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**CLASS : ITBS-BDSE04-AIM-0322**

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Note: Read Project Definition Section in previous Module Project Brief. The project assumed for these questions are based on that scenario.

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| **Module No:** | Application Implementation | **IU No:** | 1 | **Exercise No.** | 1 |

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| **Lab Assessment Statement** | **Question is part of Module Project**  Envision Executing a Software Project  Develop a project plan (list of tasks in correct order), for each of Spiral, Waterfall, Agile, V-models to execute the software project. (2 pages). |
| **Technical Environment** | - |
| **Guidelines** | - |
| **Duration** | 20 mins |

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| **Module No:** | Application Implementation | **IU No:** | 1 | **Exercise No.** | 2 |

Develop a project plan (list of tasks in correct order), for each of Spiral, Waterfall, Agile, V-models to execute the software project.

**Project scenario:**

ABC Jobs Pte Ltd as a website developer to develop a community portal for Software Developers.

**Project Objectives:**

The scope of this project is to design a community portal similar to Linkedin.com. The website should allow users to register, login, change password, update profile, search and view other users’

**SDLC Models:**

1. **Waterfall Model**The waterfall model is a breakdown of project activities into linear sequential phases, where each phase depends on the deliverables of the previous one and corresponds to a specialization of tasks. The approach is typical for certain areas of engineering design.
2. **Requirement & Gathering Analysis**
3. Identify ABC Company as a client and stakeholder.
4. Arrange project kick off meeting and gather requirement from client and the stakeholders.
5. Gather the list project requirements from client.
6. **System Design**
7. List Of technical requirement
8. Hardware requirement
9. Software Requirement
10. Database Requirement
11. Prepare the prototype

* Business Process Diagram
* Wireframe
* Storyboard

1. Database Design

* Planning and System definition
* Logical model
* Physical model

1. **Implementation**

Implementing all the technical process to make the application

1. **Testing**

* Capture the test case document to perform testing
* Ensuring developed software solves the needs addressed and gathered during requirement gathering

1. **Deployment**

* Product delivery / Deployment to customer or client
* Beta testing by customer or client
* Sign-off by customer and final deployment in production environment

1. **Maintenance**

* Fix bugs
* Support and hand holding to application users

1. **Spiral Model**The spiral model is a risk-driven software development process model. Based on the unique risk patterns of a given project, the spiral model guides a team to adopt elements of one or more process models, such as incremental, waterfall, or evolutionary prototyping.
   1. **Planning**

* Requirement gathering
* Cost, schedule and resource estimation  
  1. **Risk Analysis**
* Identifying, estimating, and mothering feasibility and management risk
  1. **Development and Testing**
* Hardware requirement
* List Of technical requirement
* Software Requirement
* Database Requirement
* Prepare the prototype
* Database Design
* Project Implementation
* Project Testing
  1. **Evaluation**
* Collect all feedback obtained from public customers
* Document the implemented design
* Report any request changes documentation

1. **Agile Model**Agile modeling is a methodology for modeling and documenting software systems based on best practices. It is a collection of values and principles, that can be applied on an software development project.

**Iteration 1 : Registration Epic (first module)**

1. **Requirement gathering**
2. Plan the meeting with client
3. Gather the list project requirements from client.
4. **Design**
   1. Technical Requirement
   2. Prototype Preparation
   3. Database Design

**3. Implementation**

* Implementing all the technical process to make the application

**4. Testing**

* Application testing
* Database testing
* Unit testing
* Integration testing
* Acceptance testing
* Non-functional testing

**5. Deployment**

* Product delivery / Deployment to customer or client
* Beta testing by customer or client
* Sign-off by customer and final deployment in production environment

***Iteration 2 : Login Epic*** ***(second module)***

1. **Requirement gathering**
2. Plan the meeting with client
3. Gather the list project requirements from client.
4. **Design**
5. Technical Requirement
6. Prototype Preparation
7. Database Design

**3. Implementation**

* Implementing all the technical process to make the application

**4. Testing**

* Application testing
* Database testing
* Unit testing
* Integration testing
* Acceptance testing
* Non-functional testing

**5. Deployment**

* Product delivery / Deployment to customer or client
* Beta testing by customer or client
* Sign-off by customer and final deployment in production environment

***Iteration 3 : Reset Password Epic*** ***(Third module)***

1. **Requirement gathering**
2. Plan the meeting with client
3. Gather the list project requirements from client.
4. **Design**
5. Technical Requirement
6. Prototype Preparation
7. Database Design

