DRIVING SCHOOL STUDENT MANAGEMENT SYSTEM

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ABSTRACT

There are only a few driving schools are operating around Pahang, but the total of the driving school cannot manage the number of customers who want to learn driving that are increasing each year. Most of the school company does not apply any computerized system to manage their business properly. All of the process of registering new student is done in traditional way which is using paper forms. The management of student progress is also written in log book. The ways the company manage their business are too complicated. Worst case comes when there are like a hundred of student to be managed in an hour, while the company is currently short of workers to find each customer document to be updated. As a result, a system needs to be developed to replace the current system and enhance the company's performance of management. Driving School Student Management System is proposed to handle this job. The system is developed to handle the process of secured login using Rijndael symmetric encryption algorithm, registering new student, searching a student profile and also searching for student progress to be updated using simple linear sequential search algorithm. The expected result from this system is to get the correct output for each function and system is robust and free of error.

ABSTRAK

Di Pahang terdapat hanya beberapa syarikat sekolah memandu yang sedang beroperasi, tetapi jumlah ini tidak mencukupi untuk menampung dan mengurus jumlah para pelajar yang semakin meningkat setiap tahun. Selain itu, hampir keseluruhan syarikat sekolah memandu tidak mengaplikasikan sistem berkomputer untuk menguruskan perniagaan mereka dengan teratur. Kesemua proses pendaftaran pelajar baru diurus dengan menulis di atas borang kertas. Pengurusan kemajuan pelajar juga hanya ditulis di dalam buku log. Cara syarikat ini menguruskan perniagaan mereka adalah terlalu rumit. Keadaan akan menjadi lebih buruk apabila terdapat beratus-ratus pelajar harus diuruskan dalam masa satu jam, manakala syarikat pula sedang kekurangan tenaga pekerja untuk mencari dokumen bagi setiap pelajar untuk diuruskan. Akhirnya keputusan telah dibuat untuk membina sebuah sistem untuk menggantikan cara lama yang digunakan oleh pihak syarikat dan meningkatkan kualiti perlaksanaan kerja. DSSMS disyorkan untuk mengatasi masalah ini. Sistem ini dibina menggunakan algoritma pengkriptografian bersimetri Rijndael untuk memastikan keselamatan sistem, menguruskan pendaftaran pelajar baru, mencari butir-butir diri pelajar, dan mencari data terbaru kemajuan pelajar untuk diperbaharui menggunakan algoritma pencarian berurutan secara lurus yang mudah. Sistem ini diharap dapat berfungsi dengan baik dan mengeluarkan output yang betul.

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LIST OF ABBREVIATIONS

Bhd.	-	Berhad
DSSMS	-	Driving School Student Management System
IBM	-	International Business Machines
ID	-	Identity
I/C	-	Identity card
JPJ	-	Jabatan Pengangkutan Jalan / Road Transport Department
KM	-	Kilometre
KPP	-	Kursus Pengajaran Dalam Bilik Darjah/Indoor Teaching Course
Ms	-	Microsoft
NO	-	Number
OOA	-	Object-oriented analysis
PMC	-	Pusat Latihan Memandu Cermat Pahang Timur Sdn. Bhd.
Sdn.	-	Sendirian
SQL	-	Structured Query Language
VB	-	Visual Basic

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Nowadays, the process of manual laboring of documentation writing is considered outdated. Furthermore, this process can cause a lot of trouble especially for a big company that is running a business and keeping a lot of critical data involving their business safe is crucial. In this case, Pusat Latihan Memandu Cermat Pahang Timur Sdn. Bhd. (PMC) is facing the same problem because all kind of documentations are done in human handwriting. To make matters worst, the company has to manage hundreds of customers' data daily. This company needs to transform the traditional process of written documentation into computer digitalized documentation. This company needs a system that can manage the students' data properly.

As a result, a project of developing a computer application system called Driving School Student Management System (DSSMS) will be built to solve this problem. The request for this system to be developed is made from the client which is Pusat Latihan Memandu Cermat Pahang Timur Sdn. Bhd., a driving school headquarters situated at KM 8 Beserah, Kuantan Pahang. PMC is the main office of all driving schools in Kuantan. The company teach the students from all around east of Pahang of how to learn to drive and the process steps for a student to go through to get a driving license. This company runs the business of managing students' data involving their driving lesson to get a driving license. Some of the data also has a connection with the Road and Transport Department (JPJ). The PMC customers will

be known in this document as students. The users for the system will be the staffs' of PMC. The student will go through the process of getting a license including registering for courses and test.

