ENHANCING AND CREATING OBJECT ORIENTED COMPONENTS FOR INVENTORY SYSTEMS USING DELPHI

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ABSTRACT

The succeeding chapters of this study emphasizes that component creation can only be made possible if the principles of object-oriented programming are being applied. The disciplines being imposed by this principle like encapsulation enables related fields to be combined and implementation details to be hidden. Since an object is a self-contained entity that has built-in attributes and behaviors, polymorphism makes it possible for the behavior of these objects to be altered without having to create a whole new entity from scratch. Inheritance on the other hand allows reusability of an object, achievable without even touching the original code. By virtue of properties and behaviors being inherited from its ancestor objects, characteristics are being brought forward to a child yet it remains an independent entity.

As the effects of the information age gradually changes the way systems are developed, this study strives to focus on creating and enhancing components for inventory systems to answer to the needs of businesses nowadays. To support these objectives, this study includes a thorough discussion on the underlying principles of object-oriented programming, a study of the different inventory systems available in the market today and detailed information on component making in Delphi. This paper therefore aims to develop a component that can be used in creating inventory systems in whatever field in the business. Finally, this study also gives much emphasis in providing a good venue for programmers to reacquaint themselves and remember the basic concepts of programming which are undeniably the most important foundation in developing complex and advance systems.

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CHAPTER I

INTRODUCTION

1.1 Background of the Study

The growing knowledge in computer technology is accompanied by the growing need for computer systems and applications. And in the course of creating these applications, we cannot deny the fact that components, which are featured in almost all fourth generation languages, are what make these applications presentable and easier to develop.

Most programmers are probably familiar with using existing components like text, combo and list boxes, labels and many more. However there are times when creating and writing your own object-oriented components would come in handy. As programmers ourselves, we have also encountered problems of creating functions and procedures for a particular system more than once, later realizing that the one being created is similar to those previously made. What happens is that valuable time has been wasted because programmers tend to dwell more on the design stage rather than making the program actually work.

Currently there is the growing need for computer-aided applications that would increase a company's productivity and growth and one of the commonly developed systems is the inventory. Based on the theory, no two systems are the same but given ample time and it can be said that there indeed exist common principles and steps that are being followed.

1.2. Statement of the Problem

With the growing need for fully graphical, user-friendly, and easy-to-create inventory systems, the group is faced with the problem of how to create and enhance object-oriented components for inventory systems using Delphi.

The main problem stated above embraces the following sub problems:

- How will components aid programmers in creating a good business application?
- How to create a component?
- How to develop a model that will describe the structure of object oriented components?
- What are the basic structures and characteristics commonly found in the different types of inventory systems?
- How are the principles of inheritance, encapsulation and polymorphism shown or illustrated in a component?
- Why is object-oriented programming the best approach in creating modern day inventory systems?

1.3. Objectives of the Study

In our goal to seek for the answers to the questions and problems regarding component enhancement and creation, the proponents were guided by the following objectives and thereby aim to do the following:

- To be able to identify and create interrelated inventory components
- To provide information about object-oriented programming and its significance in the development of the modern systems and applications
- To produce a detailed report on the general framework of the commonly developed inventory systems
- To familiarize ourselves on how components behave in the Delphi programming environment
- To share created components to current and future programmers
- To create an inventory system prototype to test the portability and efficiency of the components

1.4. Significance of the Study

One of the main reasons why components are widely recognized as a huge part of Fourth Generation Languages is the reusability that can be obtained given that the proper methods are followed. This study would provide necessary information on the techniques to attain reusability of components using the principle of inheritance, encapsulation and polymorphism. It would also improve business and information systems productivity by developing ready-made components. This study would also open opportunities for programmers to publish and share their own components to current programmers. Most important of all, this will also motivate and challenge programmers most especially the young ones to create their own components and not to rely on existing components for the sake of creating a system. Finally, this study will encourage programmers to enhance their programming skills by continuously seeking for better ways to systems development.

1.5. Scope and Limitation

This study will focus on the creation of components for inventory systems and inventory systems alone. It involves not only the creation but also the enhancing of existing ones. This study will cover the general framework of object-oriented programming, from its basic concepts, the derivation of classes and the creation of customized procedures and functions up to the development of the desired components.

This project will be limited to using Borland's Delphi 5.0 as the main platform in developing the components. Due to time constraints and limited resources, the study is only focused on the creation on the three basic entities of inventory systems, namely the item, customer and supplier entities. However, this study can serve as a good take-off point for future programmers who wish to use the existing concepts for further developments and enhancements not only in Delphi but hopefully also with other existing visual programming languages.