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| Task No. | 2 | Task Title | | Assessment Item 2 | | | | Due Date | 5/4/2019 | |
| Unit / Module details | | | | | | | | | | |
| Qualification/Course | | | Code | ICT60515 | Title | Advanced Diploma of Computer Systems Technology | | | | |
| Unit/Module | | | Code | ICTICT502 | Title | Develop detailed component specifications from project specifications | | | | |
| Assessment details | | | | | | | | | | |
| Assessor | | | Assessor’s name | | Vikram Behal | | Assessor’s phone | | | 03 9254 6130 |
|  | | | Assessor’s email | | vbehal@kangan.edu.au | | | | | |
| Elements / Learning outcomes | | | Element 1,2,3,4 | | | | | | | |
| Task overview*(see below for specific instructions and criteria)* | | | **This assessment item is research based all students are required to create one report. They must complete all tasks listed under Assessment instructions and criteria in their report.**  This assessment item requires students to work individually, however they can consult their teacher or fellow students. Students need to accomplish their task professionally and in time. This assessment item is open book and students are allowed to use all resources. It is their responsibility to monitor their progress. Students are required to research and complete all tasks listed under Assessment instructions and criteria. Student must use appropriate references in their report.  Once all tasks are completed as per Assessment instructions and criteria student must upload completed task at MyLearning.  Students are required to explain following:   1. Explain all phases of software development lifecycle 2. Explain documentation standards 3. Explain why it is important to Identify and develop components according to project specifications 4. Explain the purpose of class diagrams 5. Explain the purpose of a use case diagram 6. Explain the purpose of state chart diagram 7. Explain the purpose of UML diagram 8. Explain why it is important to analyse and document component connectivity 9. Explain how you can identify data flow iteration 10. Explain how we can identify functional requirements 11. Explain why it is important to review and update functional requirements 12. Name which diagram will specify components relationships 13. Explain why we should conduct walk-through of current model and review functionality before developing or modifying any software project 14. Explain why it is important to identify relationships before integration of software project 15. Explain importance of identifying relationships to ensure integration of model 16. Explain unit test and explain how to create initial test criteria 17. Explain integration text 18. Explain the purpose and the key features of a cost-benefit analysis 19. Explain data modelling techniques 20. Explain at least one software development methodologies   **Explain above at the end of this document under “Task Instructions and Student Work” .** | | | | | | | |
| Assessment conditions | | | * This information is to be handed to each student to outline the assessment requirements. * This is open book assessment and students are required to create research report for this assessment item. * This Assessment Item requires students to work individually and address all requirements as per Assessment item Description * Students are required to accomplish their task professionally and in time * Students must submit this Assessment item at MyLearning * This assessment item is Research Assignment * In class allocated time for this assessment item is 20 mins in each session; however student can negotiate time with teacher under special circumstances * Length of Report should not exceed 5000 words * Read the Plagiarism policy and procedure carefully to understand the consequences that you could face if your work is plagiarized. * You plagiarize if you present other writers' words or ideas as your own. * You must use citations to document all ideas and significant information that are not your own. * Submit this document by the due date (penalties applies) * Insert your name and student id in the footer. * Use Font: Arial Font Size: 10 Heading: Bold Arial Heading Size: 12 Sub Heading: Bold Arial Sub Heading Size: * Marking criteria for this assessment is as per criteria listed under “Assessment instructions and criteria” | | | | | | | |
| Resources | | | Resources are available through MyLearning | | | | | | | |
| How to submit | | | Complete Assessment items as per assessment Item description and upload assessment item at MyLearning  All items submitted must be clearly marked with the following details:  • Your full name  • Your student number  • Your class group  • The date  This cover sheet must accompany all items submitted. | | | | | | | |

