**Batch: \_\_\_\_C2\_\_\_\_\_\_\_\_\_\_\_\_ Roll No: 16010122243**

**Exp No: 5**

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| **Title:**  Identify the types of Tests needed in mini project & process of Deployment. |

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**Objective:** 1. To understand the testing process of the project.

2. To understand & explore process of deployment. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Expected Outcome of Experiment:**

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| **Course Outcome** | **After successful completion of the course students should be able to** |
| CO 4 | Implement and test the design as per mentioned specifications. |

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**Books/ Journals/ Websites referred:**

**1.**

**2.**

**3.**

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**Introduction:**

**Describe the need of this stage in project:**

Testing is an essential process in the development of a learning management system (LMS) for several reasons:

1. Quality Assurance: Testing ensures that the LMS functions as intended and meets the specified requirements. By thoroughly testing the system, developers can identify and address any defects or inconsistencies before the system is deployed to users, thus improving the overall quality of the software.

2. Functionality Verification: Testing verifies that all features and functionalities of the LMS work correctly. This includes functionalities such as user authentication, course enrollment, content delivery, assessments, grading, reporting, and administrative tasks. Testing helps ensure that each feature performs its intended function accurately and efficiently.

3. User Experience (UX) Evaluation: Testing allows developers to evaluate the user experience of the LMS from the perspective of different user roles (e.g., students, instructors, administrators). By conducting usability testing and gathering feedback from users, developers can identify areas for improvement in terms of navigation, accessibility, responsiveness, and overall user satisfaction.

4. Compatibility Testing: LMSs often need to work across various devices, browsers, and operating systems. Compatibility testing ensures that the LMS functions correctly and displays content consistently across different platforms. This includes testing on desktops, laptops, tablets, and mobile devices, as well as across different web browsers and screen sizes.

5. Security Testing: Security is paramount in an LMS, as it often handles sensitive information such as student records, grades, and assessments. Security testing helps identify and mitigate vulnerabilities such as authentication bypass, data breaches, SQL injection, cross-site scripting (XSS), and other potential security threats. This includes testing for secure user authentication, data encryption, access controls, and protection against malicious attacks.

6. Performance Testing: An LMS must be able to handle a large number of concurrent users accessing content simultaneously without experiencing significant slowdowns or crashes. Performance testing evaluates the responsiveness, scalability, and reliability of the system under various load conditions. This ensures that the LMS can handle peak usage periods without degradation in performance.

7. Regulatory Compliance: Depending on the educational institution or organization using the LMS, there may be regulatory requirements or industry standards that need to be adhered to. Testing helps ensure that the LMS complies with relevant regulations, standards, and guidelines related to data privacy, accessibility, and educational content.

**Testing of User interfaces:**

**Test plan: Write 5 to 6 test cases**

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| --- | --- | --- | --- |
| **Test case** | **Description** | **Intended result** | **Actual result** |
| Login Entry | Username is expected in the input field. | Username should be filled. | If entry is blank, give alert about error  If correct, go to next field |
| Password Entry | Password is expected in the input field. | Password should be filled. | If entry is blank, give alert about error.  If correct, proceed with login. |
| Creating a course | Teacher creates a new course. | Course should be created successfully | Confirm that the course is added to the system. |
| Accessing Course Content | User navigates to a course page. | Course content should be displayed | Verify that the user can view course material, quiz and assignments. |
| Quiz Creation | Teacher creates a quiz for the course. | Quiz should be created successfully for the course. | Verify that the quiz settings and questions are saved accurately. |
| Giving Feedback on assignments | Teacher gives a grade and feedback for an assignment submitted by a student | Feedback should be given and visible to the student successfully. | Check that the feedback is visible to the student for a particular assignment. |

**Tools: (Used for testing if any)**

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| **Tool** | **Description** |
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**Post Lab Activities (with reference to your tool):**

1. **Why testing is needed in the project management life cycle?**

**Ans:** Testing is essential in the project management life cycle for several reasons:

1. Quality Assurance: Testing helps ensure that the project deliverables meet the specified requirements and quality standards. By thoroughly testing the product or system, project managers can identify and address any defects, errors, or inconsistencies before the product is released to stakeholders or customers. This helps improve the overall quality of the project and enhances customer satisfaction.

2. Risk Mitigation: Testing helps mitigate risks associated with project development and implementation. By identifying and addressing potential issues early in the project life cycle, project managers can reduce the likelihood of project delays, cost overruns, and other adverse impacts. Testing allows project teams to proactively identify and mitigate risks related to functionality, performance, security, and compliance.

3. Verification and Validation: Testing verifies that the project deliverables meet the specified requirements and validate that they fulfill the intended purpose. Through testing, project managers can ensure that the product or system behaves as expected under various conditions and scenarios. This helps build confidence in the project outcomes and ensures alignment with stakeholder expectations.

4. Continuous Improvement: Testing provides valuable feedback for continuous improvement throughout the project management life cycle. By collecting data on defects, issues, and performance metrics, project managers can identify areas for optimization and refinement. Testing facilitates iterative development and allows project teams to make informed decisions for enhancing the project's effectiveness and efficiency.

5. Compliance and Standards: Testing ensures that the project deliverables comply with relevant standards, regulations, and industry best practices. Whether it's software development standards, regulatory requirements, or quality management frameworks, testing helps validate compliance and adherence to established guidelines. This is particularly important in regulated industries where non-compliance can lead to legal, financial, or reputational consequences.

6. Customer Satisfaction: Testing plays a crucial role in ensuring customer satisfaction by delivering a high-quality product that meets or exceeds customer expectations. Through testing, project managers can identify and address any usability issues, performance bottlenecks, or functionality gaps that may impact user experience. By delivering a reliable and user-friendly product, project teams can enhance customer satisfaction and loyalty.