-REC.  
01 OUT-REC PIC X(132).  
WORKING-STORAGE SECTION.  
77 CHANDDE PIC 9 VALUE 0.  
77 FIRSTPAGE PIC 9 VALUE 1.  
77 LINENO PIC 9(2) VALUE 0.  
77 LINECOUNT PIC 9(2) VALUE 0.  
77 PAGELONG PIC 9(2) VALUE 30.  
77 PAGENO PIC 9(2) VALUE 1.  
77 TAX PIC 9(5)V99 VALUE 0.  
77 SUM1 PIC 9(7)V99 VALUE 0.  
77 SUM2 PIC 9(7)V99 VALUE 0.  
77 SUM3 PIC 9(7)V99 VALUE 0.  
77 SUM4 PIC 9(7)V99 VALUE 0.  
77 SUM5 PIC 9(7)V99 VALUE 0.  
77 SUM6 PIC 9(7)V99 VALUE 0.  
77 BOPEN PIC 9(4) COMP-5 VALUE 0.  
77 BCLOSE PIC 9(4) COMP-5 VALUE 1.  
77 GETFIRST PIC 9(4) COMP-5 VALUE 12.  
77 GETNEXT PIC 9(4) COMP-5 VALUE 6.  
77 GETEQUAL PIC 9(4) COMP-5 VALUE 5.

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77 STAT PIC 9(4) COMP-5 VALUE 0.
88 BEOF VALUE 9.
77 KEYNUMBER PIC 9(4) COMP-5 VALUE 0.
01 LEN OCCURS 2 PIC 9(4) COMP-5.
01 POSBLK OCCURS 2 PIC X(128).
01 NEWLINE.
02 FILLER PIC X(130) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 FNAME0.
02 FILLER PIC X(16) VALUE "C:\BTR\TEST1.DAT".
02 FILLER PIC X VALUE X"00".
01 KEYBUFF0 PIC X(4).
01 FNAME1.
02 FILLER PIC X(16) VALUE "C:\BTR\TEST2.DAT".
02 FILLER PIC X VALUE X"00".
01 KEYBUFF1 PIC X(4).
01 IN0.
02 DEPTINO PIC X(10).
02 CODEINO PIC X(4).
02 NAMEINO PIC X(25).
01 IN1.
02 CODEIN1 PIC X(4).
02 SALARYIN1 PIC 9(5)V99.
01 RHO.
02 FILLER PIC X(29) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(21) VALUE "จุฬาลงกรณ์มหาวิทยาลัย".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(78) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 PHO.
02 FILLER PIC X(31) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(14) VALUE "คณะวิทยาศาสตร์".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(23) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "หน้า".
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02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(1) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 PAGENOPHO PIC Z9.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(49) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 CLO.
02 FILLER PIC X(4) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(7) VALUE "ภาควิชา".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(7) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "รหัส".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(15) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "ชื่อ".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(19) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(9) VALUE "เงินเดือน".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(10) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "ภาช".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(37) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 CHO.
02 FILLER PIC X(4) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 DEPTCHO PIC X(10).
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(3) VALUE SPACE.
02 CODECHO PIC X(4).
02 FILLER PIC X(3) VALUE SPACE.

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02 NAMECHO PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 DE0.  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 CODEDE0 PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMEDE0 PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(51) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(2) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCF0 PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM1CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM2CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PF0.

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02 FILLER PIC X(18) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของหน้า".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(17) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM3PFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(3) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM4PFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(40) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 RFO.
02 FILLER PIC X(18) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(21) VALUE "ผลรวมทั้งหมดของรายงาน".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(15) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM5RFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(3) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM6RFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(43) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 CT.
02 DEPTCT PIC X(10).
PROCEDURE DIVISION.
INIT-RTN.
    MOVE 39 TO LEN(1).
    MOVE 11 TO LEN(2).
OPEN-OUTPUT-RTN.
    OPEN OUTPUT OUTPUT-FILE.
OPEN-INPUT-RTN.

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```
MOVE 0 TO KEYNUMBER.
CALL "_BTRV" USING BOPEN, STAT, POSBLK(1), INO, LEN(1)
FNAME0, KEYNUMBER.
MOVE 0 TO KEYNUMBER.
CALL "_BTRV" USING BOPEN, STAT, POSBLK(2), IN1, LEN(2)
FNAME1, KEYNUMBER.
MOVE 0 TO KEYNUMBER.
CALL "_BTRV" USING GETFIRST, STAT, POSBLK(1), INO, LEN(1)
KEYBUFF0, KEYNUMBER.
PERFORM MAIN-RTN UNTIL BEOF.
END-REPORT-RTN.
PERFORM CF-DEPTRTN.
PERFORM PF-RTN .
PERFORM RF-RTN .
CLOSE-FILES-RTN.
MOVE 0 TO KEYNUMBER.
CALL "_BTRV" USING BCLOSE, STAT, POSBLK(1), INO, LEN(1)
KEYBUFF0, KEYNUMBER.
MOVE 0 TO KEYNUMBER.
CALL "_BTRV" USING BCLOSE, STAT, POSBLK(2), IN1, LEN(2)
KEYBUFF1, KEYNUMBER.
CLOSE OUTPUT-FILE.
STOP RUN.
MAIN-RTN.
MOVE CODEINO TO CODEDEO.
MOVE NAMEINO TO NAMEDEO.
MOVE CODEINO TO KEYBUFF1.
PERFORM READ-RTN1.
MOVE SALARYIN1 TO SALARYDEO.
COMPUTE TAX = 0.7 * SALARYIN1
ON SIZE ERROR DISPLAY 'SIZE OF TAX ERROR'
GO TO CLOSE-FILES-RTN.
COMPUTE SUM1 = SUM1 + SALARYIN1
ON SIZE ERROR DISPLAY 'SIZE OF SUM1 ERROR'
GO TO CLOSE-FILES-RTN.
COMPUTE SUM2 = SUM2 + TAX
ON SIZE ERROR DISPLAY 'SIZE OF SUM2 ERROR'
GO TO CLOSE-FILES-RTN.
```

```
COMPUTE SUM3 = SUM3 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM3 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM4 = SUM4 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM4 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM5 = SUM5 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM5 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM6 = SUM6 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM6 ERROR'
    GO TO CLOSE-FILES-RTN.
IF FIRSTPAGE = 1
    PERFORM CTLBRK-RTN
    PERFORM RH-RTN
    PERFORM PH-RTN
    PERFORM CL-RTN
    PERFORM CH-DEPTDERTN
    MOVE 1 TO LINENO
    MOVE 0 TO FIRSTPAGE.
IF LINENO >= 10
    PERFORM NEWPAGE-RTN.
IF CHANDDE = 0
    PERFORM DE-RTN
ELSE
    MOVE 0 TO CHANDDE.
PERFORM CTLBRKCF-RTN.
PERFORM READ-RTNO.
PERFORM CONTROL-RTN.
CONTROL-RTN.
    IF DEPTCT NOT = DEPTINO
        PERFORM CF-DEPTRTN
        PERFORM CTLBRK-RTN
        PERFORM CH-DEPTDERTN.
READ-RTNO.
    MOVE 0 TO KEYNUMBER.
    CALL "_BTRV" USING GETNEXT, STAT, POSBLK(1), INO, LEN(1)
    KEYBUFF0, KEYNUMBER.
```



