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JUDUL: COURSEWARE FOR C++ PROGRAMMING LANGUAGE FOR BEGINNERS.
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COURSEWARE FOR C++ PROGRAMMING LANGUAGE FOR BEGINNERS

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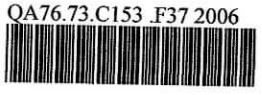
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Courseware for C++ programming language for beginners
/ Faten Raihana Roslan.

FATEN RAIHANA BT ROSLAN

This report is submitted in partial fulfillment of the requirements for the
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FACULTY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
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2006

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DECLARATION

I hereby declare that this project report entitled

COURSEWARE FOR C++ PROGRAMMING LANGUAGE FOR BEGINNERS

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : _____ Date: 23/11/2006

(FATEN RAIHANA ROSLAN)

SUPERVISOR : _____ Date: 23/11/2006 .

(PN. MASHANUM BINTI OSMAN)

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DEDICATION

To my beloved parents

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By this opportunity, I would like to express my gratitude to individuals whom have helped me gone through this *Projek Sarjana Muda* (PSM I) and its continuation , *Projek Sarjana Muda* (PSM II) .

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ABSTRAK

Pada masa kini, *courseware* dilihat sebagai satu perantaraan yang penting dalam pembelajaran. Sepertimana yang boleh kita lihat, kadangkala pembelian buku akan disertai dengan pemberian CD-ROM percuma yang mengandungi *courseware* yang disertakan bersama buku. *Courseware* adalah satu alat untuk membantu pelajar untuk meningkatkan lagi pemahaman pelajar terhadap kandungan di dalam buku tersebut atau terhadap subjek tersebut. Sekaligus dapat memberi pelajar pengalaman dalam menyelesaikan masalah dalam latihan yang diberi. Latihan yang diberi adalah berbentuk 'Betul / Salah' dan objektif. *Courseware for C++ Programming Language for Beginners* adalah *courseware* yang berasaskan web dan menyediakan modul yang interaktif. Oleh kerana beberapa masalah yang telah dikenalpasti, diharapkan dengan adanya courseware ini dapatlah mengatasi masalah-masalah tersebut dan dapat meningkatkan lagi pemahaman pelajar dalam matapelajaran ini .Metodologi pembangunan perisian yang digunakan untuk membangunkan sistem ini adalah *Rapid Application Development* (RAD) dan pendekatan yang digunakan untuk menggambarkan aliran sistem adalah *Object Oriented Analysis and Design* (OOAD). Diharapkan dengan wujudnya *courseware* ini, pelajar akan mendapat faedah dari objektif yang dicadangkan.

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ABSTRACT

Nowadays, courseware is seen as an important medium in learning. As we can see when we buy a book, there sometimes a CD-ROM given away together with the book. That is to enhance the understandability of the buyer thus to give them a hands on training to the course or subject. A courseware for C++ programming is a courseware that will be developed as an assistant for student in learning C++ programming. It is another web-based courseware that acts as another medium of e-learning. This courseware presents interactive module which allows students to evaluate their understanding of the subject with true / false and objective type question. Because of some problems that have been identified, this courseware is proposed with hope that it will overcome problems such as students feel that C++ programming is a difficult and complex subject, lack of resource and exercise to increase student knowledge on C++, fear of making mistakes in front of other students and need their own space and flexible time and place for student to do exercise whenever and wherever they want to. Software development methodology that will be used is Rapid Application Development (RAD) methodology category of Prototyping Methodology and the approach used to view the process flow and interactions used is Object Oriented Analysis and Design (OOAD). It is hoped that by having this courseware, student can get their extra needed resources and helps student to understand the subject.

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CHAPTER I

INTRODUCTION

1.1 Project Background

Nowadays, courseware is seen as an important medium in learning. As we can see when we buy a book, there sometimes a CD-ROM given away together with the book. That is to enhance the understandability of the buyer thus to give them a hands on training to the course or subject.

Courseware, a term that combines the words 'course' with 'software', is an educational material intended as tutorials for students, usually packaged for use with a computer.

A courseware for C++ programming is a courseware that will be developed as an assistant for student in learning C++ programming. It is another stand-alone courseware that acts as another medium of e-learning. This courseware presents interactive module which allows students to evaluate their understanding of the subject with objectives or true / false question.

This courseware is planned to be contained with nine chapters of C++ programming basic for beginners such as function, arithmetic calculation, arrays, and

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others. Questions that will be contained in the exercises in each chapter will be 5 'true / false' kind of questions and 4 objectives questions.

By having this courseware, student can get their extra needed resources. This courseware will also provide an authenticated username and password for each student.

1.2 Problem statement(s)

Because of some problems that have been identified, this courseware is proposed with hope that it will overcome this problem:

1. Students feel that C++ programming is a difficult and complex subject.
2. Lack of resource and exercise to increase student knowledge on C++.
3. Fear of making mistakes in front of other students and need their own space.
4. Flexible time and place for student to do exercise whenever and wherever they want to.

1.3 Objective

Objectives of developing this courseware are:

1. to encourage students to learn C++ in an interactive way
2. to help students gain extra needed resources through this courseware
3. to assist students to measure up their own performance in this subject
4. to increase students' understandability of C++ by looking at their grades after gone through exercises

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1.4 Scopes

Scopes of this courseware are:

1. Personalization, which means each student, has his/her own username and password.
2. This courseware can also keep track of how many times the chapter, has been viewed.
3. The courseware will record and display the students' mark each time they do the exercises.
4. Notes of each chapter will be provided and can be viewed by student.
5. Format of exercise will be true / false questions. The question that has been answered will be checked and the result will be displayed.
6. Student can register to be a member to use this courseware.
7. There's an admin with the authenticated username and password who are enable to upload notes and view the uploaded files.
8. The notes can be downloaded by student.

1.5 Project significance

This courseware benefits students by giving them their own personal space to learn from their faults when doing the exercises. Getting feedback quickly by doing exercise after getting through the concepts from notes lets students know how they are doing. They also have their way to spot their weaknesses in any chapter.

This courseware is also significant because by going through the exercises individually, students do not fear or feel retiring of their mistakes and this psychologically encourage them to study and get to know more about this subject.

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Unintentionally, this courseware will also help lecturers or trainers in building students understanding for this subject.

1.6 Conclusion

This system is anticipated to be a tools or kit for student in learning as well as helping students in learning C++ programming and enhance their understandability on this subject.

Next activity to be developed is chapter 2 that is Literature Review and Project Methodology.

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CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter will discuss on literature review and project methodology. Literature review is penetrating, gathering, evaluating and portraying conclusion from the entire debates and issues lifted in relevant body of literature. It is more like a research on this project. In order to support project's strength, fact and finding is needed based on project's domain.

Another point that will be discussed is project methodology that explains about what method will be used to complete the project and its compatibility with the project that will be developed.

2.2 Fact and finding

This fact and finding will be discussed based on statements that are found relevant to the project.

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2.2.1 Domain

These days, courseware is seen as one of important way of learning. Courseware is one of an e-learning category. So as an e-learning, there are a lot of benefits user can gain from it. According to Jan Bayliss in one of his journal, well implemented e-learning will obtain more than 80% acceptance by learners. This shows that a courseware is a really effective tool in learning. Table 2.1 below shows the percentage of e-learning usage in year 2002 until 2005.

Table 2.1: The percentage of e-learning usage

e-Learning Usage Rates	2002	2005
Allstate	60%	70%
Bureau of ATF	minimal 50%	
Cigna	25%	70%
Eastman Kodak	40%	60%
Eli Lilly	10%	40%
EMC	40%	80%
GM	4%	40%
IRS	5%	40%
Lib of Congress	<10%	50%
NCR	60%	75%
Office Depot	0%	60%
Raytheon	5%	85%
Vignette	15%	70%

Sun Microsystems Inc. also found out how crucial interactivity can be in the success of a course. Company studies show only 25% of employees finish learning content that's strictly self-paced. But 75% finish when given similar assignments and access to tutors through e-mail, phone or threaded discussions. E-Learning will be critical for organizations to enable learners to become responsible for their own learning.

Some advantages of e-learning that has been identified are such as provide the time and space to learn on company time, supports the growing personal and legislative environmental considerations by reducing travel and paper usage. It also ensure access wherever the learner wants it whether at home, office, or on the road. Moreover, it

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ensure learners know the commitment level required, e-learning is often not so much "fun" as you have to learn the content and prove it.

According to a survey of Custom Courseware Small Business Consulting School of Business, Queen's University in 1999, students would like to see more courses using Custom Courseware. Custom Courseware tends to be better than traditional textbooks as far as currency of information, relevance to course, and full usage during course and reasonable price are concerned.

2.2.2 Existing Systems

Below are some existing systems of E-Learning that has been found as a comparison to the project that will be developed:

a. ITINS Process Support Tool

The ITINS Process Support Tool provides "just in time support" for inexperienced IRS assistors who process ITIN applications and handle ITIN inquires. The solution was to create a set of web-based performance support tools to help telephone and walk-in assistors process ITINS. These tools would have step-by-step instructions for filling out and preprocessing the W-7, decision support tools and other references and would provide multi-level help.

To support assistors with varied experience levels, the product offers both "at a glance" overviews and explicit detail for every step in the ITIN processes (New Application and Submitted Application). The EPSS provides information in

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progressively more detail, as assistors need it, and provides several ways to find information. It is shown in figure 2.1 on the next page.

Figure 2.1 show how the interface is designed to provide information in more details.

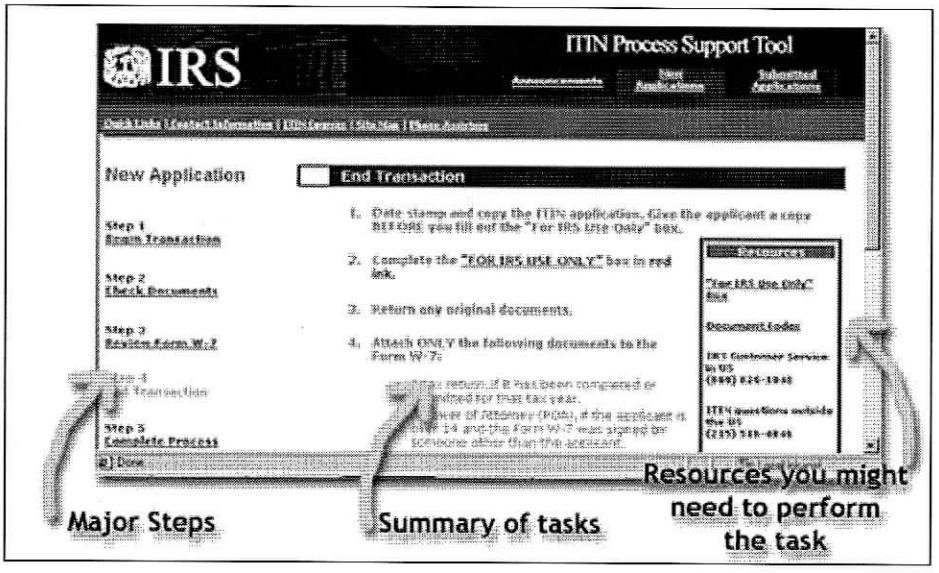

Figure 2.1: Design of Interface

This is a good example of how paper-based classroom training material can be converted to a performance support tool. Once assistors become familiar with the tool and how to use it, formal training classroom in ITINS is no longer needed.

b. IBM Basic Blue

Basic Blue is a blended learning solution that combines web learning modules, simulations, online collaboration, face-to-face workshops, and e-mentoring. By providing ongoing access to learning, Basic Blue makes training an ongoing process, not a one-time event.

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IBM faced the same challenges as any large, global organization that must train managers scattered around the world reaching thousands of people with consistent, compelling learning in a cost-effective manner. IBM's Management Development group needs to reach more than 30,000 managers in more than 50 countries. Given the complexity of today's managerial environment, the amount of information that must be transferred effectively to every manager is significant. However, IBM's managers are pressed for time. Most work 10-12 hour days already, so taking them off-site for additional class time would be prohibitive. In short, IBM's challenge was to create a rich learning experience for its managers while still ensuring that this approach was practical, cost-effective, and engaging to all participants.

The Solution

A blend of online and classroom experiences

In 1999, IBM adopted Basic Blue for its Management Development Program an innovative new management training program that leverages the power of e-learning and the Lotus Learning Space learning management system. Now managers go through a learning process that combines innovative web learning modules with face-to-face workshops. IBM tapped its own technologies and expertise when devising the Basic Blue program. .Basic Blue uses a four-tier approach.

- Tier I: "observation" through web learning modules.
- Tier II: "participation" in online simulations and scenarios with more interactivity and learning by doing.
- Tier III: "collaboration" through interactions with peers and e-mentor.
- Tier IV: "co-location" in a once a year, weeklong workshop with peers who have also completed the web modules and simulations.

E-Learning strategies that are used in this system are

- Workshops extend the learning and enhance the community of practice

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- Peer-to-peer collaboration helps foster connections
- Web modules done before the workshop enhances face-to-face time
- Web learning modules cover the basics and allow self-pacing
- Simulations provide interactivity and learning-by-doing. See figure 2.2.

Figure 2.2 below shows the interface design on how simulations provide interactivity and learning-by-doing

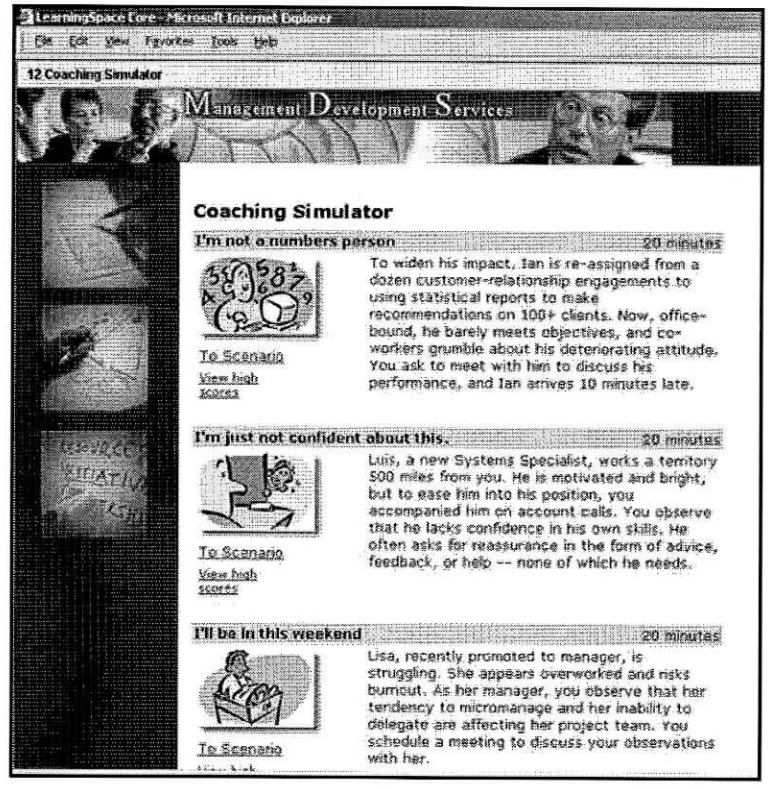

Figure 2.2: Simulations provide interactivity and learning-by-doing

Typically, these simulations are presented as movie clips of a colleague or customer. Then the learner is prompted to think about and map out what they would do in that situation. Then, the learner plays another movie clip showing one possible response, and they are asked, "Do you think that response is appropriate? Do you think it will achieve positive results? Would you have handled it differently?" Figure 2.3 below shows a final movie clip shows the situation's outcome

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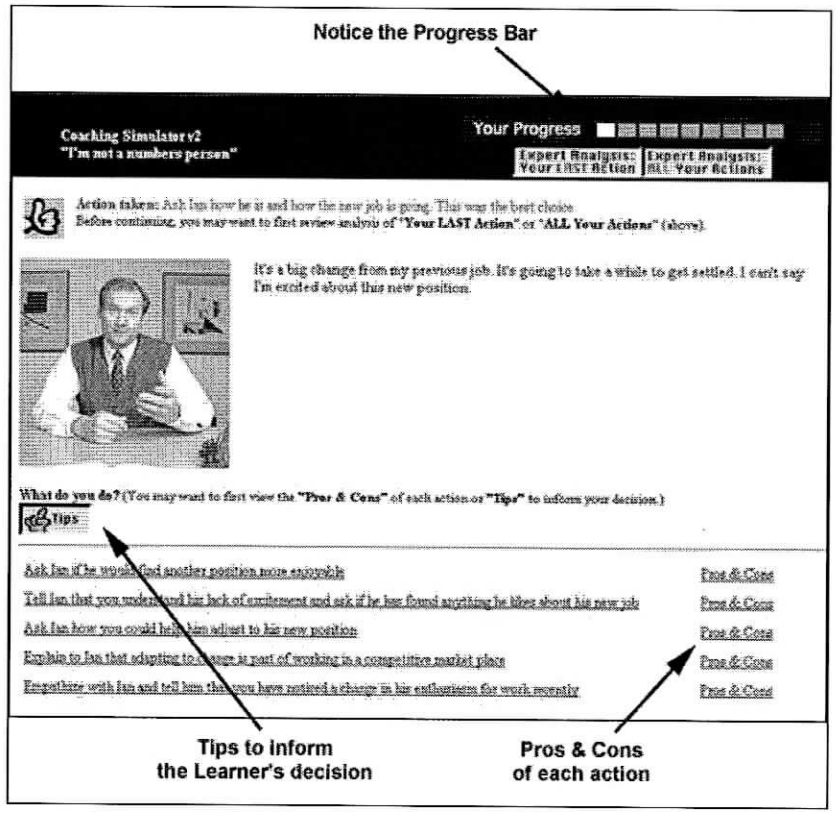

Figure 2 3: Final movie clip of the situation's outcome

Learners can then consider if their approach would have worked. For example, look at Figure 2.4 below which lists some of the pros and con's of the learner's choice.

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