| Assessment instructions and criteria | | | |
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| With competency based assessment **all** assessment requirements for each assessment task must be assessed as satisfactory **(S)** for a competent **(CA)** result to be recorded. If an assessment result for any task is assessed as not satisfactory **(NS)** a resubmission will be required for the outstanding **(NS)** assessment task.  Rows can be deleted by left clicking to the left of the row and click *Backspace*  Rows can be added by left clicking to the left of the row and click *CTRL+C* and then *CTRL+V* | | | |
| **Instruction/Task** | **Criteria that you will be assessed on** | **S** | **NS** |
| Explain all phases of software development lifecycle | Student explained all phases of software development lifecycle |  |  |
| Explain documentation standards | Student explained Importance of good documentation |  |  |
| Explain why it is important to Identify and develop components according to project specifications | Student explained importance to Identify and develop components according to project specifications |  |  |
| Explain the purpose of class diagrams | Student explained the purpose of class diagrams |  |  |
| Explain the purpose of a use case diagram. | Student explained the purpose of a use case diagram. |  |  |
| Explain the purpose of statechart diagram | Student explained the purpose of statechart diagram |  |  |
| Explain the purpose of UML diagram. | Student explained the purpose of UML diagram. |  |  |
| Explain why it is important to analyse and document component connectivity | Student explained the importance to analyse and document component connectivity |  |  |
| Explain how you can identify data flow iteration | Student explained how he can identify data flow iteration |  |  |
| Explain how we can identify functional requirements | Student explained how he can identify functional requirements |  |  |
| Explain why it is important to review and update functional requirements | Student explained the importance to review and update functional requirements |  |  |
| which diagram (Name) will specify components relationships | Student Name the diagram name to specify components relationships |  |  |
| Explain why we should conduct walk-through of current model and review functionality before developing or modifying any software project | Student explained why we should conduct walk-through of current model and review functionality before developing or modifying any software project |  |  |
| Explain why it is important to identify relationships  before integration of software project | Student explained importance to identify relationships  before integration of software project |  |  |
| Explain importance of identifying relationships  to ensure integration of model | Student explained importance of identifying relationships to ensure integration of model |  |  |
| Explain unit test and explain how to create initial test criteria | Student explained unit test and explain how to create initial test criteria |  |  |
| Explain integration text | Student explained integration text |  |  |
| Explain the pupose and the key features of a cost-benefit analysis | Student explained the pupose and the key features of a cost-benefit analysis |  |  |
| Explain data modelling techniques | Student explained data modelling techniques |  |  |
| Explain at least one software development methodologies | Student explained at least one software development methodologies |  |  |
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| Student details | | | | | | | | | | | |
|  | Student’s name | | | Benjamen Calleja | | Student’s ID | | | Cal14385330 | | |
| Unit/Module details | | | | | | | | | | | |
| Unit/Module | Code | | ICTICT502 | Title | Develop detailed component specifications from project specifications | | | | | | |
|  | Task title | | Assessment Item 2 | | | | | | | | |
| Assessment feedback / comments | | | | | | | | | | | |
| Click here to enter text. | | | | | | | | | | | |
| Re-submission (where applicable) | | | | | | | | | | | |
| Unsatisfactory tasks are to be re-submitted according to the details below. Type NA if not applicable. | | | | | | | | | | | |
| **Task (or component of task) to be re-submitted** | | **Additional evidence required** | | | | | **Re-Submission date** | | | **S** | **NS** |
| Task for re-submission | | Evidence | | | | | Date | | |  |  |
| Task for re-submission | | Evidence | | | | | Date | | |  |  |
| Task for re-submission | | Evidence | | | | | Date | | |  |  |
| Result for this assessment task | | | | | | | | | | | |
|  | Your final result for this unit will be provided on the ***Unit Result Record*** at completion of all assessment tasks | | | | | | | | | | |
|  | Result | | | Choose an item. | | | | | | | |
|  | Assessor’s signature | | |  | | | **Date** |  | | | |

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| Task Instructions and Student Work |

**Student must explain/answer under this section.**

Students are required to explain following:

1. Explain all phases of software development lifecycle  
   **Requirement Gathering and Analysis.  
   During this phase all the relevant information is collected from the customer to develop a product as per their expectation. Business analyst and project manager set up a meeting with the customer to gather all the information like what the customer wants to build, who will be the end user.  
     