```
IF BEOF
    GO TO END-REPORT-RTN.
READ-RTN1.
    MOVE 0 TO KEYNUMBER.
    CALL "_BTRV" USING GETEQUAL, STAT, POSBLK(2), IN1, LEN(2)
    KEYBUFF1, KEYNUMBER.
    IF BEOF
        DISPLAY "CAN'T RETRIEVE DATA FROM FILE C:\BTR\
" TEST2.DAT".
        GO TO END-REPORT-RTN.
RH-RTN.
    WRITE OUT-REC FROM RHO.
PH-RTN.
    MOVE PAGENO TO PAGENOPHO.
    WRITE OUT-REC FROM PHO.
CL-RTN.
    WRITE OUT-REC FROM CLO.
CF-DEPTRTN.
    MOVE SUM1 TO SUM1CF0.
    MOVE SUM2 TO SUM2CF0.
    WRITE OUT-REC FROM CFO.
    MOVE 0 TO SUM1.
    MOVE 0 TO SUM1CF0.
    MOVE 0 TO SUM2.
    MOVE 0 TO SUM2CF0.
    ADD 1 TO LINENO.
CH-DEPTDERTN.
    MOVE TAX TO TAXCHO.
    WRITE OUT-REC FROM CHO.
    ADD 1 TO LINENO.
    MOVE 1 TO CHANDDE.
DE-RTN.
    MOVE TAX TO TAXDEO.
    WRITE OUT-REC FROM DEO.
    ADD 1 TO LINENO.
PF-RTN.
    MOVE SUM3 TO SUM3PF0.
    MOVE SUM4 TO SUM4PF0.
```

WRITE OUT-REC FROM PFO.

MOVE 0 TO SUM3.

MOVE 0 TO SUM3PFO.

MOVE 0 TO SUM4.

MOVE 0 TO SUM4PFO.

RF-RTN.

MOVE SUM5 TO SUM5RFO.

MOVE SUM6 TO SUM6RFO.

WRITE OUT-REC FROM RFO.

MOVE 0 TO SUM5.

MOVE 0 TO SUM5RFO.

MOVE 0 TO SUM6.

MOVE 0 TO SUM6RFO.

CTLBRK-RTN.

MOVE DEPTINO TO DEPTCT.

MOVE DEPTINO TO DEPTCHO.

MOVE CODEINO TO CODECHO.

MOVE NAMEINO TO NAMECHO.

MOVE SALARYIN1 TO SALARYCHO.

CTLBRKCF-RTN.

MOVE DEPTINO TO DEPTCFO.

NEWPAGE-RTN.

PERFORM PF-RTN.

PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 16.

PERFORM CTLBRK-RTN.

PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 1.

ADD 1 TO PAGENO.

PERFORM PH-RTN .

PERFORM CL-RTN .

PERFORM CH-DEPTDERTN.

MOVE 0 TO LINENO.

NEWLINE-RTN.

WRITE OUT-REC FROM NEWLINE.



ภาคผนวก ฎ'

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## ตัวอย่างโปรแกรมภาษาโคบอลที่ถูกสร้างขึ้นจากแฟ้มข้อมูล ISAM

IDENTIFICATION DIVISION.

PROGRAM-ID. OUTPUT-CBL.

DATE-WRITTEN. 1-03-1993.

ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT INPUT-FILE0 ASSIGN TO DISK

ORGANIZATION IS INDEXED

ACCESS MODE IS SEQUENTIAL

RECORD KEY IS KEYINO = CODEINO.

SELECT INPUT-FILE1 ASSIGN TO DISK

ORGANIZATION IS INDEXED

ACCESS MODE IS RANDOM

RECORD KEY IS KEYIN1 = CODEIN1.

SELECT OUTPUT-FILE ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS SEQUENTIAL.

DATA DIVISION.

FILE SECTION.

FD INPUT-FILE0

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "C:\ISAM\TEST1.DAT"

DATA RECORD IS INO.

01 INO.

02 DEPTNO PIC X(10).

02 CODEINO PIC X(4).

02 NAMEINO PIC X(25).

FD INPUT-FILE1

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "C:\ISAM\TEST2.DAT"

DATA RECORD IS IN1.

01 IN1.

02 CODEIN1 PIC X(4).

02 SALARYIN1 PIC 9(5)V99.

FD OUTPUT-FILE

LABEL RECORD IS STANDARD  
 VALUE OF FILE-ID IS "REPORT.TXT"  
 DATA RECORD IS OUT-REC.

01 OUT-REC PIC X(132).

WORKING-STORAGE SECTION.

77 CHANDDE PIC 9 VALUE 0.

77 FIRSTPAGE PIC 9 VALUE 1.

77 LINENO PIC 9(2) VALUE 0.

77 LINECOUNT PIC 9(2) VALUE 0.

77 PAGELONG PIC 9(2) VALUE 30.

77 PAGENO PIC 9(2) VALUE 1.

77 TAX PIC 9(5)V99 VALUE 0.

77 SUM1 PIC 9(7)V99 VALUE 0.

77 SUM2 PIC 9(7)V99 VALUE 0.

77 SUM3 PIC 9(7)V99 VALUE 0.

77 SUM4 PIC 9(7)V99 VALUE 0.

77 SUM5 PIC 9(7)V99 VALUE 0.

77 SUM6 PIC 9(7)V99 VALUE 0.

01 MORE-DATA-SWITCH PIC X VALUE 'Y'.

88 THERE-IS-MORE-DATA VALUE 'Y'.

88 THERE-IS-NO-MORE-DATA VALUE 'N'.

01 NEWLINE.

02 FILLER PIC X(130) VALUE SPACE.

02 FILLER PIC X(2) VALUE X"0A0D".

01 RHO.

02 FILLER PIC X(29) VALUE SPACE.

02 FILLER PIC X(1) VALUE X"02".

02 FILLER PIC X(21) VALUE "จุฬาลงกรณ์มหาวิทยาลัย".

02 FILLER PIC X(1) VALUE X"02".

02 FILLER PIC X(78) VALUE SPACE.

02 FILLER PIC X(2) VALUE X"0A0D".

01 PHO.

02 FILLER PIC X(31) VALUE SPACE.

02 FILLER PIC X(1) VALUE X"02".

02 FILLER PIC X(14) VALUE "คณะวิทยาศาสตร์".

02 FILLER PIC X(1) VALUE X"02".

02 FILLER PIC X(23) VALUE SPACE.

02 FILLER PIC X(1) VALUE X"02".

02 FILLER PIC X(4) VALUE "หน้า".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(1) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 PAGENOPHO PIC Z9.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CLO.  
 02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE "ภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "รหัส".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ชื่อ".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(19) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(9) VALUE "เงินเดือน".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(10) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ภาช".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(37) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CHO.  
 02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCHO PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 CODECHO PIC X(4).

02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMECHO PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 DE0.  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 CODEDE0 PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMEDE0 PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(51) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CFO.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(2) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCFO PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM1CFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM2CFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".

01 PFO.

02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของหน้า<sup>นี้</sup>".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM3PFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM4PFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".

01 RFO.

02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(21) VALUE "ผลรวมทั้งหมดของราย<sup>งาน</sup>".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM5RFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM6RFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(43) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".

01 CT.

02 DEPTCT PIC X(10).

PROCEDURE DIVISION.

OPEN-OUTPUT-RTN.

OPEN OUTPUT OUTPUT-FILE.

OPEN-INPUT-RTN.

OPEN INPUT INPUT-FILE0.

OPEN INPUT INPUT-FILE1.



