QUALITY ASSURANCE & SOFTWARE TESTING

TASK- 1

SOFTWARE TESTING FUNDAMENTALS

SUBMITTED BY

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- **What is Software Testing?**

  Software testing is the process of evaluating a software application to ensure it works as expected, is free of bugs, and meets user and business requirements. The goal is to find defects early and improve the quality of the product**.**

- **Types of Testing**

1. Manual Testing

- Testers manually execute test cases without using automation tools.
- Best for exploratory, usability, or ad-hoc testing.
- Useful when human observation is needed.
- Example: Clicking around a website to check if it works properly.

2. Automation Testing

- Uses tools/scripts to run tests automatically.
- Saves time and effort in repetitive testing.
- Best for regression testing and large test suites.
- Tools: Selenium, TestNG, JUnit, etc.

- **Levels of Testing**

1. Unit Testing

- Tests individual components or functions.
- Done by developers.
- Example: Testing a login () function in isolation.

2. Integration Testing

- Tests how different modules work together.

- Ensures combined parts of the app communicate correctly.
- Example: Testing login + dashboard after successful sign-in.

3. System Testing

- Tests the complete software system as a whole.
- Done in a staging environment.
- Example: Checking all features of an e-commerce app.

4. Acceptance Testing

- Verifies the system meets business requirements.
- Usually done by the client or QA team before release.
- Example: Client tests whether the "Order Placement" works correctly.

➢ **Testing Techniques**

1. Black Box Testing

- Tester doesn’t look at the code.
- Focus is on input and output.
- Used in system and acceptance testing.
- Example: Entering login credentials and checking the result.

2. White Box Testing

- Tester looks at the internal code and logic.
- Usually done by developers.
- Used in unit and integration testing.
- Example: Testing if all paths in a function are covered.