Assignment 1: SDLC Overview - Create a one-page infographic that outlines the SDLC phases (Requirements, Design, Implementation, Testing, Deployment), highlighting the importance of each phase and how they interconnect.

SDLC : Software development Life Cycle(Is a processes used by software industry to design,develop,test the software)
Based on this SDLC companies will design their own model

1.Requirement Analysis: (which means we will prepare certain documents of each activity)
Once they get the requirement from the client the makes a document called SRS(Software requirement specification document)

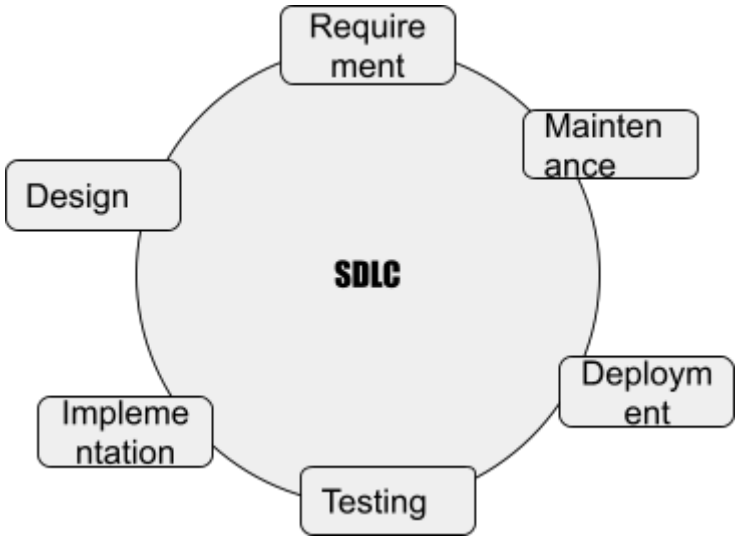
2.System design:(based on the document the designers will design document)

3.Implementation: Based on the design the developers will develop or implement the software.

4.Testing:the tester will test the software.

5.Deployment:we will deploy the software on the client's environment.

6.Maninatance: Thy will start using the application



Assignment 2: Develop a case study analyzing the implementation of SDLC phases in a real-world engineering project. Evaluate how Requirement Gathering, Design, Implementation, Testing, Deployment, and Maintenance contribute to project outcomes.

Case study: Implementing an online food ordering system

Let's assume a small restaurant chain, “Biriyani Habitat," there aim to gain experience by developing an online food ordering system. The project team comprises a project manager, a business analyst, software developers, a tester, and a system administrator. Let's discuss how each SDLC phases involves into the project.

1. Requirement Analysis: The project starts with the business analyst connecting with the (restaurant owners, staff, and customers) to gather requirements. Important features are user registration, menu, order placement, payment and order tracking.

2. Design: Based on gathered requirements, the team will prepare a document system architecture, database schema, user interfaces.

3. Implementation: Developers develop the code according to the design specifications. They choose different technologies like HTML/CSS for front-end, JavaScript for interactivity, Node.js for back-end, and MongoDB for database management. They use the Agiles method.

4. Testing: The QA starts the testing such as unit testing, integration testing, system testing, and user acceptance testing (UAT). They identify bugs, check whether the system meets functional and non-functional requirements.

5. Deployment: Once the testing is done. Feedback taken from everyone and final adjustments are made before deployment to production.

6. Maintenance: After deployment, the system enters the maintenance phase. The team provides ongoing support, note the issues that arise and implement minor changes. Regular updates for system security and stability.

Assignment 3: Research and compare SDLC models suitable for engineering projects. Present findings on Waterfall, Agile, Spiral, and V-Model approaches, emphasizing their advantages, disadvantages, and applicability in different engineering contexts.

Waterfall model:(old and traditional model) also called linear model
This is also model come under SDLC BUT the approach will be different

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2.System design:(based on the document the designers will design document)

3.Implementation:Based on the design the developers will develop or implement the software

4.Testing:the tester will test the software

5.Deployment:we will deploy the software on the client's environment

6.Maintenance: They will start using that is called maintenance

- Behavior of waterfall model:Each and every face will have some input and produce some output
- Each face depends on the previous phase

Advantages:

1.Quality of the product will be good(it's because we have document for each phase)

2.Since the requirement changes are not allowed, chances of finding bugs will be less(for ex:if are in the middle of the phase,customer told to change the design, we cant its because its a fixed model)

3.Preferred for small projects

Disadvantages:

1.We can't change the requirements

2.More investment for rework

3.Testing will done after coding

Spiral Model:(prefers by product based companies)

1.Planning(requirement analysis)
2.Risk Analysis(requirement analysis)
3.Engineering and Execution:which mean design and development

- spiral model is as sdlc but the terminology is different
- In spiral model 1st cycle is planning(cost)

- After that development and coding will start(development and testing)
- Then we will release to the customer(customer evaluation)
- We will have 5 phases in one cycle
- After that we will deliver the software to the customer(version)

Then customer will give some requirements(Again we will do 5 steps and release the software to the customer version 2, 2nd cycle)

Then customer will give some requirements(Again we will do 5 steps and release the software to the customer version 3, 3rd cycle)

This cycle will completed until we satisfy the customer requirement(In every cycle we will release new model)

It is iterative model(becoz in each cycle we are releasing one model)Overcomes the drawbacks of Waterfall model

Advantages:

1.Testing is done in every cycle,before going to the next cycle

Disadvantages:

1.Requirement changes are not allowed in between the cycle

V model:(also called as VV model which mean verification Validation) also a sdlc model
Main speciality of the V model is in every phase we will conduct the testing.

1st phase:BRS/CRS/URS(business requirement,client,user)-->user acceptance testing (UAT testing)prepared by business analyst and the testing is done by who prepared the document not testers

2nd phase:SRS document(for testers and developers will understand)prepared by Product Manager uses Black box testing(Requirement phase)

3rd phase: HLD(have main modules) and LLD(have low modules)Integration testing prepared by the designers(Design phase)

4th phase:Coding the developers will start the coding(development phase)
Above all are verification model
Coding testing will done by developers in form of unit and integration testing(white box testing)first they will do the unit testing after they do internal

5th phase:Testing Done by developers