**3. Implementation**

* Implementing all the technical process to make the application

**4. Testing**

* Application testing
* Database testing
* Unit testing
* Integration testing
* Acceptance testing
* Non-functional testing

**5. Deployment**

* Product delivery / Deployment to customer or client
* Beta testing by customer or client
* Sign-off by customer and final deployment in production environment

**Additional Support**

Conduct scrum meeting for every 3 hour per day between stakeholders’ team and the client leaded by scrum master

1. **V-models (Sequential):**In [software development](https://en.wikipedia.org/wiki/Software_development), the V-model represents a [development process](https://en.wikipedia.org/wiki/Software_development_process) that may be considered an extension of the [waterfall model](https://en.wikipedia.org/wiki/Waterfall_model), and is an example of the more [general V-model](https://en.wikipedia.org/wiki/V-model). Instead of moving down in a linear way, the process steps are bent upwards after the [coding](https://en.wikipedia.org/wiki/Source_code) phase, to form the typical V shape.

**Left-Hand Side**

1. **Requirement Analysis**
   * + - 1. Capturing all requirement

* Interview the clients
* Conduct survey to stakeholders
* Research similar product
  + - * 1. Analysis the requirements

Brainstorming with team member to understand the requirement

* + - * 1. Verification activities

Requirement review

* + - * 1. Validation activities

Creation of UAT (User Acceptance Testing)

* + - * 1. Artifact produced
* Requirement understanding documentation
* Project Initiation document
* Project Plant document
* UAT test case
* Business requirements documentation

1. **System Requirement / High-level design**
2. Investigate on how the requirement could be implemented
3. Verification activities

Design review

1. Validation activities:

* Creation of test plant and cases
* Creation of traceability metric

1. Artifact produced:

* System test case
* System test plan
* Feasibility report
* Hardware-Software requirement
* Modules to be created

1. **Architectural design**
2. Based on the system requirement, created

* Software architecture
* Modules, their relationship, and dependencies
* Architectural diagram
* Database tables
* Technologies details

1. Verification activities

Design review

1. Validation activities

Integration test plant and test cases

1. Artifacts produced

* Design documentation
* Document integration test plant and cases
* Database table

1. **Module design / Low-level design**
   * + - 1. Documentation for each of module of the software component design

* Interface
* Class
* Method
* Data type
* Etc.
  + - * 1. Verification activities

Design review

* + - * 1. Validation activities

Creation and review of unit test cases

* + - * 1. Artifact produced

Unit test cases

1. **Implementation / Code**
2. Implementing the code as per the module

* Register new user
* Login to community portal and logout
* See and update own profile
* Forgot password
* Search another user
* Administer user data

1. Verification activities

* Code review
* Test case review

1. Validation activities

Creation of functional test cases

1. Artifact produced

* Test cases
* Review documentation
* Development documentation

**Right-Hand Side**

1. **Unit Testing**
2. Executing all the unit test cases
3. Artifacts produced

Unit test execution result documentation

1. **Integration Testing**
2. Executing the integration test cases which were created in architectural design
3. Artifacts produced

Integration test result documentation

1. **System Testing**
2. Perform all system test cases

* Functional testing and Non-Functional testing
* Logged all defect
* Report progress

1. Track and update the traceability metric
2. Mitigated the risk
3. Artifacts produced

* Test result
* Defect report
* Test summary report
* Updated traceability metrics

1. **User Acceptance Testing**
2. Perform Acceptance testing to meet the business requirements
3. Execute compatibility testing and some Non-functional testing
4. Artifacts produced

* UAT result documentation
* Update business coverage metrics

1. List at least 2 disadvantages of each of the Spiral, Agile & V-Models while executing such a large software project, in a tabular format.

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| **Sl.No.** | **SDLC Models** | **Disadvantages** |
| **1.** | **Spiral Model** | 1. Large number of intermediate phases, hence documentation is more compared with other models 2. Expert resource required for risk management |
| **2.** | **Agile Model** | 1. Difficult to measure progress 2. Projects can become ever-lasting as the scope is not clearly defined |
| **3.** | **V-Model** | 1. Not Suitable for bigger and complex projects 2. On every change, test documents and requirement documents under go changes |

1. **Two Advantages of using Waterfall Model in this project scenario:**
2. Simple and easy to understand and user
3. Easy to manage