```
PERFORM READ-RTNO.
PERFORM MAIN-RTN
    UNTIL THERE-IS-NO-MORE-DATA.
END-REPORT-RTN.
    PERFORM CF-DEPTRTN.
    PERFORM PF-RTN .
    PERFORM RF-RTN .
CLOSE-FILES-RTN.
    CLOSE INPUT-FILE0.
    CLOSE INPUT-FILE1.
    CLOSE OUTPUT-FILE.
    STOP RUN.
MAIN-RTN.
    MOVE CODEINO TO CODEDEO.
    MOVE NAMEINO TO NAMEDEO.
    MOVE CODEINO TO CODEIN1.
    PERFORM READ-RTN1.
    MOVE SALARYIN1 TO SALARYDEO.
    COMPUTE TAX = 0.7 * SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF TAX ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM1 = SUM1 + SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF SUM1 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM2 = SUM2 + TAX
        ON SIZE ERROR DISPLAY 'SIZE OF SUM2 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM3 = SUM3 + SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF SUM3 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM4 = SUM4 + TAX
        ON SIZE ERROR DISPLAY 'SIZE OF SUM4 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM5 = SUM5 + SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF SUM5 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM6 = SUM6 + TAX
        ON SIZE ERROR DISPLAY 'SIZE OF SUM6 ERROR'
```

```
GO TO CLOSE-FILES-RTN.
IF FIRSTPAGE = 1
  PERFORM CTLBRK-RTN
  PERFORM RH-RTN
  PERFORM PH-RTN
  PERFORM CL-RTN
  PERFORM CH-DEPTDERTN
  MOVE 1 TO LINENO
  MOVE 0 TO FIRSTPAGE.
IF LINENO >= 10
  PERFORM NEWPAGE-RTN.
IF CHANDDE = 0
  PERFORM DE-RTN
ELSE
  MOVE 0 TO CHANDDE.
PERFORM CTLBRKCF-RTN.
PERFORM READ-RTNO.
PERFORM CONTROL-RTN.
CONTROL-RTN.
IF DEPTCT NOT = DEPTINO
  PERFORM CF-DEPTRTN
  PERFORM CTLBRK-RTN
  PERFORM CH-DEPTDERTN.
READ-RTNO.
  READ INPUT-FILE0
  AT END MOVE 'N' TO MORE-DATA-SWITCH
  GO TO END-REPORT-RTN.
READ-RTN1.
  READ INPUT-FILE1
  INVALID KEY DISPLAY "ERROR KEY FIELD"
  MOVE 'N' TO MORE-DATA-SWITCH
  DISPLAY "CAN'T RETRIEVE DATA FROM FILE C:\ISAM\
  - "TEST2.DAT"
  GO TO END-REPORT-RTN.
RH-RTN.
  WRITE OUT-REC FROM RHO.
PH-RTN.
  MOVE PAGENO TO PAGENOPHO.
```

WRITE OUT-REC FROM PHO.  
CL-RTN.

WRITE OUT-REC FROM CLO.  
CF-DEPTRTN.

MOVE SUM1 TO SUM1CF0.  
MOVE SUM2 TO SUM2CF0.  
WRITE OUT-REC FROM CFO.  
MOVE 0 TO SUM1.  
MOVE 0 TO SUM1CF0.  
MOVE 0 TO SUM2.  
MOVE 0 TO SUM2CF0.  
ADD 1 TO LINENO.

CH-DEPTDERTN.  
MOVE TAX TO TAXCHO.  
WRITE OUT-REC FROM CHO.  
ADD 1 TO LINENO.  
MOVE 1 TO CHANDDE.

DE-RTN.  
MOVE TAX TO TAXDEO.  
WRITE OUT-REC FROM DEO.  
ADD 1 TO LINENO.

PF-RTN.  
MOVE SUM3 TO SUM3PFO.  
MOVE SUM4 TO SUM4PFO.  
WRITE OUT-REC FROM PFO.  
MOVE 0 TO SUM3.  
MOVE 0 TO SUM3PFO.  
MOVE 0 TO SUM4.  
MOVE 0 TO SUM4PFO.

RF-RTN.  
MOVE SUM5 TO SUM5RFO.  
MOVE SUM6 TO SUM6RFO.  
WRITE OUT-REC FROM RFO.  
MOVE 0 TO SUM5.  
MOVE 0 TO SUM5RFO.  
MOVE 0 TO SUM6.  
MOVE 0 TO SUM6RFO.

CTLBRK-RTN.

MOVE DEPTINO TO DEPTCT.  
MOVE DEPTINO TO DEPTCHO.  
MOVE CODEINO TO CODECHO.  
MOVE NAMEINO TO NAMECHO.  
MOVE SALARYIN1 TO SALARYCHO.  
CTLBRKCF-RTN.  
MOVE DEPTINO TO DEPTCFO.  
NEWPAGE-RTN.  
PERFORM PF-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 16.  
PERFORM CTLBRK-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 1.  
ADD 1 TO PAGENO.  
PERFORM PH-RTN .  
PERFORM CL-RTN .  
PERFORM CH-DEPTDERTN.  
MOVE 0 TO LINENO.  
NEWLINE-RTN.  
WRITE OUT-REC FROM NEWLINE.

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



ภาคผนวก ๕

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ตัวอย่างโปรแกรมภาษาโคบอลที่ถูกสร้างขึ้นจากแฟ้มข้อมูล TEXT  
ประเภท COBOL Variable Length Record

IDENTIFICATION DIVISION.

PROGRAM-ID. OUTPUT-CBL.

DATE-WRITTEN. 1-03-1993.

ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT INPUT-FILE0 ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS LINE SEQUENTIAL.

SELECT INPUT-FILE1 ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS LINE SEQUENTIAL.

SELECT OUTPUT-FILE ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS SEQUENTIAL.

DATA DIVISION.

FILE SECTION.

FD INPUT-FILE0

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "C:\COBOLTEX\TEST1.DAT"

DATA RECORD IS IN0.

01 IN0.

02 DEPTINO PIC X(10).

02 CODEINO PIC X(4).

02 NAMEINO PIC X(25).

FD INPUT-FILE1

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "C:\COBOLTEX\TEST2.DAT"

DATA RECORD IS IN1.

01 IN1.

02 CODEIN1 PIC X(4).

02 SALARYIN1 PIC 9(5)V99.

FD OUTPUT-FILE

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "REPORT.TXT"  
 DATA RECORD IS OUT-REC.  
 01 OUT-REC PIC X(132).  
 WORKING-STORAGE SECTION.  
 77 CHANDDE PIC 9 VALUE 0.  
 77 FIRSTPAGE PIC 9 VALUE 1.  
 77 LINENO PIC 9(2) VALUE 0.  
 77 LINECOUNT PIC 9(2) VALUE 0.  
 77 PAGELONG PIC 9(2) VALUE 30.  
 77 PAGENO PIC 9(2) VALUE 1.  
 77 TAX PIC 9(5)V99 VALUE 0.  
 77 SUM1 PIC 9(7)V99 VALUE 0.  
 77 SUM2 PIC 9(7)V99 VALUE 0.  
 77 SUM3 PIC 9(7)V99 VALUE 0.  
 77 SUM4 PIC 9(7)V99 VALUE 0.  
 77 SUM5 PIC 9(7)V99 VALUE 0.  
 77 SUM6 PIC 9(7)V99 VALUE 0.  
 01 MORE-DATA-SWITCH PIC X VALUE 'Y'.  
     88 THERE-IS-MORE-DATA VALUE 'Y'.  
     88 THERE-IS-NO-MORE-DATA VALUE 'N'.  
 01 NEWLINE.  
     02 FILLER PIC X(130) VALUE SPACE.  
     02 FILLER PIC X(2) VALUE X"0A0D".  
 01 RHO.  
     02 FILLER PIC X(29) VALUE SPACE.  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(21) VALUE "จุฬาลงกรณ์มหาวิทยาลัย".  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(78) VALUE SPACE.  
     02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PHO.  
     02 FILLER PIC X(31) VALUE SPACE.  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(14) VALUE "คณะวิทยาศาสตร์".  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(23) VALUE SPACE.  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(4) VALUE "หน้า".

02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(1) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 PAGENOPHO PIC Z9.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".

## 01 CLO.

02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE "ภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "รหัส".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ชื่อ".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(19) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(9) VALUE "เงินเดือน".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(10) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ภาช".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(37) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".

## 01 CHO.

02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCHO PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 CODECHO PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.



02 NAMECHO PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 DE0.  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 CODEDE0 PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMEDE0 PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(51) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(2) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCF0 PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM1CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM2CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PF0.

02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของหน้า๕".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM3PF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM4PF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 RF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(21) VALUE "ผลรวมทั้งหมดของรายงาน".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM5RF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM6RF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(43) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CT.  
 02 DEPTCT PIC X(10).  
 PROCEDURE DIVISION.  
 OPEN-OUTPUT-RTN.  
 OPEN OUTPUT OUTPUT-FILE.  
 OPEN-INPUT-RTN.  
 OPEN INPUT INPUT-FILE0.  
 PERFORM READ-RTNO.  
 PERFORM MAIN-RTN

UNTIL THERE-IS-NO-MORE-DATA.

END-REPORT-RTN.

PERFORM CF-DEPTRTN.

PERFORM PF-RTN .

PERFORM RF-RTN .

CLOSE-FILES-RTN.

CLOSE INPUT-FILE0.

CLOSE OUTPUT-FILE.

STOP RUN.

MAIN-RTN.

MOVE CODEINO TO CODEDE0.

MOVE NAMEINO TO NAMEDE0.

OPEN INPUT INPUT-FILE1.

PERFORM READ-RTN1 UNTIL CODEINO = CODEIN1.

CLOSE INPUT-FILE1.

MOVE SALARYIN1 TO SALARYDE0.

COMPUTE TAX = 0.7 \* SALARYIN1

ON SIZE ERROR DISPLAY 'SIZE OF TAX ERROR'

GO TO CLOSE-FILES-RTN.

COMPUTE SUM1 = SUM1 + SALARYIN1

ON SIZE ERROR DISPLAY 'SIZE OF SUM1 ERROR'

GO TO CLOSE-FILES-RTN.

COMPUTE SUM2 = SUM2 + TAX

ON SIZE ERROR DISPLAY 'SIZE OF SUM2 ERROR'

GO TO CLOSE-FILES-RTN.

COMPUTE SUM3 = SUM3 + SALARYIN1

ON SIZE ERROR DISPLAY 'SIZE OF SUM3 ERROR'

GO TO CLOSE-FILES-RTN.

COMPUTE SUM4 = SUM4 + TAX

ON SIZE ERROR DISPLAY 'SIZE OF SUM4 ERROR'

GO TO CLOSE-FILES-RTN.

COMPUTE SUM5 = SUM5 + SALARYIN1

ON SIZE ERROR DISPLAY 'SIZE OF SUM5 ERROR'

GO TO CLOSE-FILES-RTN.

COMPUTE SUM6 = SUM6 + TAX

ON SIZE ERROR DISPLAY 'SIZE OF SUM6 ERROR'

GO TO CLOSE-FILES-RTN.

IF FIRSTPAGE = 1