DSSMS will replace the traditional system used by PMC which is all hand written documents. All data will only be keyed in by the office staff of PMC. DSSMS will keep all records of data of the student registration and progress digitally. It will also remind any failed test by student to be repeated. As a summary, this system let the company to keep their data safely in a digital type of memory copy plus, the management of data is more systematic than the traditional process.

1.2 Problem Statement

1.2.1 Current System

At this time, the process of the current system is all done in documentation of papers and log book. Then this document will be kept in a folder. Next, the folder is saved in a rack room. This cost the client to provide a lot space to save thousands of documents and folders. Besides costing space, the process also wastes a lot papers. Every process of students' learning progress and students profile details are all handwritten down by the office clerks making the process slow and the data security is not reliable because the paper document can easily get lost. This process will waste lots of energy and human workforces to write down everything.

Furthermore, the management of data in this current system is too complicated, and poorly done. For example, if a student has a change of their home address, the PMC staff is incapable of updating the document of a student profile. Keeping the data in an unsecured room can let any unauthorized person to access it. Critical data might be changed or worse deleted by an irresponsible individual. In this case, that individual may want to take advantage of making illegal license that can relate with the company integrity. Improperly managed files will make the

matters worse for the staffs to search for a certain students profile and keeping track of their learning progress.

1.2.2 Solutions for Current System

(i) The Driving School Student Management System is more secured because there will only be one user, which is the PMC staff who can use this system to key in any data. This method can help to reduce a lot of energy and workforce.

(ii) The system is also protected by user login ID and password to restrict unauthorized access.

(iii) All data is keyed in the system and save in the database for later use rather than writing and keeping the document in a rack to make sure that the data is more safely secured.

(iv) Data is safely kept in a softcopy and backup copies rather than hardcopies to safe a lot of documents and folders room space and also to reduce papers usage.

(v) Management, updates and keeping track of data is easily done in just clicking some buttons to get the specific data, for example to search for student progress will only need the staff to type the student I/C number and click search.

1.3 Objectives

(i) To create a standalone system that let the user to manage and manipulate data through adding, updating and deleting data of student profile.

(ii) To create a relieving way for the staff to do searching using simple linear sequential search algorithm.

1.4 Scopes

(i) DSSMS is only for PMC staff as the administrator used only.

(ii) Student Registration will include the process of registering the students with the driving school and also manipulating the student profile data through edit, update and delete.

(iii) Search for a specific student profile and student progress based on the student's I/C number.

(iv) The system only manages the students that apply for motorcar or motorcycle licenses.

(v) Student progress can accept payment by task only.

(vi) The system will manipulate data that is from PMC only.

CHAPTER 2

LITERATURE REVIEW

2.1 Driving School Management System

The system is called Driving School Student Management System because the system will be used by a driving school staff which is Pusat Memandu Cermat staff to manage the data about the students whom register with the driving school to get a driving license. The system will be used based on the management of students' data during the application of driving license in the driving school. The system will be a standalone system because it can only be used by the PMC staff to manage data, it resides on its local disk and it can be managed through back end only. The system does not connect to the internet and or any other organization.

Driving School Student Management System provide services for Pusat Memandu Cermat staff such as registering new students who want to learn to drive and apply for driving license with the driving school. The system can process a total of maximum 300 students per week. DSSMS is the first and only student management system that is available in Pahang area because others company are still doing the traditional method.

The staff can enter the data of students' background details in the Student Profile. The system can also search for a certain Student Profile for any updates or delete process. The search method used for this function is the simple linear sequential search

algorithm. "This search method proceeds from the first element, to the second, and so on, visiting each element in turn until the desired element is found or all elements have been checked [1]." The keyword for the staff to enter is the students' I/C number and then click search button to find the data. Besides that, it can search for a certain Student Progress to be updated according to the flow level of the students' driving performance. For example, a student has to pass their computer static test before they proceed to hands-on practice which is the driving lesson. The system will show the status of the past performance of the student. If the student has passed the test, then the staff will update the new status of student performance in the Student Progress. Furthermore, the system will not let the staff to exceed to the next level until the past level is completed.

