Software Testing

What is Software Testing?

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- An activity to check whether the actual results match the expected results and to ensure that the software system is "Defect" free.
- Is a process of executing a program or application with the intent of finding the defects.
- Software testing also helps to identify errors, gaps or missing requirements in contrary to the actual requirements.

Static Testing

- Static Testing –
  - Test and find defects without executing code
  - is done during verification process
  - This testing includes reviewing of the documents, source code, and static analysis.
  - useful and cost effective
  - E.g.-
    - Document review
    - Code review
    - Walk-thru
    - Inspection

Dynamic Testing

- Dynamic Testing-
  - the software code is executed to demonstrate the result of running tests
  - done during validation process
  - E.g.-
    - Unit Testing
    - Integration Testing
    - System Testing

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Types of Software Testing

- Functional Testing
  - Unit
  - Integration
  - Smoke
  - UAT
- Non-Functional Testing or Performance Testing
  - Performance
  - Load
  - Scalability
- Maintenance
  - Regression
  - Maintenance

Why is Software Testing Important?

Why is Software Testing Important?

- Testing is important because software bugs could be expensive or even dangerous.
- can potentially cause monetary and human loss.
- Imagine loss when-
  - Bank systems have bugs in calculation
  - Car software malfunctions
  - Flight systems have issue
  - Problems in space program IT
  - Software

Software testing ways –

- Manual
- Automation

Manual Testing

Manual Testing

- Testing System manually without using any Test Tool or Test (Automation) Script
- Testers manually execute test cases without using any automation tools
- Most primitive type to find issues and bugs in a s/w system
- Manual Testing does not require knowledge of any testing tool
- No Programming skills are required in Manual Testing

Note-

- A new system needs to be manually tested before Automation testing can be done
- **"100% automation testing is not possible"**

Automation Testing

Automation Testing

- Testing System using any Test Tool or with a Test Script
- Using an automation tool to execute your test case suite
- Test Automation demands considerable investments of money and resources
- Programming Knowledge is required for Automated Testing

Skills required-

Non-Technical Skills

- Analytical skills
- Communication skills
- Willingness to learn
- Great Attitude
- Time Management

Skills required-

Technical Skills

- Basic knowledge of Database/ SQL
- Basic knowledge of Linux commands
- Experience of a Test Management Tool
- Experience of Automation tool

What Does a Software Tester do?

- On any usual working day, QA will-
  - understanding requirement documents
  - creating test cases
  - executing test cases
  - reporting and re-testing bugs

Thank You