# The Software Development Process

## What are the Software Development Life Cycle (SDLC) phases?

# SDLC PHASES

- There are various software development approaches defined and designed which are used/employed during development process of software
- These approaches are also referred as "*Software Development Process Models*" (e.g. **Waterfall model, incremental model, V-model, iterative model, RAD model, Agile model, Spiral model, Prototype model** etc.)
- Each process model follows a particular life cycle in order to ensure success in process of software development

# SDLC PHASES

- Software life cycle models describe phases of the software cycle and the order in which those phases are executed
- Each phase produces deliverables required by the next phase in the life cycle
- Requirements are translated into design
- Code is produced according to the design which is called development phase

# SDLC PHASES

- After coding and development the testing verifies the deliverable of the implementation phase against requirements
- The testing team follows **Software Testing Life Cycle** (STLC) which is similar to the development cycle followed by the development team

## Requirement Gathering & Analysis

- Business requirements are gathered in this phase
- This phase is the main focus of the project managers and stake holders
- Meetings with managers, stake holders and users are held in order to determine the requirements like:
  - *Who is going to use the system?*
  - *How will they use the system?*
  - *What data should be input into the system?*
  - *What data should be output by the system?*
- These are general questions that get answered during a requirements gathering phase
- After requirement gathering these requirements are analyzed for their validity and the possibility of incorporating the requirements in the system to be development is also studied
- Finally, a Requirement Specification document is created which serves the purpose of guideline for the next phase of the model
- The testing team follows the Software Testing Life Cycle and starts the **Test Planning** phase after the requirements analysis is completed

Requirement Gathering & Analysis

Design

- In this phase the system and software design is prepared from the requirement specifications which were studied in the first phase
- System Design helps in specifying hardware and system requirements and also helps in defining overall system architecture
- The system design specifications serve as input for the next phase of the model
- In this phase the testers comes up with the **Test strategy**, where they mention what to test, how to test

Requirement Gathering & Analysis

Design

Implementation or coding

- On receiving system design documents, the work is divided in modules/units and actual coding is started
- Since, in this phase the code is produced so it is the main focus for the developer
- This is the longest phase of the software development life cycle

Requirement Gathering & Analysis

Design

Implementation or coding

Testing

- After the code is developed it is tested against the requirements to make sure that the product is actually solving the needs addressed and gathered during the requirements phase
- During this phase all types of **functional testing** like **unit testing**, **integration testing**, **system testing**, **acceptance testing** are done as well as **non-functional testing** are also done

Requirement Gathering & Analysis

Design

Implementation or coding

Testing

Deployment

- After successful testing the product is delivered / deployed to the customer for their use
- As soon as the product is given to the customers they will first do the **beta testing**
- If any changes are required or if any **bugs** are caught, then they will report it to the engineering team
- Once those changes are made or the **bugs** are fixed then the final deployment will happen

Requirement Gathering & Analysis

Design

Implementation or coding

Testing

Deployment

Maintenance

- Once when the customers starts using the developed system then the actual problems comes up and needs to be solved from time to time
- This process where the care is taken for the developed product is known as **maintenance**