The system is built to reduce the weakness of the current system used by the PMC Company. The benefits it offers to the company are cutting the cost of human workforce, papers and room space. Besides, it also saves a lot of energy for the staff to find a student profile or a student progress just by entering the students' I/C Number and click search button. The process of updating data is also available compare to the traditional current system. The data that is kept in this system is more secured because the system is restricted to only one staff to use at a time. Moreover, the access to the data is restricted by an authentic user ID and password to login to avoid trespassers.

2.2 Hardware and Software Requirements

The client has agreed that the system will be built using Microsoft Visual Studio .NET 2003 software and the programming code is in Visual Basic .NET. Visual Basic .NET is a major component of Microsoft Visual Studio .NET. The database for DSSMS will be Microsoft SQL Server that comes along with the software package. DSSMS will be on Windows XP Professional 2003 platform. The software is chosen because DSSMS is a standalone system that suits best with this software. The software also provides Microsoft standard interface that interest the client and it is user friendly. Moreover, the

system can be implemented in object-oriented concept that can assure a lot of benefits at the management and technical level such as faster software development and higher quality program. The data management system will include driving courses, student registration, student progress, test status and etc. The system will only need a computer CPU, monitor, keyboard and printer. The hardware is used for monitoring data, key in data, and printing.

2.2.1 Hardware

Table 2.1 : Hardware Type

Item	Description	Number of Item
Desktop	Acer Aspire G600P	1
Printer	Epson Stylus C41UX Color Printer	1

2.2.2 Software

Table 2.2 : Software Type

Tools	Description
Operating System	Microsoft Windows XP Professional Edition
Development	Microsoft Visual Studio .NET 2003
Database Management	Microsoft SQL Server 2000
Documentation	Microsoft Office XP Professional Edition
Analysis and Design	Rational Rose Enterprise Edition

The cost for the client to prepare the hardware and its operating system is around RM3188.00. The development of DSSMS will takes 30 days starts from 27 December 2004 and finish until 4 February 2005. The estimation for the full system plus the

documentation of this thesis and user manual to be completed and delivered is within 80 days. The final product will be delivered on 28 March 2005. Please refer to Gantt chart in Appendix A to view the full plan of DSSMS project.

2.3 The Process Flow of the Current System

As mentioned before, the management of all students' data at PMC is done in handwriting. This process will waste a lot of the clients' time to manage each of the students. The followings are the process flow of the current system done in PMC that will explain each step the student has to go through to get a driving license:

