Engineering

Programme: Edexcel BTEC Higher National in Engineering

OAKLANDS COLLEGE

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

Level: 4 **Credit:** 15

Assignment No: 1 of 3	Student Name:
Assignment Title: Software Design	
Issue Date: 20/Apr/2016	Return Date: 11/May/2016
Assessor: Dr Derek Peacock	

Outcomes Covered:

1. **Be able to design and develop code using structured programming methods**
3. **Be able to produce appropriate documentation for a given program application**

	Assessment Criteria	Achieved		Assessment Criteria	Achieved
P1.4	produce programs to desired standards	Yes/No	**P3.1**	produce user documentation for completed programming application including the user interface design	Yes/No
P3.2	develop technical documentation for a pre-described program application	Yes/No	**P1.1**	select appropriate pre-defined data types	Yes/No
M3	present and communicate appropriate findings	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:

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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
M3: present and communicate appropriate findings	Summary, Use Cases, Classes, Activities all consistent. Good choice of names, good comments with nor more than two exceptions

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Assignment 1 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.

P3.2 Analysis and Design

1. Decide on a suitable game or simulation and produce a short summary of no more than 400 words that describes the proposed game or simulation. Show that summary to your manager, and get it agreed before proceeding to the next step.
2. Create a Use Case Diagram based on the agreed summary, and document the use cases with appropriate detail. Assign responsibility for each use case to one member of the team.
3. Create Activity Diagrams that illustrate how any algorithm required in the game or simulation will work.

P3.1 Program Structure

1. Create a Class diagram that contains all the operations required to meet the use cases.
2. Mock up screen shots that illustrate how the user interface will work

P1.1 Select Data Types

1. Add to each class appropriate attributes that are required in order for the operations to be completed successfully
2. Ensure that each attribute has an appropriate data type selected, and any parameter also has an appropriate data type selected.

P1.4 Programming Standards

1. Check that all Use Case names, and Operation names start with a Verb, contain two, or at most three words, and clearly and unambiguously. identify the purpose.
2. Check that all Class names and attribute names are nouns. Class names will be singular, usually be one word, or at most two words. Attribute names may go up to three words, with singular and plural words being use appropriately.
3. All classes, operations and attributes should have a comment that clearly describes their purpose and use.

M3 ***(present and communicate)***

Check that the part of the analysis and design you were responsible for is easy to understand, and contains no inconsistencies between the summary, the use cases, the class and the activity diagrams. The choice of all names should be clear, unambiguous and meet with the required documentation standards with no more than two exceptions. There should be no more than one missing element.