```
PERFORM CTLBRK-RTN
PERFORM RH-RTN
PERFORM PH-RTN
PERFORM CL-RTN
PERFORM CH-DEPTDERTN
MOVE 1 TO LINENO
MOVE 0 TO FIRSTPAGE.
IF LINENO >= 10
    PERFORM NEWPAGE-RTN.
IF CHANDDE = 0
    PERFORM DE-RTN
ELSE
    MOVE 0 TO CHANDDE.
PERFORM CTLBRKCF-RTN.
PERFORM READ-RTNO.
PERFORM CONTROL-RTN.
CONTROL-RTN.
IF DEPTCT NOT = DEPTINO
    PERFORM CF-DEPTRTN
    PERFORM CTLBRK-RTN
    PERFORM CH-DEPTDERTN.
READ-RTNO.
READ INPUT-FILEO INTO INO
AT END MOVE 'N' TO MORE-DATA-SWITCH
GO TO END-REPORT-RTN.
READ-RTN1.
READ INPUT-FILE1 INTO IN1
AT END MOVE 'N' TO MORE-DATA-SWITCH
DISPLAY "CAN'T RETRIEVE DATA FROM FILE C:\COBOLTEX\
- "TEST2.DAT"
GO TO END-REPORT-RTN.
RH-RTN.
WRITE OUT-REC FROM RHO.
PH-RTN.
MOVE PAGENO TO PAGENOPHO.
WRITE OUT-REC FROM PHO.
CL-RTN.
WRITE OUT-REC FROM CLO.
```

## CF-DEPTRTN.

MOVE SUM1 TO SUM1CF0.  
MOVE SUM2 TO SUM2CF0.  
WRITE OUT-REC FROM CF0.  
MOVE 0 TO SUM1.  
MOVE 0 TO SUM1CF0.  
MOVE 0 TO SUM2.  
MOVE 0 TO SUM2CF0.  
ADD 1 TO LINENO.

## CH-DEPTDERTN.

MOVE TAX TO TAXCHO.  
WRITE OUT-REC FROM CHO.  
ADD 1 TO LINENO.  
MOVE 1 TO CHANDDE.

## DE-RTN.

MOVE TAX TO TAXDEO.  
WRITE OUT-REC FROM DEO.  
ADD 1 TO LINENO.

## PF-RTN.

MOVE SUM3 TO SUM3PF0.  
MOVE SUM4 TO SUM4PF0.  
WRITE OUT-REC FROM PF0.  
MOVE 0 TO SUM3.  
MOVE 0 TO SUM3PF0.  
MOVE 0 TO SUM4.  
MOVE 0 TO SUM4PF0.

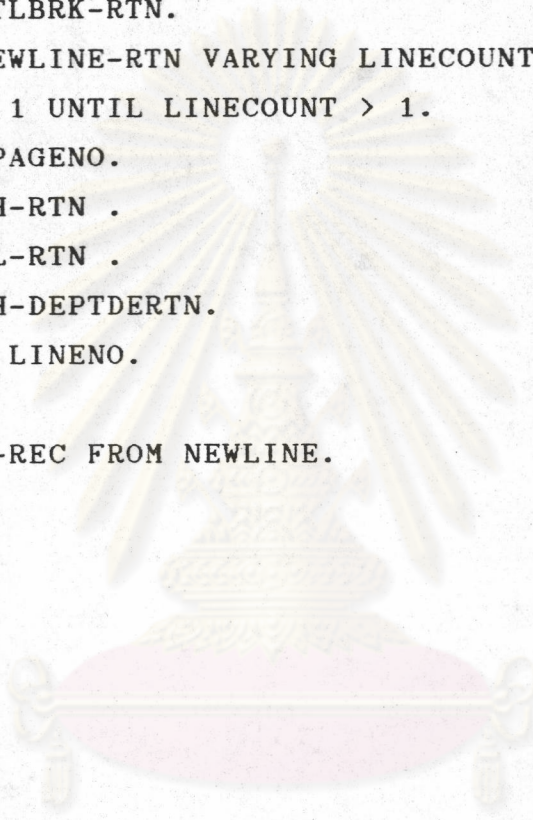
## RF-RTN.

MOVE SUM5 TO SUM5RF0.  
MOVE SUM6 TO SUM6RF0.  
WRITE OUT-REC FROM RFO.  
MOVE 0 TO SUM5.  
MOVE 0 TO SUM5RF0.  
MOVE 0 TO SUM6.  
MOVE 0 TO SUM6RF0.

## CTLBRK-RTN.

MOVE DEPTINO TO DEPTCT.  
MOVE DEPTINO TO DEPTCHO.  
MOVE CODEINO TO CODECHO.

MOVE NAMEINO TO NAMECHO.  
MOVE SALARYIN1 TO SALARYCHO.  
CTLBRKCF-RTN.  
MOVE DEPTINO TO DEPTCFO.  
NEWPAGE-RTN.  
PERFORM PF-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 16.  
PERFORM CTLBRK-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 1.  
ADD 1 TO PAGENO.  
PERFORM PH-RTN .  
PERFORM CL-RTN .  
PERFORM CH-DEPTDERTN.  
MOVE 0 TO LINENO.  
NEWLINE-RTN.  
WRITE OUT-REC FROM NEWLINE.



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



ภาคผนวก ท

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ตัวอย่างโปรแกรมภาษาโคบอลที่ถูกร่างขึ้นจากแฟ้มข้อมูล TEXT  
ประเภท COBOL Fixed Length Record

IDENTIFICATION DIVISION.

PROGRAM-ID. OUTPUT-CBL.

DATE-WRITTEN. 1-03-1993.

ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT INPUT-FILE0 ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS RECORD SEQUENTIAL.

SELECT INPUT-FILE1 ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS RECORD SEQUENTIAL.

SELECT OUTPUT-FILE ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS SEQUENTIAL.

DATA DIVISION.

FILE SECTION.

FD INPUT-FILE0

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "C:\FIXCOBOL\TEST1.DAT"

DATA RECORD IS INO.

01 INO.

02 DEPTINO PIC X(10).

02 CODEINO PIC X(4).

02 NAMEINO PIC X(10).

FD INPUT-FILE1

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "C:\FIXCOBOL\TEST2.DAT"

DATA RECORD IS IN1.

01 IN1.

02 CODEIN1 PIC X(4).

02 SALARYIN1 PIC 9(5)V99.

FD OUTPUT-FILE

LABEL RECORD IS STANDARD



VALUE OF FILE-ID IS "REPORT.TXT"  
 DATA RECORD IS OUT-REC.  
 01 OUT-REC PIC X(132).  
 WORKING-STORAGE SECTION.  
 77 CHANDDE PIC 9 VALUE 0.  
 77 FIRSTPAGE PIC 9 VALUE 1.  
 77 LINENO PIC 9(2) VALUE 0.  
 77 LINECOUNT PIC 9(2) VALUE 0.  
 77 PAGELONG PIC 9(2) VALUE 30.  
 77 PAGENO PIC 9(2) VALUE 1.  
 77 TAX PIC 9(5)V99 VALUE 0.  
 77 SUM1 PIC 9(7)V99 VALUE 0.  
 77 SUM2 PIC 9(7)V99 VALUE 0.  
 77 SUM3 PIC 9(7)V99 VALUE 0.  
 77 SUM4 PIC 9(7)V99 VALUE 0.  
 77 SUM5 PIC 9(7)V99 VALUE 0.  
 77 SUM6 PIC 9(7)V99 VALUE 0.  
 01 MORE-DATA-SWITCH PIC X VALUE 'Y'.  
     88 'THERE-IS-MORE-DATA VALUE 'Y'.  
     88 THERE-IS-NO-MORE-DATA VALUE 'N'.  
 01 NEWLINE.  
     02 FILLER PIC X(130) VALUE SPACE.  
     02 FILLER PIC X(2) VALUE X"0A0D".  
 01 TOTALREC OCCURS 2 PIC 9(2).  
 01 COUNTTOTALREC OCCURS 2 PIC 9(2) VALUE 0.  
 01 RHO.  
     02 FILLER PIC X(29) VALUE SPACE.  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(21) VALUE "จุฬาลงกรณ์มหาวิทยาลัย".  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(78) VALUE SPACE.  
     02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PHO.  
     02 FILLER PIC X(31) VALUE SPACE.  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(14) VALUE "คณะวิทยาศาสตร์".  
     02 FILLER PIC X(1) VALUE X"02".  
     02 FILLER PIC X(23) VALUE SPACE.

02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(4) VALUE "หน้า".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(1) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 PAGENOPHO PIC Z9.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(49) VALUE SPACE.  
02 FILLER PIC X(2) VALUE X"0A0D".

01 CLO.

02 FILLER PIC X(4) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(7) VALUE "ภาควิชา".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(7) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(4) VALUE "รหัส".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(15) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(4) VALUE "ชื่อ".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(19) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(9) VALUE "เงินเดือน".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(10) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(4) VALUE "ภาช".  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(37) VALUE SPACE.  
02 FILLER PIC X(2) VALUE X"0A0D".

01 CHO.

02 FILLER PIC X(4) VALUE SPACE.  
02 FILLER PIC X(1) VALUE X"02".  
02 DEPTCHO PIC X(10).  
02 FILLER PIC X(1) VALUE X"02".  
02 FILLER PIC X(3) VALUE SPACE.

02 CODECHO PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMECHO PIC X(10).  
 02 FILLER PIC X(21) VALUE SPACE.  
 02 SALARYCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXCHO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 DEO.  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 CODEDEO PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMEDEO PIC X(10).  
 02 FILLER PIC X(21) VALUE SPACE.  
 02 SALARYDEO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXDEO PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(51) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CFO.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(2) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCFO PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM1CFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM2CFO PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.

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02 FILLER PIC X(2) VALUE X"0A0D".
01 PFO.
02 FILLER PIC X(18) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของหน้าสี่".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(17) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM3PFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(3) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM4PFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(40) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 RFO.
02 FILLER PIC X(18) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(21) VALUE "ผลรวมทั้งหมดของรายงาน".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(15) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM5RFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(3) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM6RFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(43) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 CT.
02 DEPTCT PIC X(10).
PROCEDURE DIVISION.
INIT-RTN.
MOVE 10 TO TOTALREC(1).
MOVE 10 TO TOTALREC(2).
OPEN-OUTPUT-RTN.