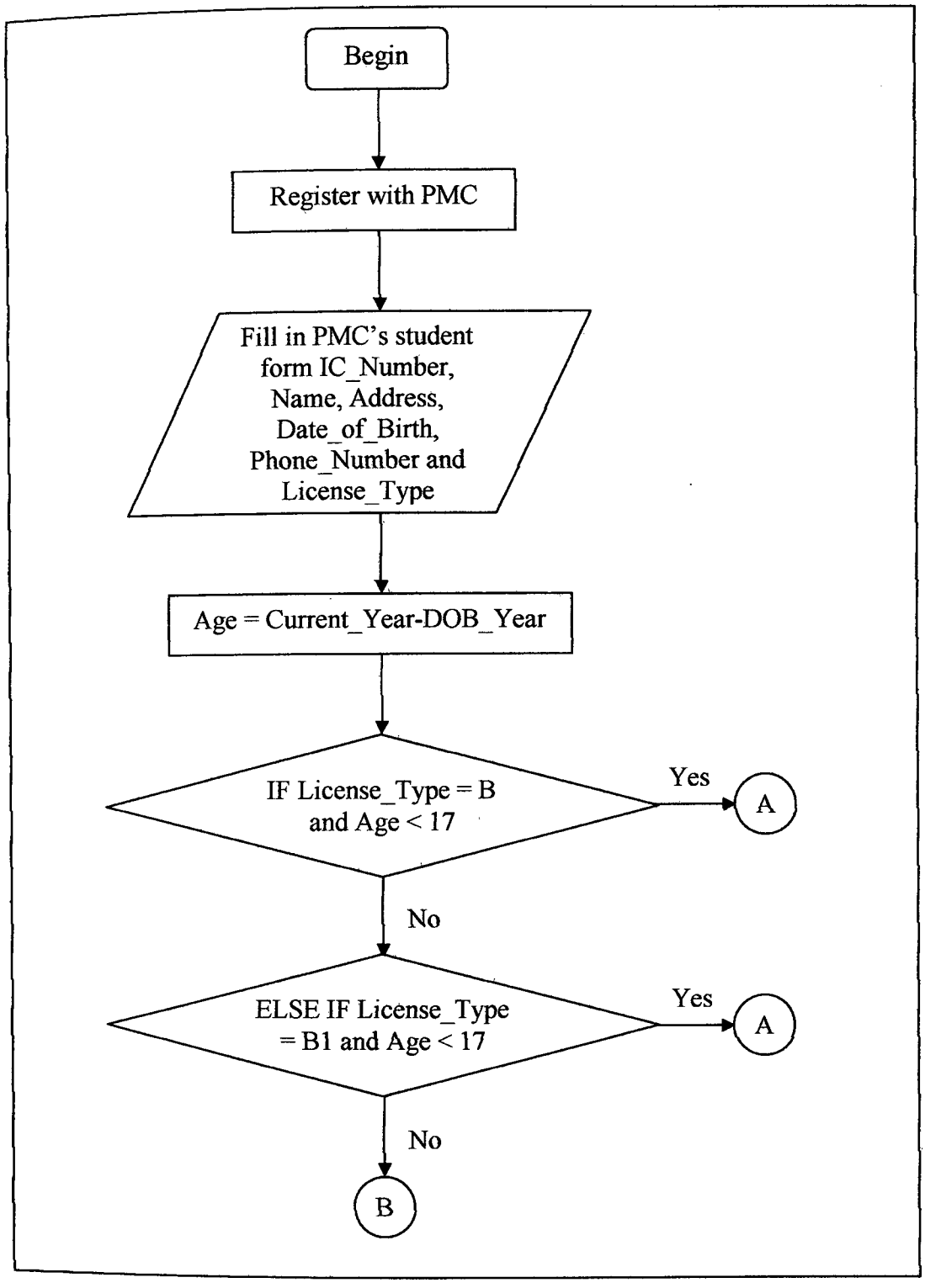

Figure 2.1 Flow of the Current System

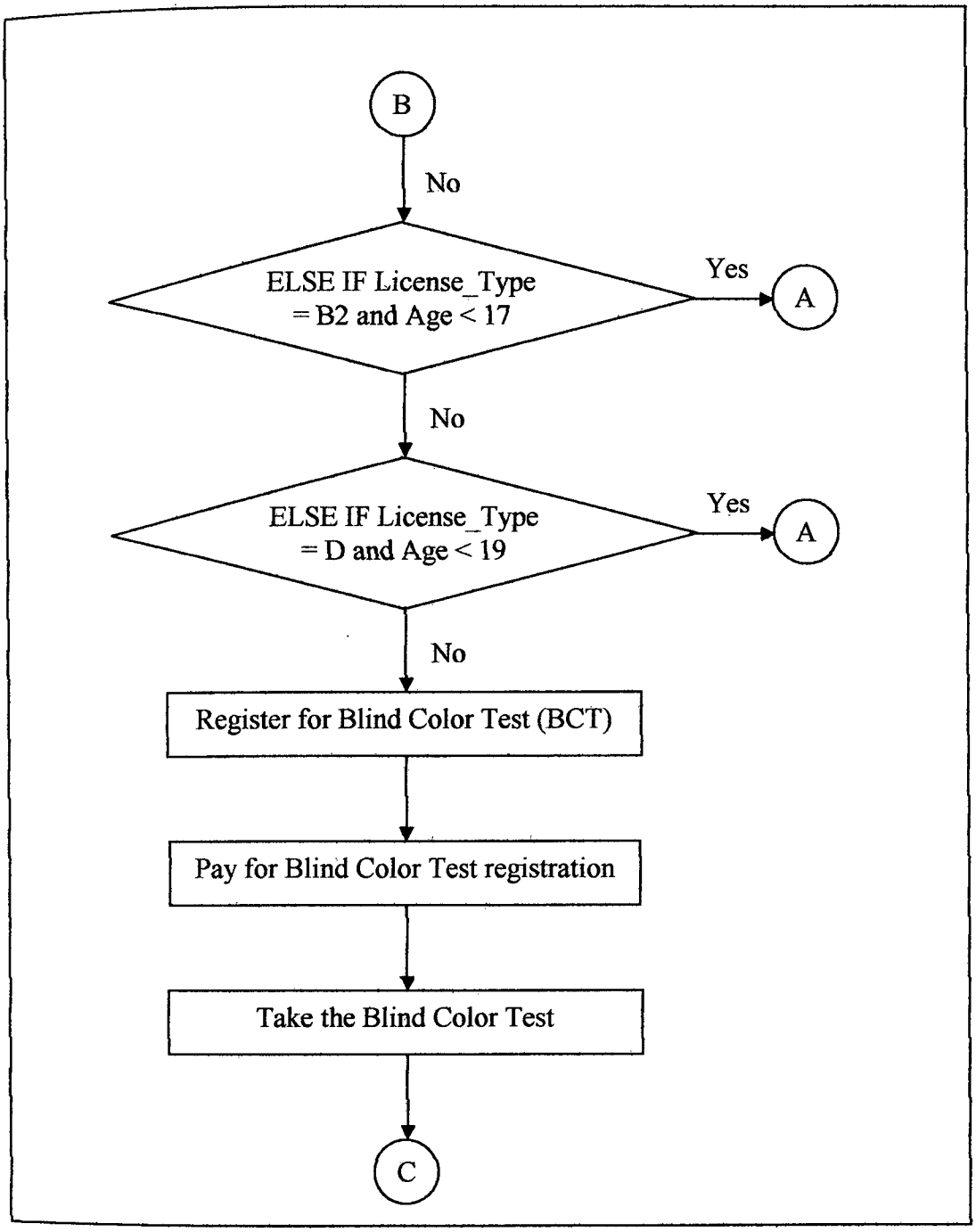

