SDLC:- Software Development Life Cycle.
while developing the software, the below given stages are involved.

stages in sdlc:-
1.planning & requirement gathering.
2. feasibility (analysis).
3. design.
4. implementation.
5. testing.
6. deployment.
7. maintenance.

1. planning & requirement gathering:-

-> here client requirement is gathered.
-> translate the business language into software language.

2.feasiblity (analysis).

-> employee resource is available or not.
-> financial resource.
-> time and deadline.

3.design:-
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high level --> just an overview of the application
(what is frontend what is backend,what database)

low design -->detailed design, how every works.
→detailed function how it works,

- **Implementation :**

  - Translate design specifications into a functional software application.
  - Writing code, developing software components, and integrating them.

- **Testing**:

  - Ensure the software is bug-free and meets the requirements.
  - Unit testing, integration testing, system testing, and acceptance testing.

- **Deployment**:

  - Make the software available for use.

- Installation, configuration, and deployment in the production environment.

 Maintenance:

- Provide ongoing support and enhancement.
- Bug fixing, updates, upgrades, and adding new features as needed.

SDLC models.

1. water fall model

2. agile

3. v model.

4. iterative model.

water fall model:-

-> It is a step by step process to develope the software.

-> Each stages complete the task one by one.

Agile:-

-> It is iterative incremental software development model.

-> In agile,we develope the products in sprints,

-> At the end of each sprint, we develop a particular software feature.

Agile framework:-

1.scrum

2.kanban.

Spiral Model:-

Combines iterative development with systematic, risk-driven approaches.
Focuses on early identification and mitigation of risks.
Ideal for large, complex projects with significant risks.

V-Model:-

Known as the Verification and Validation model.
Each development phase has a corresponding testing phase.
Emphasizes the importance of testing in every phase of development.

TDD:- (Test Driven Development).

->software develpment is a process , where error occures frquently.
->Initially the test are failed because the test are developed
even before the development.

->Development team then write the code,and modify the code to pass
the test.

BDD:- (behaviour Driven Development).

BDD is all about collobaration between teams.
DD is used for the behaviour of the system, weather it is developed
as per the client requirement or not.

BDD uses a common language, to communicate between the teams.

BDD communicate between developers, business analyst,testing -> the aim
is the deliver the product as per the customer requirement.
tools:-

Cucumber: ->It allows you to write your tests in a language called Gherkin,

->cucumber is easy to understand for both technical and
non-technical team members. It's like having a simple recipe that
everyone can follow to bake the perfect cake for the party.

FDD:-

-> feature driven development.

-> It is a iterative incremental software development process.

-> In fdd, the software product is developed feature by feature in an incremental approach.

-> focuses on developing working software with features that satisfy client needs.

Agile principles:-

->requirement changes are accepted from the customer.

->customer no need to wait until the whole product is developed, after every sprint customer can review the product. which makes the customer more satisfaction.

->developer, test, and release a piece of software to the customer.

->the whole team (product owner, developer, tester) are works together to achieve the customer goal.

-> It follows iterative and incremental in nature.