```

```
OPEN OUTPUT OUTPUT-FILE.
OPEN-INPUT-RTN.
OPEN INPUT INPUT-FILE0.
PERFORM READ-RTNO.
PERFORM MAIN-RTN
    UNTIL COUNTTOTALREC(1) > TOTALREC(1)
    OR THERE-IS-NO-MORE-DATA.
END-REPORT-RTN.
PERFORM CF-DEPTRTN.
PERFORM PF-RTN .
PERFORM RF-RTN .
CLOSE-FILES-RTN.
CLOSE INPUT-FILE0.
CLOSE OUTPUT-FILE.
STOP RUN.
MAIN-RTN.
MOVE CODEINO TO CODEDEO.
MOVE NAMEINO TO NAMEDEO.
OPEN INPUT INPUT-FILE1.
MOVE 0 TO COUNTTOTALREC(2).
PERFORM READ-RTN1 UNTIL CODEINO = CODEIN1
OR THERE-IS-NO-MORE-DATA.
CLOSE INPUT-FILE1.
MOVE SALARYIN1 TO SALARYDEO.
COMPUTE TAX = 0.7 * SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF TAX ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM1 = SUM1 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM1 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM2 = SUM2 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM2 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM3 = SUM3 + SALARYIN1
    ON SIZE ERROR DISPLAY 'SIZE OF SUM3 ERROR'
    GO TO CLOSE-FILES-RTN.
COMPUTE SUM4 = SUM4 + TAX
    ON SIZE ERROR DISPLAY 'SIZE OF SUM4 ERROR'
```

```

GO TO CLOSE-FILES-RTN.
COMPUTE SUM5 = SUM5 + SALARYIN1
ON SIZE ERROR DISPLAY 'SIZE OF SUM5 ERROR'
GO TO CLOSE-FILES-RTN.
COMPUTE SUM6 = SUM6 + TAX
ON SIZE ERROR DISPLAY 'SIZE OF SUM6 ERROR'
GO TO CLOSE-FILES-RTN.
IF FIRSTPAGE = 1
PERFORM CTLBRK-RTN
PERFORM RH-RTN
PERFORM PH-RTN
PERFORM CL-RTN
PERFORM CH-DEPTDERTN
MOVE 1 TO LINENO
MOVE 0 TO FIRSTPAGE.
IF LINENO >= 10
PERFORM NEWPAGE-RTN.
IF CHANDDE = 0
PERFORM DE-RTN
ELSE
MOVE 0 TO CHANDDE.
PERFORM CTLBRKCF-RTN.
PERFORM READ-RTNO.
PERFORM CONTROL-RTN.
CONTROL-RTN.
IF DEPTCT NOT = DEPTINO
PERFORM CF-DEPTRTN
PERFORM CTLBRK-RTN
PERFORM CH-DEPTDERTN.
READ-RTNO.
ADD 1 TO COUNTTOTALREC(1).
IF COUNTTOTALREC(1) > TOTALREC(1)
GO TO END-REPORT-RTN.
READ INPUT-FILEO INTO INO.
READ-RTN1.
ADD 1 TO COUNTTOTALREC(2).
IF COUNTTOTALREC(2) > TOTALREC(2)
DISPLAY "CAN'T RETRIEVE DATA FROM FILE C:\FIXCOBOL\