Figure 2.2 Continue of the Flow of the Current System

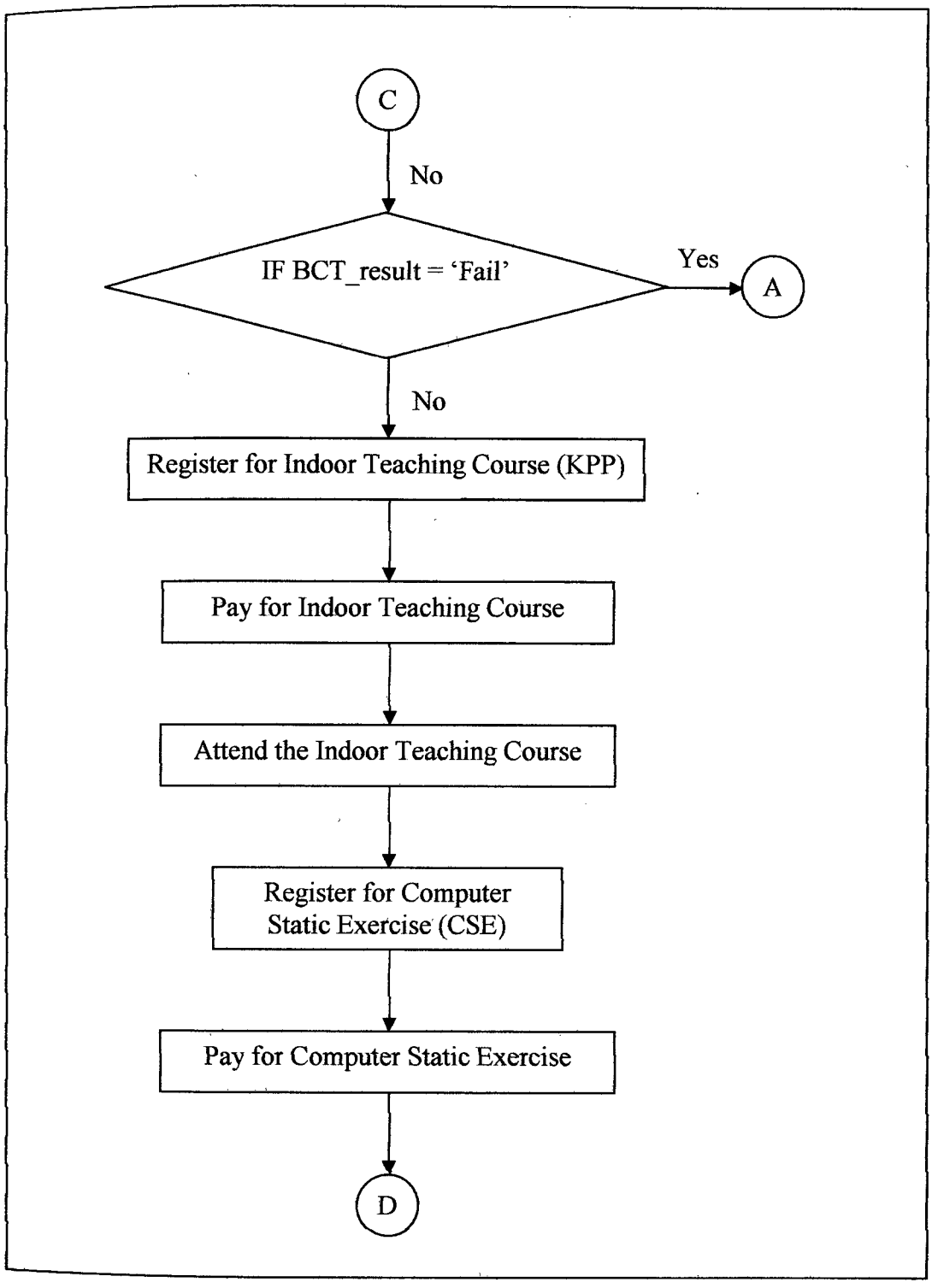