   Design  
   In this phase, the requirement gathered in the document is used as an input and software architecture that is used for implementing system development is derived.  
     
   Implementation  
   Implementation starts once the developer gets the design document. The Software design is translated into source code. All the componets of the software are implemented in this phase.  
     
   Testing  
   Testing starts once the coding is complete and the modules are released for testing. In this phase the developed software is tested and any defects found are assigned to devlopers top get them fixed.  
     
   Deployment  
   Once the product is tested it is deployed in the production environment is done depending on the customer expectation. In case of user acceptance testing a replica of environment is created and that customer along with the developers does the testing. If the customer finds the application as expected, then sign off is provided be the customer to go live.  
     
   Maintenance  
   After the deployment of a product on the production environment, maintenance of the product for example if any issue comes up and needs to be fixed or any enhancement is to be done is taken care of by the developers.**

1. Explain documentation standards  
   **Documentation standards** in a software project are important because documents are the only way of representing the software and the software process. Documentation quality must be flexible and able to cope with all types of documents. For working papers or electronic memos.
2. Explain why it is important to Identify and develop components according to project specifications  
   **The reasons why to identify and develop componets according to project specs .  
   It provides a clear instructions on the intent, prefromance and construction of the project.  
   It can reerence the quality and standards which should be applied.  
   Materials and manufactures, products can be clearly examined.  
   Classification in the specification can be used to support hanfover and running of the asset.  
     
   Specification writing should begin very early in the product lifecycle. Early stage specifications can be seen as part of the review with the client about what they are looking to achieve on the project. This early stage work also provides an understanding of the perfoermance requierments.**
3. Explain the purpose of class diagrams   
   **The purpose of class diagrams is.   
   1. They show static structure of classifiers in a system  
   2. Diagrams provide basic notation of other structure diagrams prescribed by UML  
   3. Helpful for developers and other team members too  
   4. Business analysts can use class diagrams to model system from business perspective**
4. Explain the purpose of a use case diagram  
   **The purpose of a case diagram is to capture dynamic aspect of a system. Case diagrams are used to gather the requirements of a system including interal and external influences. These requierments are mostly design requierments.**
5. Explain the purpose of state chart diagram  
   **A state chart diagram is one of the five UML diagrams and is used to model the dynamic nature of a system. They define differnet states of an object during its lifetime and these are changes by events. Statechart diagrams are useful to model the reactive system.**
6. Explain the purpose of UML diagram  
   **UML stands for unified modelling language. It is an international industry standard graphical notation used for describing, visualizing, constructing and documentating the artifacts of a software system.  
   .To reason about system behaviour  
   .To detect errors and omissions easrly in the life cycle  
   .To present proposed designs and communicate with stakeholders.  
   .To understand requierments.  
   To drive implementation.**
7. Explain why it is important to analyse and document component connectivity  
   **Component importance analysis. Importance measures in reliability engineering are used to identify weak areas of a system and signify the role of components in either causing or contributing to proper functioning of the system.**
8. Explain how you can identify data flow iteration  
   **Data flow is used to determine parts of a program which a particular value assigned to a variable. A simple way to set up data dlow for each node of the control flow graph and solbe them by repatedly calculating the output.**
9. Explain how we can identify functional requirements  
   **Functional requierments are what you expect the software to do for example calculate a value. Non functional requierments are how well you expect the system to do what is does. Calculate a value securely in a fraction of a second. This is a simple and effective distinction you can use to segregate the two.**
10. Explain why it is important to review and update functional requirements  
    **Clearly defined requirements are essential signs on the road that leads to a successful project. They establish a formal agreement between a client and a provider that they are both working to reach the same goal. Creating requirements is a complex task as it includes a set of processes such as elicitation, analysis, specification, validation, and management. In this article, we’ll discuss the main types of requirements for software products and provide a number of recommendations for their use.**
11. Name which diagram will specify components relationships  
    **A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them. Deployment diagrams are typically used to visualize the physical hardware and software of a system.**
12. Explain why we should conduct walk-through of current model and review functionality before developing or modifying any software project  
    **A walkthrough is a quality pratcie that allows business to optain an early validation of design decisions related to the development and treatment of designs decisions related to the development and treatment of content, design of the graphical user interface, and**