```

- "TEST2.DAT"

GO TO END-REPORT-RTN.

READ INPUT-FILE1 INTO IN1.

RH-RTN.

WRITE OUT-REC FROM RHO.

PH-RTN.

MOVE PAGENO TO PAGENOPHO.

WRITE OUT-REC FROM PHO.

CL-RTN.

WRITE OUT-REC FROM CLO.

CF-DEPTRTN.

MOVE SUM1 TO SUM1CFO.

MOVE SUM2 TO SUM2CFO.

WRITE OUT-REC FROM CFO.

MOVE 0 TO SUM1.

MOVE 0 TO SUM1CFO.

MOVE 0 TO SUM2.

MOVE 0 TO SUM2CFO.

ADD 1 TO LINENO.

CH-DEPTDERTN.

MOVE TAX TO TAXCHO.

WRITE OUT-REC FROM CHO.

ADD 1 TO LINENO.

MOVE 1 TO CHANDDE.

DE-RTN.

MOVE TAX TO TAXDEO.

WRITE OUT-REC FROM DEO.

ADD 1 TO LINENO.

PF-RTN.

MOVE SUM3 TO SUM3PFO.

MOVE SUM4 TO SUM4PFO.

WRITE OUT-REC FROM PFO.

MOVE 0 TO SUM3.

MOVE 0 TO SUM3PFO.

MOVE 0 TO SUM4.

MOVE 0 TO SUM4PFO.

RF-RTN.

MOVE SUM5 TO SUM5RFO.

MOVE SUM6 TO SUM6RFO.  
WRITE OUT-REC FROM RFO.  
MOVE 0 TO SUM5.  
MOVE 0 TO SUM5RFO.  
MOVE 0 TO SUM6.  
MOVE 0 TO SUM6RFO.  
CTLBRK-RTN.  
MOVE DEPTINO TO DEPTCT.  
MOVE DEPTINO TO DEPTCHO.  
MOVE CODEINO TO CODECHO.  
MOVE NAMEINO TO NAMECHO.  
MOVE SALARYIN1 TO SALARYCHO.  
CTLBRKCF-RTN.  
MOVE DEPTINO TO DEPTCFO.  
NEWPAGE-RTN.  
PERFORM PF-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 16.  
PERFORM CTLBRK-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 1.  
ADD 1 TO PAGENO.  
PERFORM PH-RTN .  
PERFORM CL-RTN .  
PERFORM CH-DEPTDERTN.  
MOVE 0 TO LINENO.  
NEWLINE-RTN.  
WRITE OUT-REC FROM NEWLINE.





ภาคผนวก ๗

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ตัวอย่างโปรแกรมภาษาโคบอลที่ถูกสร้างขึ้นจากแฟ้มข้อมูล TEXT  
ประเภท Other Fixed Length Record

IDENTIFICATION DIVISION.

