ASSIGNMENT 1.4 (SDLC)

What is SDLC?

The Software Development Life Cycle (SDLC) is a systematic process used by software developers to design, develop, & test high-quality software, ensuring the final product meets or exceeds customer expectations various SDLC models exists to suit different project requirement and development environments.

Phases of SDLC:—

① **Planning:-** To outline the project goals:-

⇒ Define the project scope.
⇒ Identify projects constraints
⇒ Develop a project plan & schedule.
⇒ conduct feasibility studies.

② **Requirement Analysis:-** To gather & analyze req. for software

⇒ conduct stakeholders interviews
⇒ gather detailed functional & non-functional.
⇒ create req. documentation.

③ **Design:-** To design architecture & detailed specifications of software.

⇒ Define system architecture.
⇒ Create detailed design documents.
⇒ Develop prototype, if necessary.

④ **Coding:-** To translate design into code.

⇒ Write code for different modules.
⇒ Follow coding standards.
⇒ Perform unit Testing.

⑤ Testing :- To ensure the software functions correctly & meets requirements.

⇒ perform various types of testing.
⇒ identify & fix defects
⇒ conduct performance & defects.

⑥ Deployment :-

⇒ Prepare deployment plans.
⇒ Setup production environment.

⑦ Maintainance :-

⇒ Monitor the software for issues.
⇒ perform regular updates.

Various SDLC Models :-

① Waterfall Model :-

The waterfall model is a linear & sequential approache where each phase must be completed before next phase

Adv :- ① Simple & easy to understand.
② Well-documented stages.

Disadv :- ① inflexible to changes.
② late testing phases leads to costly fixes.

② Agile Method :-

Agile is an iterative & incremental model emphasising flexibility, collaboration.

Adv :-
⇒ Adaptable to changing req.
⇒ Continuous customer involvement.
⇒ Frequent delivery of functional software.

Disadv :-
⇒ Require active customer involvement.
⇒ Less predictable.

③ Spiral Model :-

The spiral Model combines iterative development with systematic aspects of waterfall model.

Adv :- ① Strong emphasis on risk Management.
② Suitable for large & complex project.

Disadv :- ① Can be costly & time-consuming.
② Complex to manage & implement.

④ V-Model :-

The V-Model is an extensible of waterfall model, emphasising verification & validation steps parallel to each development phases.

Adv :- ① Enhanced testing & quality assurance.
② Early detection of defects.

Disadv :- ① Inflexible to changes.
② Similar characters as waterfall model.