Figure 2.3 Continue of the Flow of the Current System

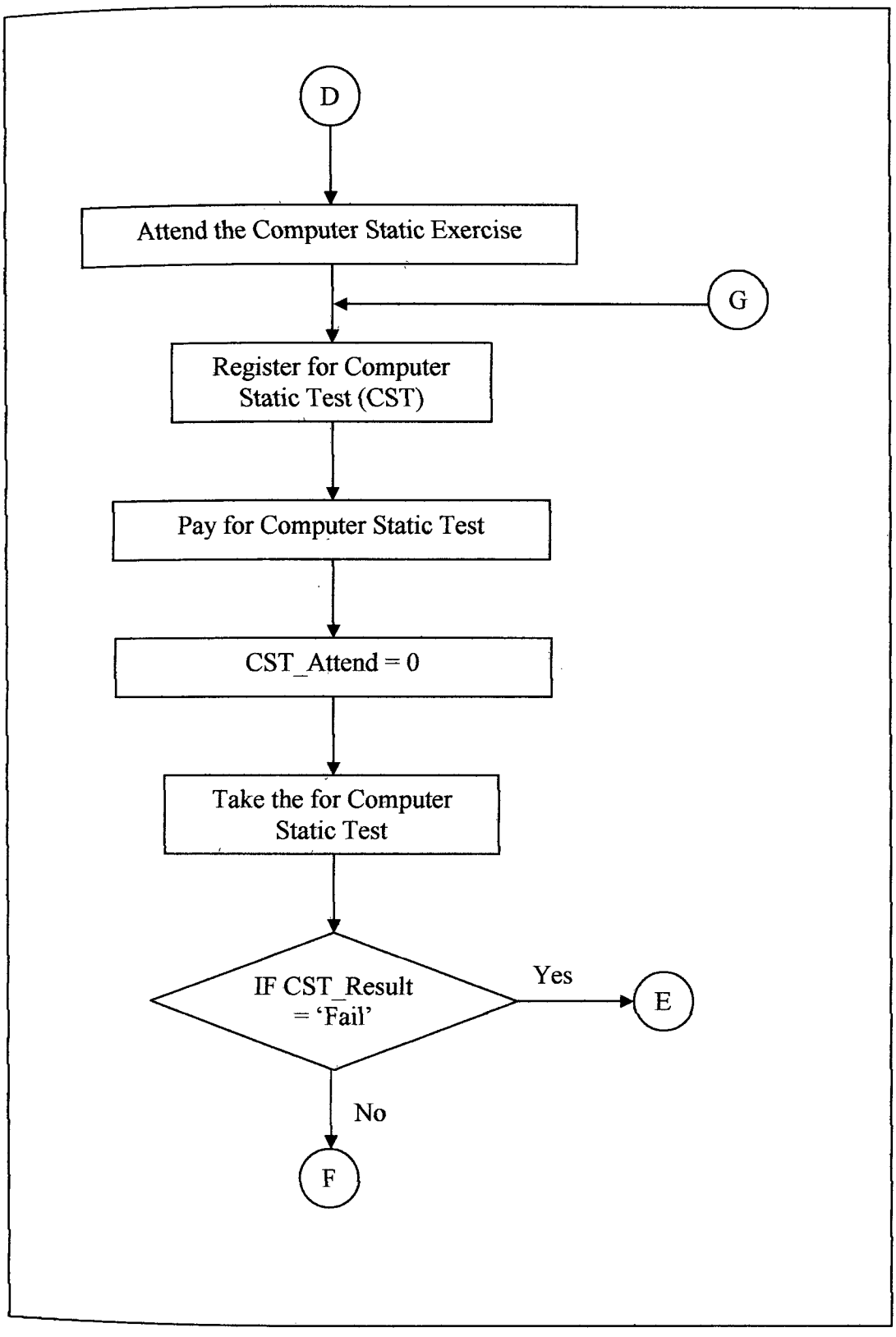

Figure 2.4 Continue of the Flow