PROGRAM-ID. OUTPUT-CBL.

DATE-WRITTEN. 1-03-1993.

ENVIRONMENT DIVISION.

INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT OUTPUT-FILE ASSIGN TO DISK

ACCESS MODE IS SEQUENTIAL

ORGANIZATION IS SEQUENTIAL.

DATA DIVISION.

FILE SECTION.

FD OUTPUT-FILE

LABEL RECORD IS STANDARD

VALUE OF FILE-ID IS "REPORT.TXT"

DATA RECORD IS OUT-REC.

01 OUT-REC PIC X(132).

WORKING-STORAGE SECTION.

77 CHANDDE PIC 9 VALUE 0.

77 FIRSTPAGE PIC 9 VALUE 1.

77 LINENO PIC 9(2) VALUE 0.

77 LINECOUNT PIC 9(2) VALUE 0.

77 PAGELONG PIC 9(2) VALUE 30.

77 PAGENO PIC 9(2) VALUE 1.

77 TAX PIC 9(5)V99 VALUE 0.

77 SUM1 PIC 9(7)V99 VALUE 0.

77 SUM2 PIC 9(7)V99 VALUE 0.

77 SUM3 PIC 9(7)V99 VALUE 0.

77 SUM4 PIC 9(7)V99 VALUE 0.

77 SUM5 PIC 9(7)V99 VALUE 0.

77 SUM6 PIC 9(7)V99 VALUE 0.

01 MORE-DATA-SWITCH PIC X VALUE 'Y'.

88 THERE-IS-MORE-DATA VALUE 'Y'.

88 THERE-IS-NO-MORE-DATA VALUE 'N'.

01 NEWLINE.

```

02 FILLER PIC X(130) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 FNAME0.
02 FILLER PIC X(21) VALUE "C:\OTHERTEX\TEST1.DAT".
02 FILLER PIC X VALUE X"00".
01 FNAME1.
02 FILLER PIC X(21) VALUE "C:\OTHERTEX\TEST2.DAT".
02 FILLER PIC X VALUE X"00".
01 BUFFER PIC X(39).
01 RECLEN PIC XX.
01 FHAND OCCURS 2 PIC XX.
01 TOTALREC OCCURS 2 PIC X(4).
01 COUNTTOTALREC OCCURS 2 PIC X(4) VALUE X"00000000".
01 IN0.
02 DEPTINO PIC X(10).
02 CODEINO PIC X(4).
02 NAMEINO PIC X(25).
01 IN1.
02 CODEIN1 PIC X(4).
02 SALARYIN1 PIC 9(5)V99.
01 RHO.
02 FILLER PIC X(29) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(21) VALUE "จุฬาลงกรณ์มหาวิทยาลัย".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(78) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 PHO.
02 FILLER PIC X(31) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(14) VALUE "คณะวิทยาศาสตร์".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(23) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(4) VALUE "หน้า".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(1) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".

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02 PAGENOPHO PIC Z9.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CLO.  
 02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE "ภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(7) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "รหัส".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(15) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ชื่อ".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(19) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(9) VALUE "เงินเดือน".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(10) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(4) VALUE "ภาช".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(37) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CHO.  
 02 FILLER PIC X(4) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCHO PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 CODECHO PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMECHO PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYCHO PIC ZZ,ZZ9.99.

02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXCH0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(49) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 DE0.  
 02 FILLER PIC X(17) VALUE SPACE.  
 02 CODEDE0 PIC X(4).  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 NAMEDE0 PIC X(25).  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 SALARYDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(6) VALUE SPACE.  
 02 TAXDE0 PIC ZZ,ZZ9.99.  
 02 FILLER PIC X(51) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 CF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของภาควิชา".  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(2) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 DEPTCF0 PIC X(10).  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM1CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(3) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 SUM2CF0 PIC Z,ZZZ,ZZ9.99.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(40) VALUE SPACE.  
 02 FILLER PIC X(2) VALUE X"0A0D".  
 01 PF0.  
 02 FILLER PIC X(18) VALUE SPACE.  
 02 FILLER PIC X(1) VALUE X"02".  
 02 FILLER PIC X(22) VALUE "ผลรวมทั้งหมดของหน้า".

```

02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(17) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM3PFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(3) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM4PFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(40) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 RFO.
02 FILLER PIC X(18) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(21) VALUE "ผลรวมทั้งหมดของรายงาน".
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(15) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM5RFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(3) VALUE SPACE.
02 FILLER PIC X(1) VALUE X"02".
02 SUM6RFO PIC Z,ZZZ,ZZ9.99.
02 FILLER PIC X(1) VALUE X"02".
02 FILLER PIC X(43) VALUE SPACE.
02 FILLER PIC X(2) VALUE X"0A0D".
01 CT.
02 DEPTCT PIC X(10).
PROCEDURE DIVISION.
INIT-RTN.
    MOVE X"00000006" TO TOTALREC(1).
    MOVE X"00000008" TO TOTALREC(2).
OPEN-OUTPUT-RTN.
    OPEN OUTPUT OUTPUT-FILE.
OPEN-INPUT-RTN.
    CALL "_OPEN" USING FNAME0,FHAND(1).
    CALL "_OPEN" USING FNAME1,FHAND(2).
    PERFORM READ-RTN0.

```

```
PERFORM MAIN-RTN
    UNTIL COUNTTOTALREC(1) > TOTALREC(1)
    OR THERE-IS-NO-MORE-DATA.
END-REPORT-RTN.
PERFORM CF-DEPTRTN.
PERFORM PF-RTN .
PERFORM RF-RTN .
CLOSE-FILES-RTN.
    CALL "_CLOSE" USING FHAND(1).
    CALL "_CLOSE" USING FHAND(2).
    CLOSE OUTPUT-FILE.
    STOP RUN.
MAIN-RTN.
    MOVE CODEINO TO CODEDEO.
    MOVE NAMEINO TO NAMEDEO.
    CALL "_REWIND" USING FHAND(2).
    MOVE X"00000000" TO COUNTTOTALREC(2) .
    PERFORM READ-RTN1 UNTIL CODEINO = CODEIN1
OR THERE-IS-NO-MORE-DATA.
    MOVE SALARYIN1 TO SALARYDEO.
    COMPUTE TAX = 0.7 * SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF TAX ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM1 = SUM1 + SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF SUM1 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM2 = SUM2 + TAX
        ON SIZE ERROR DISPLAY 'SIZE OF SUM2 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM3 = SUM3 + SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF SUM3 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM4 = SUM4 + TAX
        ON SIZE ERROR DISPLAY 'SIZE OF SUM4 ERROR'
        GO TO CLOSE-FILES-RTN.
    COMPUTE SUM5 = SUM5 + SALARYIN1
        ON SIZE ERROR DISPLAY 'SIZE OF SUM5 ERROR'
        GO TO CLOSE-FILES-RTN.
```

