Software Engineering Assignment

Question 1. Ans-

SDLC (Software Development Life Cycle)

Software development life cycle or SDLC is the dividing software development work into smaller, parallel, sequential steps to improve design, product or project management.

Process and Methodology-

Software Development Life Cycle (SDLC) methodologies are mechanisms to assure that software meet established requirements. These methodologies impose various degrees of discipline to the software development process with the goal of making the process more efficient and predictable.

Question 2 Ans-

Phases In Methodology-

There are 6 phase in methodology as given

1. Requirement phase
2. Designing phase
3. Implementation phase
4. Testing phase
5. Development phase
6. Maintenace phase

Question 3 Ans-

Requirement Phase- Establish close contact with customers during or before the development to gain a clear understanding of what they want in their application.

Design Phase- The Design Phase is an essential phase of the Software development Life Cycle. The list of requirements that you develop in the definition phase is used to make design choices. In the design phase, one or more designs are created to achieve the project result. Depending on the project subject, the design phase products include dioramas, flow-charts, sketches, site trees, HTML screen designs, photo impressions, prototypes, and UML schemas.

Question 4 Ans-

Implementation: In this phase, Developers start their coding according to their requirements and the design. Database admin create a database, front-end developers create the necessary interface and GUI to interact with back end. This is all based on by the company. Basically developers starts there coding and build the software.

TESTING: The testing phase of the software development lifecycle (SDLC) is where we focus on investigation and discovery. During the testing phase, developers find out whether their code and programming work according to customer requirements. And while it's not possible to solve all the failures you might find during the testing phase, it is possible to use the results from this phase to reduce the number of errors within the software program. Before testing can begin, the project team develops a test plan.

Question 5 Ans-

Deployment phase:

The deployment phase is the final phase of the software development life cycle (SDLC) and puts the product into production. After the project team tests the product and the product passes each testing phase, the product is ready to go live. This means that the product is ready to be used in a

real environment by all end users of the product. There are various phases of the deployment process the project team must follow to ensure the code and technology deploy appropriately. The phases include deployment preparation and procedures, product deployment, transferring ownership of the product, and closing the deployment phase.

Maintenance phase:

The maintenance phase of the SDLC occurs after the product is in full operation. Maintenance of software can include software upgrades, repairs, and fixes of the software if it breaks. Software applications often need to be upgraded or integrated with new systems the customer deploys. It's often necessary to provide additional testing of the software or version upgrades. During the maintenance phase, errors or defects may exist, which would require repairs during additional testing of the software. Monitoring the performance of the software is also included during the maintenance phase.

Question 6 Ans-

SDLC models :

There are various software development life cycle models defined and designed which are followed during the software development process. These models are also referred as Software Development Process Models". Each process model follows a Series of steps unique to its type to ensure success in the process of software development. Following are the most important and popular SDLC models followed in the industry

- Waterfall Model
- RAD model
- Spiral Model
- Incremental model
- Agile model

- Iterative model
- Bigbang Model

Question 7 Ans-

WATERFALL MODEL:

The Waterfall Model was the first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. The Waterfall model is the earliest SDLC approach that was used for software development.

ADVANTAGES -

The requirements are simple and explicitly declared; they remain unchanged during the entire project development. o The start and end points for each phase is fixed, which makes it easy to cover progress. o The release date for the complete product, as well as its final cost, can be determined before development. o It gives easy to control and clarity for the customer due to a strict reporting system.

DISADVANTAGES-

In this model, the risk factor is higher, so this model is not suitable for more significant and complex projects. o This model cannot accept the changes in requirements during development. o It becomes tough to go back to the phase. For example, if the application has now shifted to the coding phase, and there is a change in requirement, It becomes tough to go back and change it. o Since the testing done at a later stage, it does not allow identifying the challenges and risks in the earlier phase, so the risk reduction strategy is difficult to prepare

Question 8 Ans-

INCREMENTAL MODEL:

Incremental Model is a process of software development where requirements divided into multiple standalone modules of the software development cycle. In this model, each module goes through the requirements, design, implementation and testing phases. Every subsequent release of the module adds function to the previous release. The process continues until the complete system achieved.

Advantage of Incremental Model-

Errors are easy to be recognized. o Easier to test and debug o More flexible. o Simple to manage risk because it handled during its iteration. o The Client gets important functionality early.

Disadvantage of Incremental Model-

Need for good planning o Total Cost is high. o Well defined module interfaces are needed.

