Engineering

Programme: Edexcel BTEC Higher National in Engineering

OAKLANDS COLLEGE

Unit No: 112   **Unit Title:** Computer Programming Techniques

Level: 4   **Credit:** 15

Assignment No: 3 of 3			Student Name:		
Assignment Title: Software Testing					
Issue Date: 12/May/2016			Return Date: 26/Jun/2016		
Assessor: Dr Derek Peacock					
Outcomes Covered: 2. **Be able to use modularisation appropriate to the chosen programming language** 4. **Be able to create and apply appropriate test schedules**					
	Assessment Criteria	Achieved		Assessment Criteria	Achieved
P2.1	construct a program from a design and use appropriate functions/procedures	Yes/No	**P4.2**	produce test documentation	Yes/No
P4.3	successfully construct and use test data and schedules to detect logic errors	Yes/No	**M2**	select/design and apply appropriate methods / techniques	Yes/No
D1	use critical reflection to evaluate own work and justify valid conclusions	Yes/No	**D2**	take responsibility for managing and organising activities	Yes/No
D3	demonstrate convergent/lateral creative thinking	Yes/No			
IF YOU DO NOT SIGN THIS, YOUR WORK WILL NOT BE MARKED					
I certify that this piece of assessment is my own work, that it has not been copied and that any extracts from books, the internet or any other sources have been properly acknowledged as references					
Student signature:				Hand in Date:	
Assessor signature:				Date:	
Grade accepted by Student:			Student Signature:	Date:	
Grade agreed by IV Name:			IV Signature:	Date:	
Grade agreed by Lead IV Name:			Lead IV Signature:	Date:	

THIS SHEET MUST BE RETURNED WITH THE COMPLETED WORK

Assessor's Comments (clearly identify and date feedback for each attempt. State a resubmission date if required):

Student's Comments:

Merit criteria that may be achievable in this assignment are:

M1   ~~identify and apply strategies to find appropriate solutions~~
M2   select/design and apply appropriate methods/techniques
M3   ~~present and communicate appropriate findings~~

Distinction criteria that may be achievable in this assignment are:

D1   use critical reflection to evaluate own work and justify valid conclusions
D2   take responsibility for managing and organising activities
D3   demonstrate convergent/lateral creative thinking

To be read in conjunction with Merit/Distinction guide on Oaklearn for detailed descriptors.

Merit/Distinction Descriptor	Description of Evidence
M2: select/design and apply appropriate methods/techniques	*Most of the final code of the game or simulation meets best practice and contains no more than two examples of unnecessary duplication, or complication.*
D1: use critical reflection to evaluate own work and justify valid conclusions	*A critical evaluation the tools and techniques used, as well as the design, implementation and testing of the game or simulation*
D2: take responsibility for managing and organising activities	*A project plan showing most of the activities that has been continuously updated*
D3: demonstrate convergent/lateral creative thinking	*The design or implementation of the game or simulation demonstrate novel or creative elements*

Assignment 3 Brief

Scenario

You have completed your engineering apprenticeship at Samsung and have been offered a position as a junior Software Engineer. The company would like your team to develop either a game, or a simulation that can be released as a free addition on the Android Operating system mounted on Samsung Tablets. The purpose of the game is to make the Samsung brand more attractive to potential customers. The game or simulation could be 2D labyrinth with a birds-eye view of moving objects. Ideally Samsung are looking for an addictive game similar in principle and popularity as Pac Man, or an interesting simulation such as Fox and Rabbits.

You have may work as a team of up to three members providing each member of the team has clearly identified parts of the design, implementation, documentation and testing of the game or simulation.

P2.1 Game of Simulation Code

1. You have been asked implement your game or simulation in Greenfoot in a way that best matches the agreed design. Each member of the team should be responsible for one main class with at least 6 functions.

2. The code should be available in https://bitbucket.org with evidence that all team members have contributed sufficiently to the commits and changes.

3. Produce a final report with screen shots of your game or simulation in action

P4.2, 4.4

1. Each team member should create a test plan in a shared document, for their part of the whole game or simulation

2. The tests should be executed and recorded by a different team member and any issues identified should be recorded in bitbucket.org, and resolved wherever possible.

M2: Coding – Best Practice

Whilst coding each member of the team will be expected to follow agreed standards of documentation, choice of names, indentation, and the structure the code. The code needs to be as understandable and as self-documenting as possible. There should be no unnecessary duplication, and the code should be structure well for easy maintenance and easy extension for future versions of the game or simulation.

D1: Final Evaluation

Write a report that critically evaluates all aspects of the software development. That should include evaluation of the tools used, the language chosen, the methods employed as well as the design, coding and testing of the software.

The report can also discuss the way the team was organized and made decisions, as well as the support provided by your management (your tutor in this case). The report should consider software design principles as well as code re-factoring.

D2 *Planning Activities*

The team should create a shared project plan using https://teamwork.com. The main activities of each stage of development (design, implementation and testing) should be covered with estimated dates, and who in the team is largely responsible for the activity.

This plan should be updated as activities are completed.

D3 *Creative Thinking*

The demonstration of creativity can be embodied in the entire choice of game or simulation, or in just limited aspects of the game or simulation. It can also be demonstrated by using alternative tools, techniques or language other than the ones supported by your manager.

Creativity can also be demonstrated by using different testing techniques or coding in a novel and original way.