BTEC Assignment Brief

Qualification	Pearson BTEC Higher Nationals in Digital Technologies
Unit number and title	Unit 27: Software Development Lifecycles
Learning aim(s)	By the end of this unit, students will be able to: **LO1** Describe different software development lifecycles **LO2** Explain the importance of a feasibility study **LO3** Undertake a software development lifecycle **LO4** Discuss the suitability of software behavioral design techniques.
Assignment title	Software Development Lifecycles
Assessor	Abul Ala Nauman
Issue date	April 02, 2025
Hand in deadline	

Context	**Software Development Lifecycles**
	
	Task 01:
	
	Describe the below SDLC Models. Include:
	
	• Give a brief introduction about the model
	• Advantages
	• Disadvantages
	• Describe how the SDLC Model Works.
	• Diagram of the SDLC Model
	• Uses of the SDLC Model and all other required Information.
	  ○ Waterfall model
	  ○ Prototyping Model
	  ○ Spiral Model
	  ○ Agile Model
	
	Task 02:
	
	The Spiral software Lifecycle Model is Quite famous in Risk Management.
	
	• Explain the ways of Managing Risks in the Spiral Model.
	
	Task 03:
	
	Using course submitted assignments Software Requirement Specifications (SRS) and Detailed Design Documents, create next version under the guidelines provided during oral exam.
	
	As a Project Manager, you have decided to go on with Rational Unified Process (RUP) to develop the system.
	
	Use SRS and Detailed Design Documents as basis to develop the system. Execute at least 2 iterations to deliver incremental features. Include the following in the report:
	
	• Attach revised SRS and Design Documents as appendixes to the report
	• Product backlog
	• Iteration Backlog
	• Work Break Down Structure (WBS)
	• Resources allocation
	• Screens of working feature
	• Recommended documented code

Sources of information to support you with this	**Submission Requirements:** Each student has to submit their assignment as guided in the assignment brief. The students are guided what sort of information is to produce to meet the criteria targeted. You are required to make use of headings, paragraphs and subsections as appropriate, and all work must be supported with research and referenced using the Harvard referencing system.

Assignment	**Important:** • Word-limit- 8,000-10,000 words (excludes cover page, table of content, figures, graphs, reference list, appendix and logbook) • Accepted Sources: Research Papers (Journal Articles, Conference Proceedings, Thesis), Text Books, Governmental Data, Websites (only a registered organization, an educational institution, government agency) • Information taken from unreliable sources will not be accepted • Must follow Harvard Reference Style. **Books:** Ferguson, J. (2014) BDD in Action: Behavior-driven development for the whole software lifecycle. Manning. Dennis, A. and Haley, W. (2009) Systems Analysis and Design. John Wiley & Sons Ltd. Lejk, M. and Deeks, D. (2002) An Introduction to System Analysis Techniques. 2nd Ed. Addison-Wesley. Murch, R. (2012) The Software Development Lifecycle: A Complete Guide. Kindle. **Websites** **freetutes.com** FreeTutes "Systems Analysis and Design – Complete Introductory Tutorial for Software Engineering" (Tutorial) **ijcsi.org** IJCSI International Journal of Computer Science Vol. 7, Issue 5, September 2010 "A Comparison Between Five Models Of Software Engineering" (Research) **ijcsi.org** IJCSI International Journal of Computer Science Vol. 6, Issue 1, 2015 "Software Development Life Cycle Models – Comparison, Consequences" (Research)

Learning Outcomes and Assessment Criteria

<table>
<tr><th>Pass</th><th>Merit</th><th>Distinction</th></tr>
<tr><td colspan="2">LO1 Describe different software development lifecycles</td><td rowspan="2">D1 Assess the merits of applying the Waterfall lifecycle model to a large software development project.</td></tr>
<tr><td>P1 Describe two iterative and two sequential software lifecycle models.
P2 Explain how risk is managed in these models.</td><td>M1 Discuss, with an example, why a particular lifecycle model is selected
for a development environment.</td></tr>
<tr><td colspan="2">LO2 Explain the importance of a feasibility study</td><td rowspan="2">D2 Assess the impact of different feasibility criteria on a software investigation.</td></tr>
<tr><td>P3 Explain the purpose of a feasibility report.
P4 Describe how technical solutions can be compared</td><td>M2 Discuss the components of a feasibility report.</td></tr>
<tr><td colspan="2">LO3 Undertake a software development lifecycle</td><td rowspan="2">D3 Evaluate the process of undertaking a systems investigation with regards to its effectiveness in improving software quality</td></tr>
<tr><td>P5 Undertake a software investigation to meet a business need.
P6 Use appropriate software analysis tools/techniques to carry out a software investigation and create supporting documentation.</td><td>M3 Analyze how software requirements can be traced throughout the software lifecycle
M4 Discuss two approaches to improving software quality.</td></tr>
<tr><td colspan="2">LO4 Discuss the suitability of software behavioral design techniques</td><td rowspan="2">D4 Present justifications of how data driven software can improve the reliability and effectiveness of software.</td></tr>
<tr><td>P7 Discuss using examples the suitability of software behavioral design techniques.</td><td>M5 Analyze a range of software behavioral tools and techniques.
M6 Differentiate between a finite state machine (FSM) and an extended-FSM, providing an application for both.</td></tr>
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