Digital Technologies

Learner Name	
Course	Pearson BTEC Higher National Certificate in Computing
Awarding Body	BTEC (Pearson)
Module Name(s)	Unit 9 – Software Development Lifecycles (2019 rev)
Assignment Title & Number	Assignment 2 of 2
Assessor's Name	John Terry
Hand out Date	W/C 2nd December 2019
Hand in Date	17th January 2020
Feedback Date	+3 weeks

Assessment Brief IQA by: *(Name & Signature)*		**Assessment Brief sample by Lead IQA: *(Name & Signature)***	
Date:	?/?/2019	**Date**	

Specific outcomes and criteria being assessed		
Module	**Grading Criteria**	**Description**
9	P5 (LO3)	Undertake a software investigation to meet a business need
9	P6 (LO3)	Use appropriate software analysis tools/techniques to carry out a software investigation and create supporting documentation
9	P7 (LO4)	Discuss using examples the suitability of software behavioural design techniques
9	M3 (LO3)	Analyse how software requirements can be traced throughout the software lifecycle
9	M4 (LO3)	Discuss two approaches to improving software quality
9	M5 (LO4)	Analyse a range of software behavioural tools and techniques
9	M6 (LO4)	Differentiate between a finite state machine (FSM) and an extended-FSM, providing an application for both
9	D3 (LO3)	Evaluate the process of undertaking a systems investigation with regards to its effectiveness in improving a software quality
9	D4 (LO4)	Present justifications of how data driven software can improve the reliability and effectiveness of software

English, maths and other Skills for Success covered in this assignment	English Written design documentation.	Maths Algorithm design	Skills for Success Software design, Feasibility, Algorithms
Learner submission sampled by IQA: (Name and signature)		**Learner submission sampled by Lead IQA: (Name and signature)**	
Date		**Date**	

COPYING DISCLAIMER

I confirm that all the work contained in this assignment, being presented for assessment, is my own work.

I also confirm that I have not copied this work from other people's papers, electronically from their disk, from textbooks, CD ROM or from the Internet.

I also understand that if I hand in an assignment that has work in it that has been copied, this will be subject to disciplinary action and may cause me to lose my place on the course.

Student Signature:		**Date:**	

Assessor declaration	I certify that the evidence submitted for this assignment is the learner's own. The learner has clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice.		
Assessor signature	John Terry	**Date**	
		Date of feedback to learner	
Resubmission authorisation by Lead Internal Quality Assurer*		**Date**	

* All resubmissions must be authorised by the Lead Internal Verifier. Only one resubmission is possible per assignment, providing:

- The learner has met initial deadlines set in the assignment, or has met an agreed deadline extension.
- The tutor considers that the learner will be able to provide improved evidence without further guidance.
- Evidence submitted for assessment has been authenticated and accompanied by a signed and dated declaration of authenticity by the learner.

**Any resubmission evidence must be submitted within 10 working days of receipt of results of assessment.

Scenario

MKCoding Solutions Ltd have recently been contacted by FaceFiller, a new food aggregator competing with the likes of Just Eat or Deliveroo. They are working with partners to create a system for interfacing with food providers and have asked you to work with Dominos Pizza HQ in Milton Keynes to help design the Back-end ordering system.

Task 1	**Grading Criteria Covered:** Unit 9: P5 Undertake a software investigation to meet a business need.
Evidence Required	Group-based Investigation document with individual work marked up

Put together an investigation of the above scenario. You will need to undertake your gathering of requirements using the most appropriate elicitation techniques. Research will also need to be carried out to lead into the analysis phase.

You should include the following:

- Interview carried out
- Research carried out
- Feasibility study

Task 2	**Grading Criteria Covered:** Unit 9: P6 Use appropriate software analysis tools/techniques to carry out a software investigation and create supporting documentation.
Evidence Required	Group-based Analysis document with individual work marked up

For the Food Aggregation System application, use appropriate tools to carry out the analysis phase of the lifecycle including:

- Identifying objects and classes.
- Identifying the object relationships.
- Identifying the attributes.
- Identifying services.
- Modelling the database elements
- Describe the requirements e.g. defining user stories/creating use case diagrams
- In undertaking the above steps, consider the use of:
    - Use case diagrams
    - Class diagrams
    - Sequence diagrams
    - State machine diagrams
    - Activity diagrams

Task 3	**Grading Criteria Covered:** Unit 9: M3 Analyse how software requirements can be traced throughout the software lifecycle. Unit 9: M4 Discuss two approaches to improving software quality.
Evidence Required	Report Document

When developing software, the requirements that are produced end up being used throughout the remainder of the project phases. Analyse how the software requirements are used at different stages of the software lifecycle.

MK Coding are having an end-of-year staff conference. They are inviting speakers on a range of topics. You have asked to submit a paper on improving software quality. Complete this report document with your paper discussing two approaches to improving software quality.

Task 4	**Grading Criteria Covered:** Unit 9: P7 Discuss, using examples, the suitability of software behavioural design techniques. Unit 9: M5 Analyse a range of software behavioural tools and techniques.
Evidence Required	Report Document

You have been asked to provide a report discussing the suitability of software behavioural design techniques and then a page of analysis of a range of such techniques.

Task 5	**Grading Criteria Covered:** Unit 9: M6 Differentiate between a finite state machine (FSM) and an extended-FSM, providing an application for both.
Evidence Required	Report Document

MK Coders have set up a CPD session for its developers to look at embedding some higher level skills within their development process.

For the documentation they have asked you to suggest two software behavioural specification methods (one per page) and illustrate their use with an example.

The booklet also needs to include a descriptive section that differentiates between a finite state machine (FSM) and an extended-FSM, providing an example of the application of both.

Task 6	**Grading Criteria Covered:** Unit 9: D3 Evaluate the process of undertaking a systems investigation with regards to its effectiveness in improving a software quality. Unit 9: D4 Present justifications of how data driven software can improve the reliability and effectiveness of software.
Evidence Required	Report Document

In addition to the CPD documents you have been asked to provide for Task 5, MKCoding have requested your help in answering a couple of queries that have come from two of their junior team members.

They have asked you for an evaluation of the process of undertaking a systems investigation. In addition, they want to know how effective it is in improving software quality.

They have also asked you to present justifications of how data driven software can improve the reliability and effectiveness of software.

You can use software that you have developed or any case studies as evidence in this task for reference.

Feedback

Module Number	Criteria included in this assessment		Met or Not Met	Comments
Task 1				
9	P5	Undertake a software investigation to meet a business need.		
Task 2				
9	P6	Use appropriate software analysis tools/techniques to carry out a software investigation and create supporting documentation.		
Task 3				
9	M3	Analyse how software requirements can be traced throughout the software lifecycle.		
9	M4	Discuss two approaches to improving software quality.		
Task 4				
9	P7	Discuss, using examples, the suitability of software behavioural design techniques.		
9	M5	Analyse a range of software behavioural tools and techniques.		
Task 5				
9	M6	Differentiate between a finite state machine (FSM) and an extended-FSM, providing an application for both.		
Task 6				
9	D3	Evaluate the process of undertaking a systems investigation with regards to its effectiveness in improving a software quality.		
9	D4	Present justifications of how data driven software can improve the reliability and effectiveness of software.		

Assessor's Feedback	
What Went Well? **Even Better If…** **SPaG & Maths Feedback**	
Assessor Signature:	**Date:**
Student Signature:	**Date:**

Student's Target (Student to complete from feedback)	
Using the feedback provided, consider how you will improve the quality of your assessed work and identify targets to achieve this.	
Signature:	**Date:**