SESSION 1

Introduction to Software and Software Testing

Software Overview:

A software is a collection of computer programs designed to perform specific tasks or functions.

Types of Software:

- System Software:
  - Examples: Device drivers, Operating Systems, Servers, Utilities, etc.
  - Primarily manages computer hardware and provides a platform for other software to run.
- Programming Software:
  - Examples: Compilers, Debuggers, Interpreters, etc.
  - Aids developers in creating, testing, and debugging software applications.
- Application Software:
  - Examples: Web Applications, Mobile Apps, Desktop Applications, etc.
  - Directly serves the end-users by performing specific tasks or providing services.

Software Testing

Definition:

- Part of the software development process.
- Activity to detect and identify defects in the software.
- Objective: Release a quality product to the client.

Software Quality:

- Quality is defined as justification of all the requirements of a customer in a product.
- Quality is not defined in the product. It is defined in the customer`s mind.

Characteristics:

- Bug-free.
- Delivered on time.
- Within budget.
- Meets requirements and/or expectations.
- Maintainable.

Why Do We Need Software Testing?

- Ensure that software is bug free.
- Ensure that system meets customer requirements and software specifications.
- Ensure that system meets end user expectations.
- Fixing the bugs identified after release is more expensive.

Project vs. Product

Project

- Developed for a specific customer based on their requirements.

Product

- Developed for multiple customers based on market requirements.

Error, Bug/Defect and Failure:

Error

- Human action that produces an incorrect result.

Bug/Defect

- Deviation from the expected behaviour to the actual behaviour of the system is called defect.

Failure

- The deviation identified by end-user while using the system is called a failure.

Reasons for Software Bugs

- Miscommunication or no communication.
- Software complexity.
- Programming errors.
- Changing requirements.
- Lack of skilled testers.