of the Current System

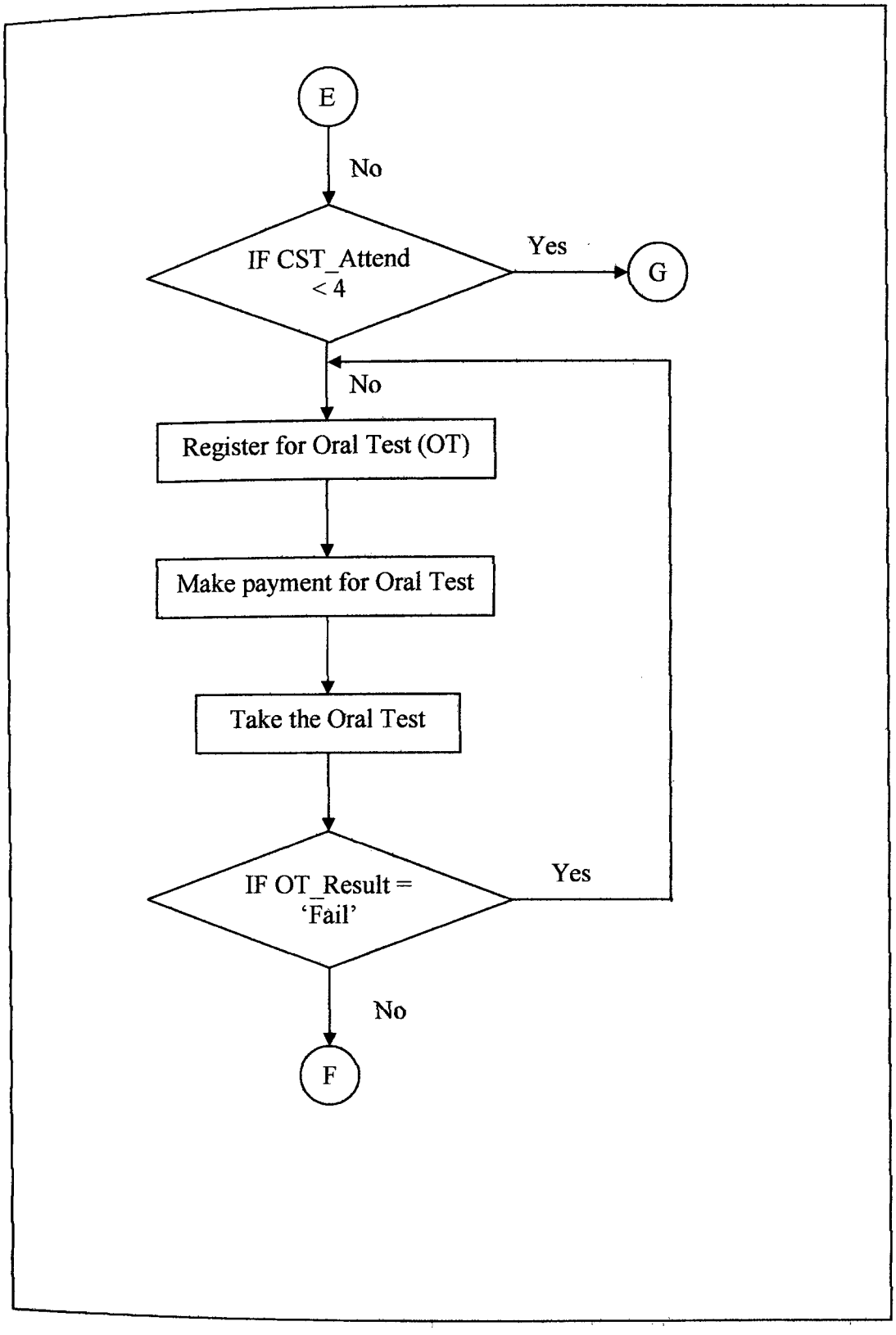

Figure 2.5 Continue of the Flow of the Current System