```
COMPUTE SUM6 = SUM6 + TAX
      ON SIZE ERROR DISPLAY 'SIZE OF SUM6 ERROR'
      GO TO CLOSE-FILES-RTN.
IF FIRSTPAGE = 1
      PERFORM CTLBRK-RTN
      PERFORM RH-RTN
      PERFORM PH-RTN
      PERFORM CL-RTN
      PERFORM CH-DEPTDERTN
      MOVE 1 TO LINENO
      MOVE 0 TO FIRSTPAGE.
IF LINENO >= 10
      PERFORM NEWPAGE-RTN.
IF CHANDDE = 0
      PERFORM DE-RTN
ELSE
      MOVE 0 TO CHANDDE.
PERFORM CTLBRKCF-RTN.
PERFORM READ-RTNO.
PERFORM CONTROL-RTN.
CONTROL-RTN.
      IF DEPTCT NOT = DEPTINO
          PERFORM CF-DEPTRTN
          PERFORM CTLBRK-RTN
          PERFORM CH-DEPTDERTN.
READ-RTNO.
      MOVE X"0027" TO RECLEN.
      CALL "_READ" USING FHAND(1), BUFFER, RECLEN, COUNTTOTALREC(1),
          TOTALREC(1).
      MOVE BUFFER TO INO .
      IF COUNTTOTALREC(1) > TOTALREC(1)
          MOVE 'N' TO MORE-DATA-SWITCH
          GO TO END-REPORT-RTN.
READ-RTN1.
      MOVE X"000C" TO RECLEN.
      CALL "_READ" USING FHAND(2), BUFFER, RECLEN, COUNTTOTALREC(2),
          TOTALREC(1).
      MOVE BUFFER TO IN1 .
```



```
IF COUNTTOTALREC(2) > TOTALREC(2)
  MOVE 'N' TO MORE-DATA-SWITCH
  DISPLAY "CAN'T RETRIEVE DATA FROM FILE C:\OTHERTEX\
- "TEST2.DAT"
  GO TO END-REPORT-RTN.
```

RH-RTN.

```
WRITE OUT-REC FROM RHO.
```

PH-RTN.

```
MOVE PAGENO TO PAGENOPHO.
```

```
WRITE OUT-REC FROM PHO.
```

CL-RTN.

```
WRITE OUT-REC FROM CLO.
```

CF-DEPTRTN.

```
MOVE SUM1 TO SUM1CF0.
```

```
MOVE SUM2 TO SUM2CF0.
```

```
WRITE OUT-REC FROM CF0.
```

```
MOVE 0 TO SUM1.
```

```
MOVE 0 TO SUM1CF0.
```

```
MOVE 0 TO SUM2.
```

```
MOVE 0 TO SUM2CF0.
```

```
ADD 1 TO LINENO.
```

CH-DEPTDERTN.

```
MOVE TAX TO TAXCHO.
```

```
WRITE OUT-REC FROM CHO.
```

```
ADD 1 TO LINENO.
```

```
MOVE 1 TO CHANDDE.
```

DE-RTN.

```
MOVE TAX TO TAXDEO.
```

```
WRITE OUT-REC FROM DEO.
```

```
ADD 1 TO LINENO.
```

PF-RTN.

```
MOVE SUM3 TO SUM3PF0.
```

```
MOVE SUM4 TO SUM4PF0.
```

```
WRITE OUT-REC FROM PF0.
```

```
MOVE 0 TO SUM3.
```

```
MOVE 0 TO SUM3PF0.
```

```
MOVE 0 TO SUM4.
```

```
MOVE 0 TO SUM4PF0.
```

RF-RTN.

MOVE SUM5 TO SUM5RFO.  
MOVE SUM6 TO SUM6RFO.  
WRITE OUT-REC FROM RFO.  
MOVE 0 TO SUM5.  
MOVE 0 TO SUM5RFO.  
MOVE 0 TO SUM6.  
MOVE 0 TO SUM6RFO.

CTLBRK-RTN.

MOVE DEPTINO TO DEPTCT.  
MOVE DEPTINO TO DEPTCHO.  
MOVE CODEINO TO CODECHO.  
MOVE NAMEINO TO NAMECHO.  
MOVE SALARYIN1 TO SALARYCHO.

CTLBRKCF-RTN.

MOVE DEPTINO TO DEPTCFO.

NEWPAGE-RTN.

PERFORM PF-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 16.  
PERFORM CTLBRK-RTN.  
PERFORM NEWLINE-RTN VARYING LINECOUNT  
FROM 1 BY 1 UNTIL LINECOUNT > 1.  
ADD 1 TO PAGENO.  
PERFORM PH-RTN .  
PERFORM CL-RTN .  
PERFORM CH-DEPTDERTN.  
MOVE 0 TO LINENO.

NEWLINE-RTN.

WRITE OUT-REC FROM NEWLINE.



ภาคผนวก ฅ

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## ตัวอย่างรายงานที่ได้จากภาษาโคบอล

จุฬาลงกรณ์มหาวิทยาลัย				
คณะวิทยาศาสตร์				
ภาควิชา	รหัส	ชื่อ	เงินเดือน	หน้า 1
Math	1000	Atchara Prasanchati	10,000.50	7,000.35
	1100	Somrudee Ragdee	11,000.00	7,700.00
	1200	Benjaporn Somsri	12,000.75	8,400.52
	1300	Somsri Chokdee	13,000.25	9,100.17
	1400	Pornpun Unvijit	14,500.25	10,150.17
	1500	Wena Chanpibul	15,000.50	10,500.35
	ผลรวมทั้งหมดของภาควิชา Math			75,502.25
Biology	1600	Petcharat Srikaew	15,000.50	10,500.35
	1700	Somchai thongdee	17,000.00	11,900.00
	1800	Somsak Reannan	18,500.75	12,950.52
	ผลรวมทั้งหมดของหน้า 1			146,503.75

คณะวิทยาศาสตร์				
ภาควิชา	รหัส	ชื่อ	เงินเดือน	หน้า 2
Biology	1900	Wanchai Pongsri	19,000.00	13,300.00
	2000	Wassana Suntatarak	20,000.00	14,000.00
	2100	Malinee Chupsuwan	21,000.00	14,700.00
	2200	Nongnut Sombat	22,000.00	15,400.00
	2300	Warinee Arunmongkon	23,000.00	16,100.00
	2400	Nucharee Chareanthap	24,000.00	16,800.00
	2500	Jaruwan Witayawatanapisal	25,000.00	17,500.00
	ผลรวมทั้งหมดของภาควิชา Biology			206,001.50
ผลรวมทั้งหมดของหน้า 1			135,000.00	94,500.00
ผลรวมทั้งหมดของรายงาน			281,503.75	197,052.60

## ประวัติผู้เขียนวิทยานิพนธ์

นางสาวอัจฉรา ประสานชาติ เกิดที่จังหวัดชัยภูมิ เมื่อวันที่ 21 ตุลาคม พ.ศ. 2508 ได้รับปริญญาวิทยาศาสตรบัณฑิต จากภาควิชาสถิติ คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น เมื่อปีการศึกษา 2529 และในปีการศึกษา 2532 ได้เข้าศึกษาในสาขาวิชาวิทยาศาสตร์คอมพิวเตอร์ ภาควิชาวิศวกรรมคอมพิวเตอร์ คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย