软件开发（设计）

COMPUTING: Software Development

HIGHER NATIONAL DIPLOMA

【英】苏格兰学历管理委员会（SQA）
Scottish Qualifications Authority

Unit Student Guide

Software Development: Planning DG8J 04

中国时代经济出版社

SCOTTISH QUALIFICATIONS AUTHORITY

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著作权合同登记 图字：01-2004-4872号

图书在版编目（CIP）数据

软件开发.设计/苏格兰学历管理委员会著.-北京：中国时代经济出版社，2004.9

ISBN 7-80169-599-2

Ⅰ.软… Ⅱ.苏… Ⅲ.软件开发-英文 Ⅳ.TP311.52

中国版本图书馆CIP数据核字（2004）第081916号

Software Development : Planning

软件开发（设计）

苏格兰学历管理委员会著

出 版 者 中国时代经济出版社

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发 行 各地新华书店

印 刷 北京市白帆印务有限公司

开 本 787×1092 1/16

版 次 2004年9月第1版

印 次 2004年9月第1次印刷

印 张 10

定 价 25.00元

书 号 ISBN 7-80169-599-2/G·189

Contents

1 Introduction to the Scottish Qualifications Authority

This Unit DG8J 04 Software Development: Planning has been devised and developed by the Scottish Qualifications Authority (SQA). Here is an explanation of the SQA and its work:

The SQA is the national body in Scotland responsible for the development, accreditation, assessment, and certification of qualifications other than degrees.

Its website can be viewed on: www. sqa. org. uk

SQA's functions are to:

- devise, develop and validate qualifications, and keep them under review
- accredit qualifications
- approve education and training establishments as being suitable for entering people for these qualifications
- arrange for, assist in, and carry out, the assessment

of people taking SQA qualifications

- quality assure education and training establishments which offer SQA qualifications

- issue certificates to candidates.

In order to pass SQA units, students must complete prescribed assessments. These assessments must meet certain standards.

The Unit Specification outlines the three Outcomes that students must complete in order to achieve this unit. The Specification also details the knowledge and/or skills required to achieve the outcome or outcomes. The Evidence Requirements prescribe the type, standard and amount of evidence required for each outcome or outcomes.

2 Introduction to the Unit

2.1 What is the Purpose of this Unit?

This Unit is designed to enable candidates to develop broad knowledge and practical skills in the stages and techniques of planning for the creation of software. It is aimed at candidates following an HN Computing group award programme. Since the Unit forms part of an HN Computing group award programme, the skills and techniques used should be such as to support software development using any programming platform.

2.2 What are the Outcomes of this Unit?

1. Produce a precise specification of a required software application
2. Derive a detailed design for the required software application from the specification
3. Produce a test plan for the required software application.

2.3 What do I Need to be Able to do in Order to Achieve this Unit?

You should work through this learner guide attempting all activities and self assessed questions to confirm your own understanding of each topic.

2.4 Approximate Study Time for This Unit

The recommended time for this unit is 40 notional hours of class time plus approximately the same again in self-study.

2.5 Equipment/ Material Required for this Unit

Access to a word processor and print device is recommended for working on the activities and also for the production of the outcome evidence.

Templates for some of the forms used in the unit may be available, as should access to the Internet.

2.6 Symbols Used in this Unit

The various Learning Materials sections are designed so that you can work at your own pace, with tutor support. As you work through the Learning Materials (see Section 5), you will encounter symbols. These symbols indicate that you are expected to do a task. **These tasks are not Outcome Assessments.** They are exercises designed to consolidate learning or encourage thought, in preparation for the Outcome Assessment (see Section 3 — Assessment Information for this Unit).

Activity

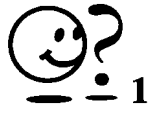
This symbol indicates an Activity (A). Usually, activities are used to improve or consolidate your understanding

of the subject in general or a particular feature of it.

Many of the activities follow the same case study so that you can work through the full planning process.

The activities will not serve this purpose if you refer to the responses prior to having attempted the Activity.

Self Assessed Question



This symbol indicates a Self Assessed Question. Using a Self Assessed Question helps you check your understanding of the content that you have already covered.

Everything is provided for you to check your own responses. Answers to the Self Assessed Questions are to be found at the back of the Unit Student Guide. Where suggested responses to activities are provided in the Unit Student Guide, **students are strongly discouraged from looking at these responses before they attempt the activity.** The activities throughout the Unit Student Guide will help you to prepare yourself for the formal assessments, and to identify topic areas in which you will require clarification and additional tutor support. The activities will not serve this purpose if you look at the answers before trying the activity!

Self Assessed Questions and activities are designed to be checked by you. No tutor input is necessary at this stage unless special help is requested, although from time to time your tutor may wish to view your responses to Self Assessed Questions to see how you are progressing.

Everything is provided for you to check your own responses. Answers to the Self Assessed Questions are to be found at the back of the Unit Student Guide. Where suggested responses to activities are provided in the Unit Student Guide, **students are strongly discouraged from looking at these responses before they attempt the activity.** The activities throughout the Unit Student Guide will help you to prepare yourself for the formal assessments, and to identify topic areas in which you will require clarification and additional tutor support. The activities will not serve this purpose if you look at the answers before trying the activity!

Self Assessed Questions and activities are designed for you to check them yourself. No tutor input is necessary at this stage unless special help is requested, although from time to time your tutor may wish to view your responses to Self Assessed Questions to see how you are progressing.

3 Assessment Information for this Unit

3. 1 What Do I Have to Do to Achieve This Unit?

The evidence to be submitted for each outcome is as follows:

1. Requirement Specification Document
2. Detailed design document incorporating top level, screen and code designs
3. Full test plan along with a description of test methods and techniques.

If this unit is being delivered in conjunction with one of the HN Software Development programming units, the assessments may be integrated with those required for the other unit.

4 Suggested Lesson Plan

The Learning Materials (see Section 5) are designed to lead you through a series of activities, which will allow you to consolidate your learning and check on your own progress.

Activities are placed throughout the Learning Materials at relevant points. Self assessed questions are given at the end of each topic within the material. Suggested solutions to both are given in Section 7, although you are strongly advised not to look at these until you have attempted to answer all questions or try out all practical exercises first.

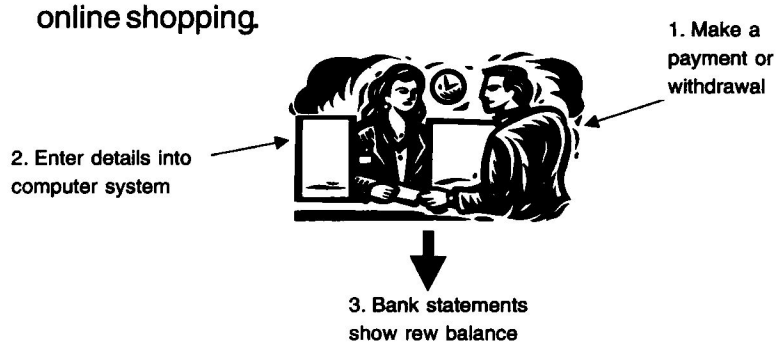
5 Learning Material

5. 1 Analysis

5. 1. 1 Introduction

Consider the software systems you have already encountered in day-to-day life:

- banking systems whether ATM machines or in branches over the counter
- stock control systems in a hardware store or supermarket
- booking systems as used in hotels, restaurants, tickets for events
- Internet facilities including email, chat rooms, search, online shopping.



All of these tailored systems began 'life' as an idea. This then had to be fully explored with all requirements well documented and designed before the programs themselves could be written. In addition, the end product must be tested in great detail to ensure that a) the program is correct and b) it is the correct program. That is, test that the program is right (works as it should), and also that it is the right program (meets the requirements of the client/user).

In such large—scale systems, there are likely to be many individuals with various job roles taking part in the final production. However, even in smaller programs these same roles must be worked through:

Analyst — gets all the user requirements, perhaps conducting a feasibility study in the first instance. If the project goes ahead, the analyst's role is then to break down these requirements into a more detailed specification.

Designer—starting with the detailed specification, sketch out any user interfaces (input and output screens), and develop a plan for implementing the requirements in program code. The designer should also record a test plan detailing all tests that are necessary to ensure that the user's requirements are actually met.

The project must be fully researched, analysed and designed (including the design for the testing phase, and the testing of the design itself) . Only then can a

