### **Software Development Life Cycle (SDLC) - 05-Mar-2025**

SDLC is a step-by-step process to build software or applications.

### **Phases of SDLC:**

* **Requirement Gathering:** Collecting business needs from the customer. **(Output: BRS - Business Requirements Specification)**
* **Analysis & Planning:** Understanding requirements, creating a project plan. **(Output: SRS - System Requirements Specification, Project Plan)**
* **Design:** Creating system architecture and component designs. **(Output: Design Documents - HLD & LLD)**
* **Development/Coding:** Writing code based on design. **(Output: Code & Executable Software)**
* **Testing:** Checking the software for bugs and ensuring it meets requirements.
* **Deployment & Maintenance:** Releasing software and fixing issues if needed.

### **Waterfall Model**

* Follows a **step-by-step** approach (one phase starts after the previous one finishes).

#### **Phases:**

* Requirement Gathering
* Design & Planning
* Coding
* Testing
* Deployment
* Maintenance

#### **Drawbacks:**

* Not good for complex projects with frequent changes.
* Time-consuming.
* Hard to modify requirements once started.
* No working software until the last stage.

### **Agile Methodology**

* **Faster & flexible** development approach.
* **Iterative (repeat process)** and **incremental (add features gradually)**.
* Projects are broken into **small parts (iterations)** of **2 to 8 weeks**.
* After each iteration, a **working product** is delivered.