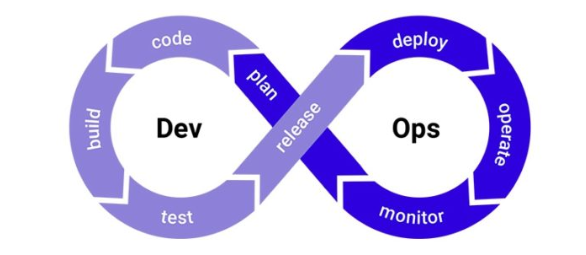
**the elements of product functionality.** 

1. Explain why it is important to identify relationships before integration of software project  
   **The reason why it is important to identify vefore integrations is in order to coordinate all aspects of a project project intergration managments needs to create a number of deliverables. To start is the development of project charter.**
2. Explain importance of identifying relationships to ensure integration of model  
   **Intergration is important in any business in todays world. For systems that businesses use every day like email and client tracking, Intergration betwerrn systems can save time and offer a much better experience to both client and seller.**

* Explain unit test and explain how to create initial test criteria  
  **Unit testing is defines as a type of software testing where individual units/componets of software are tested.  
  unit testing of software applications is done during the developments of an application. The objective of unit testing is to isolate a section of code and verify its correctness  
    
  Unit testing is commonly automated but may still be performed manually. Software Engineering does not favour one oncer the other but automation is preferred. A manual approach to unit testing may employ a step by step instructional document.   
  under the automated approach   
  A developer writes a section of code in the application just to test the function. They would later comment out and finnaly remove the test code when the application is deployed.  
  A coder generally uses a UnitTest Framework to develop automated test cases. Using an automation framework, the developer codes criteria into the test to verify the correctness of the code. During execution of the test cases, the framework logs failing test cases. Many frameworks will also automatically flag and report, in summary, these failed test cases. Depending on the severity of a failure, the framework may halt subsequent testing.**

1. Explain integration text  
   **Intergration text is a procedure that can result in different types of intergration. Texts can be intergrated based on their contents, linguistic features, or information external to the text such as source context of the writing.**
2. Explain the purpose and the key features of a cost-benefit analysis  
   **Cost benefit analysis is a approach to estimating the strengths and weakness of alternateivs used to determine options which provide the best approach to achieving benefits while trying to save money.  
     
   Cost benefit analysis has a few defining features. First is the need to identify a project or business scenario and one or multiple project scenarios. The CBA ultimately attemtps to value the differnence in outcomes between these scenarios and therefore the impact of moving from business as usual to a different project.  
     
   Secondly it is necessary to identify the range of economic, social and environmental cost and benefits that might be expected in moving from the ‘without’ to ‘with’ project scenarios. It should be remembered that a business as usal or without project scenarios.  
     
   The third is the quantification of cost and benefits. Accurate estimates the monetary value of a number of costs and benefits will typically be available.**
3. Explain data modelling techniques  
   **Data modelling is the process of documentating a complex software system design as an easily understood diagram, using text and symbols to represent the way data needs to flow. The diagram can be used to ensure efficient use of data, as a blueprint for the contruction of new software for re-engineering a legacy application.**
4. Explain at least one software development methodologies

**DevOps deployment methodology**



**Devops deployment is centered on organizational change that**

**Enhances the collaboration between the departments respons-**

**Ible for different segments of the development life cycle, such**

**As development, quality assurance and operations. Devops is**

**More focused on improving time to market, lowering the failure**

**Rate of new releases, shortening the lead time between fixes,**

**And prioritizing minimal disruption and maximum reliability.**