CM-2603 Data Science Group Project

Introduction to Software Testing and Quality Assurance

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Learning Outcomes

- Covers LO1 for Module
- On completion of this lecture, students are expected to be able to:
  - Identify the different types of software testing

CONTENT

- What is Software Testing?
- Why is Software Testing Important?
- Testing Approaches
- Software Testing Types?

What is Software Testing?

- It is a method to check whether the actual software product matches expected requirements and to ensure that software product is Defect free.
- It involves execution of software/system components using manual or automated tools to evaluate one or more properties of interest.
- The purpose of software testing is to identify errors, gaps or missing requirements in contrast to actual requirements.

Why is Software Testing Important?

- Because if there are any bugs or errors in the software, it can be **identified early** and can be **solved before delivery** of the software product.

- Properly tested software product ensures **reliability, security** and **high performance** which further results in time saving, cost effectiveness and customer satisfaction.

Testing Approaches

- White Box Testing
- Black Box Testing
- Grey Box Testing

https://www.linkedin.com/learning/software-testing-foundations-test-techniques/understanding-techniques?u=76664938

Software Testing Types?

- Functional Testing
- Non-Functional Testing
- Maintenance (Regression and Maintenance)

Testing Category	Types of Testing
Functional Testing	Unit Testing Integration Testing Smoke UAT (User Acceptance Testing) Localization Globalization Interoperability So on
Non-Functional Testing	Performance Endurance Load Volume Scalability Usability So on
Maintenance	Regression Maintenance

Summary of Software Testing

- Testing is important because software bugs could be expensive or even dangerous.
- The important are reasons for using software testing are: cost-effective, security, product quality, and customer satisfaction.
- Typically Testing is classified into three categories **functional testing**, **non-functional testing or performance testing**, and **maintenance**.
- The important strategies in software engineering are: **unit testing**, **integration testing, validation testing, and system testing**.

Referrences

- https://www.linkedin.com/learning/programming-foundations-software-testing-qa/set-the-standard-with-quality-assurance-qa?u=76664938