SPIRAL MODEL

The spiral model combines the idea of iterative development with the systematic, controlled aspects of the waterfall model. This Spiral model is a combination of iterative development process model and sequential linear development model i.e. the waterfall model with a very high emphasis on risk analysis. It allows incremental releases of the product or incremental refinement through each iteration around the spiral.

Advantages-

High amount of risk analysis o Useful for large and mission-critical projects. Disadvantages o Can be a costly model to use. o Risk analysis needed highly particular expertise o Doesn't work well for smaller projects.

RAD:

RAD is a linear sequential software development process model that emphasizes a concise development cycle using an element based construction approach. If the requirements are well understood and described, and the project scope is a constraint, the RAD process enables a development team to create a fully functional system within a concise time period.

RAD (Rapid Application Development) is a concept that products can be developed faster and of higher quality through o Gathering requirements using workshops or focus groups o Prototyping and early, reiterative user testing of designs of The re-use of software components o A rigidly paced schedule that defers design improvements to the next product version o Less formality in reviews and other team communication.

Advantage of RAD Model-

This model is flexible for change. In this model, changes are adaptable. o Each phase in RAD brings highest priority functionality to the customer. o It reduced development time. o It increases the reusability of features.

The disadvantage of RAD Model-

It required highly skilled designers. o All application is not compatible with RAD. o For smaller projects, we cannot use the RAD model. o On the high technical risk, it's not suitable. o Required user involvement

Question 9 Ans-

Waterfall vs Agile Difference

• Waterfall is a Liner Sequential Life Cycle Model whereas Agile is a continuous iteration of development and testing in the software development process.

• In Agile vs Waterfall difference, the Agile methodology is known for its flexibility whereas Waterfall is a structured software development methodology.

• Comparing the Waterfall methodology vs Agile which follows an incremental approach whereas the Waterfall is a sequential design process.

• Agile performs testing concurrently with software development whereas in Waterfall methodology testing comes after the “Build” phase.

• Agile allows changes in project development requirement whereas Waterfall has no scope of changing the requirements once the project development starts.

Question 10 Ans-

AGILE MODEL:

Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like −Planning, Requirements Analysis, Design, Coding, Unit Testing and Acceptance Testing.

Advantage of Agile Method:

1. Frequent Delivery

2. Face-to-Face Communication with clients.

3. Efficient design and fulfils the business requirement.

4. Anytime changes are acceptable.

5. It reduces total development time.

Disadvantages of Agile Model:

1. Due to the shortage of formal documents, it creates confusion and crucial decisions taken throughout various phases can be misinterpreted at any time by different team members.

2. Due to the lack of proper documentation, once the project completes and the developers allotted to another project, maintenance of the finished project can become a difficulty

Question 11 Ans-

SCRUM is an agile development process focused primarily on ways to manage tasks in teambased development conditions.

There are three roles in it, and their responsibilities are:

o Scrum Master: The scrum can set up the master team, arrange the meeting and remove obstacles for the process

o Product owner: The product owner makes the product backlog, prioritizes the delay and is responsible for the distribution of functionality on each repetition.

o Scrum Team: The team manages its work and organizes the work to complete the sprint or cycle.

Question 12 Ans-

DOD:

The definition of done (DoD) is a collection of deliverables within a project or contract that, when completed, will act as verifiable and demonstrable benchmarks for a project. In short, it's a list of deliverables and a shared understanding of expectations on the requirements the team must meet before releasing a product to users.

SDLC Quiz

1. What happens in the design phase?

a. The code is produced

b. Making changes when the software has been created

c. Planning the solution, look and feel of the software interface

d. Ensuring the requirements are understood

Ans d. Ensuring the requirements are understood

2. Which of these is the correct order of the SDLC?

a. Maintenance, Design, Requirement, Implementation

b. Requirement, Design, Maintenance, Implementation

C. Requirement, Design, Implementation, Maintenance

d. Requirement. Implementation, Design, Maintenance

Ans C. Requirement, Design, Implementation, Maintenance

3 What happens in the implementation phase?

a. The code is tested against the specification

b. Making changes when the software has been created

c. Planning the solution, look and feel of the software interface

d. The deliverables of the implementation stage are created i.e the code

Ans d. The deliverables of the implementation stage are created i.e the code

4 Which stage comes after Design?

a. Evaluation

b. Documentation

c. Development and Testing

d. Design

Ans c. Development and Testing

5. What happens in the Development and Testing Stage?

a. Plan the proposed System

b. Place the new system into the company for use

c. Decide how well the new system is working

d. Create the new system and test it

Ans d. Create the new system and test it