CHAPTER I

INTRODUCTION

Distillation, which separates components of a liquid mixture based on their different boiling points is a kind of separation processes that is widely used in Chemical and Petrochemical Industries. (Humphrey, J. L., 1995) Since the industry has been growing in every parts of the world, distillation processes become of interest for people involving in such industry. Engineers having skill in designing and operating distillation effectively are required with respect to the above reason. However, studies and experiments on distillation column in both pilot scales and plant scales require very high costs and consume a lot of energy. Distillation calculation is also too difficult and complicated to solve manually. Thus, computer applications have been used for such calculation, resulting in lower capital and operating costs, together with improved safety and reliability. (Winter, P., 1992) Today, a wide array of general-purpose distillation software packages are available. (Chan, W. K., 1991) Nevertheless, as these packages are developed by foreign enterprises or researchers, their costs are so high and that the industries in Thailand are dependent on importing foreign technology.

Nowadays, there is a new technique of Object Oriented Programming (OOP) which allows programmers to link their program flexibly. The OOP provides a lot of Graphic User Interfaces (GUI) used on Windows. (Borland International, Inc., 1991) Consequently, it is advisable to carry out the computer simulation of distillation column by using this technique to develop a program easily for Chemical process industries.

1.1 The Objectives of This Work

The objectives of this work are as follows:

1. To develop a simulator of a distillation column studying and simulating behavior of distillation column.
2. To develop the simulator using Object Oriented Programming concept to make it runable on personal computer.
3. To link this simulator to the database developed by using the same computer language.

1.2 Scope of This Work

Scope of this work is to develop a simulator for multicomponent multistage distillation column having a maximum number of 100 trays and 10 components. It uses the Graphic User Interface (GUI) and the database developing in C^{++} language The simulator was tested its reliability and performance by comparison with other programs.