



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 19CS511 SOFTWARE TESTING

III YEAR / V SEMESTER

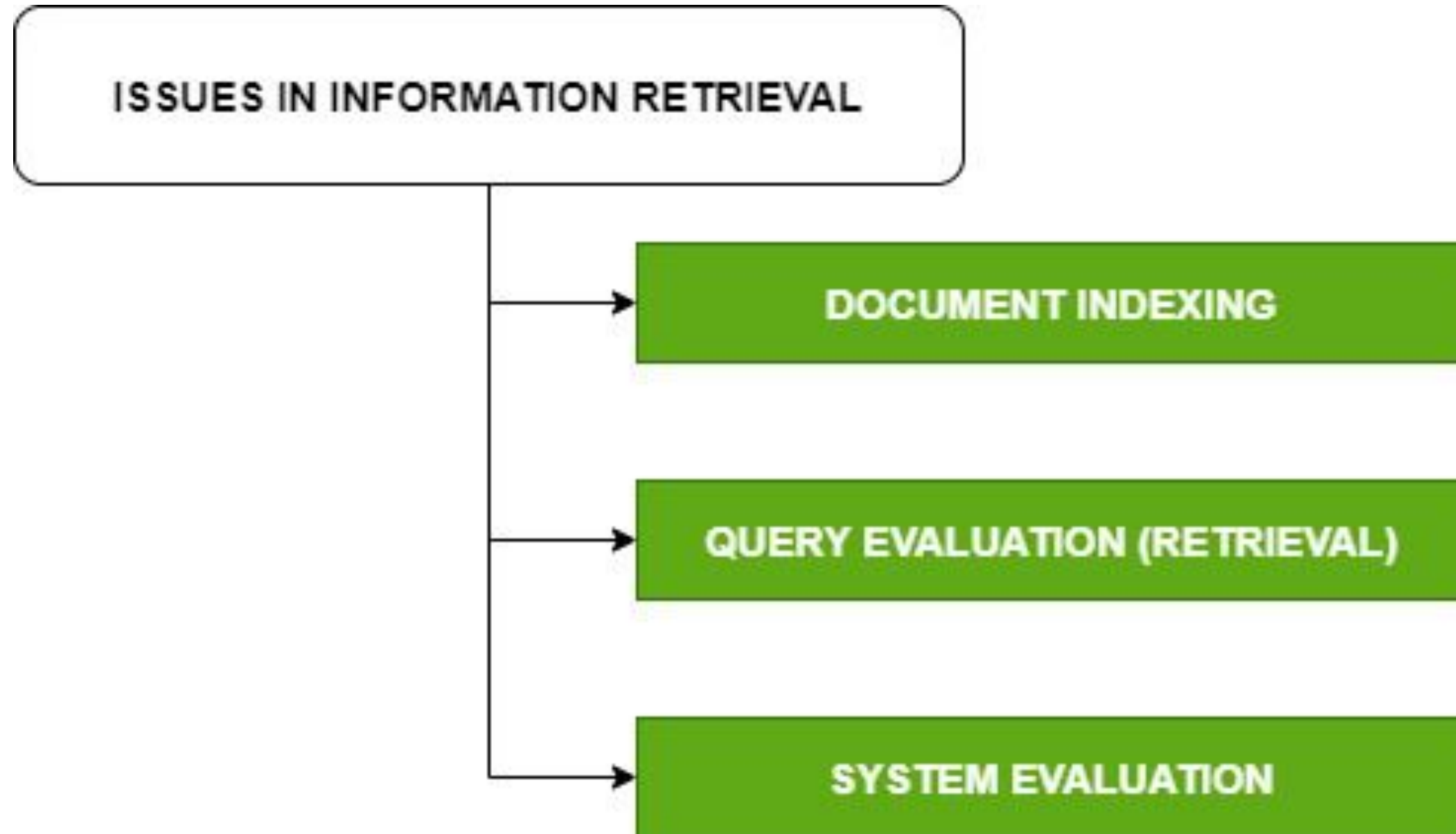
Unit 3- LEVEL: OF TESTING

Topic 3 : Usability and Accessibility testing





Problem





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Syllabus

UNIT I INTRODUCTION

9

Testing as an Engineering Activity – Testing as a Process – Testing Maturity Model- Testing axioms – Basic definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects – Cost of defects – Defect Classes – The Defect Repository and Test Design – Defect Examples- Developer/Tester Support of Developing a Defect Repository.

UNIT II TEST CASE DESIGN STRATEGIES

9

Test case Design Strategies – Using Black Box Approach to Test Case Design – Boundary Value Analysis – Equivalence Class Partitioning – State based testing – Cause-effect graphing – Compatibility testing – user documentation testing – domain testing - Random Testing – Requirements based testing – Using White Box Approach to Test design – Test Adequacy Criteria – static testing vs. structural testing – code functional testing – Coverage and Control Flow Graphs – Covering Code Logic – Paths – code complexity testing – Additional White box testing approaches- Evaluating Test Adequacy Criteria..



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UNIT III LEVELS OF TESTING

The need for Levels of Testing – Unit Test – Unit Test Planning – Designing the Unit Tests – The Test Harness – Running the Unit tests and Recording results – Integration tests – Designing Integration Tests – Integration Test Planning – Scenario testing – Defect bash elimination System Testing – Acceptance testing – Performance testing – Regression Testing – Internationalization testing – Ad-hoc testing – Alpha, Beta Tests – Testing OO systems – Usability and Accessibility testing – Configuration testing –Compatibility testing – Testing the documentation – Website testing

UNIT IV TEST MANAGEMENT

9

People and organizational issues in testing – Organization structures for testing teams – testing services – Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process – Reporting Test Results – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group- The Structure of Testing Group- .The Technical Training Program.



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UNIT V TEST AUTOMATION

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Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation – Test metrics and measurements – project, progress and productivity metrics.



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TEXT BOOKS:

1. Srinivasan Desikan and Gopalaswamy Ramesh, —Software Testing – Principles and Practices, Pearson Education, 2006.
2. Ron Patton, —Software Testing, Second Edition, Sams Publishing, Pearson Education, 2007. AU Library.com

REFERENCES:

1. Ilene Burnstein, —Practical Software Testing, Springer International Edition, 2003.
2. Edward Kit, Software Testing in the Real World – Improving the Process, Pearson Education, 1995.
3. Boris Beizer, Software Testing Techniques – 2nd Edition, Van Nostrand Reinhold, New York, 1990.
4. Aditya P. Mathur, —Foundations of Software Testing _ Fundamental Algorithms and Techniques, Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008.



Usability Testing



Usability testing is the process of evaluating a product or system by testing it with real users. The goal is to determine how easily and intuitively users can interact with the product, identify any issues or obstacles they encounter, and gather feedback to improve the overall user experience.

Purpose: To evaluate how easy and intuitive a product is for its intended users.

Goal: Assess how easy and intuitive the product is for users.



Key Components



- **Objective:** Assess the product's ease of use and user-friendliness.
- **Process:** Users complete specific tasks while observers collect data on their performance and experience.
- **Outcome:** Identify usability problems, measure user satisfaction, and refine the product based on insights gathered.



Methods



- **Moderated Testing:** A facilitator guides users through tasks and asks questions in real-time.
- **Unmoderated Testing:** Users complete tasks on their own, often using remote testing tools.
- **A/B Testing:** Comparing two versions of a product to determine which performs better.



Best Practices



- **Real Users:** Involve people who closely represent your target audience.
- **Clear Objectives:** Define what you want to learn from the testing.
- **Iterative Testing:** Regularly test and refine the product based on feedback.



Advantages



- Enhanced User Experience
- Increased Efficiency
- Early Problem Detection
- Improved User Retention
- Informed Design Decisions



Disadvantages



- Cost
- Time-Consuming
- Limited Sample Size
- Complexity in Interpretation
- Environmental Factors



Accessibility Testing



Accessibility testing is the process of evaluating a digital product (such as a website, application, or software) to ensure it can be used by people with various disabilities. This testing ensures that the product is inclusive and provides equal access to all users, regardless of their physical or cognitive abilities.

Purpose: Make the product accessible to as many people as possible.

Goal: Ensure the product is usable by people with disabilities.



Key Components



- **Accessibility Standards:** Adhering to guidelines like the Web Content Accessibility Guidelines (WCAG).
- **Accessibility Standards:** Adhering to guidelines like the Web Content Accessibility Guidelines (WCAG).
- **User Experience:** Evaluating how people with disabilities interact with the product.



Methods



- **Automated Tools:** Software like Axe or WAVE can identify accessibility issues.
- **Manual Testing:** Checking for issues like color contrast, keyboard navigability, and screen reader compatibility.
- **User Testing:** Engaging people with disabilities to provide real-world feedback.



Best Practices



- **Inclusive Design:** Incorporate accessibility from the start of the design process.
- **Continuous Monitoring:** Regularly review and update your product for accessibility.
- **Training and Awareness:** Educate your team about accessibility principles and practices.



Advantages



- User Satisfaction
- Ethical Responsibility
- Increased Market Reach
- Enhanced User Experience
- Inclusivity



Disadvantages



- Time-Consuming
- Complexity
- Limited Scope
- Tool Limitations
- Ongoing Maintenance



Assessment 1



1. List out the Advantages of Software testing

- a) _____
- b) _____
- c) _____
- d) _____

2. Identify the Disadvantages of Software testing

- a) _____
- b) _____
- c) _____
- d) _____





TEXT BOOKS:

1. Ricardo Baeza-Yates and Berthier Ribeiro-Neto, —Modern Information Retrieval: The Concepts and Technology behind Search, Second Edition, ACM Press Books, 2011.
2. Ricci, F, Rokach, L. Shapira, B.Kantor, —Recommender Systems Handbook, First Edition, 2011.

REFERENCES:

1. C. Manning, P. Raghavan, and H. Schütze, —Introduction to Information Retrieval, Cambridge University Press, 2008.
2. Stefan Buettcher, Charles L. A. Clarke and Gordon V. Cormack, —Information Retrieval: Implementing and Evaluating Search Engines, The MIT Press, 2010.

THANK YOU