**Modul 3 ,4 and 5**

Module – 3 [Testing on Live Application]

Responsive Testing - A responsive web design involves creating a flexible web page that is accessible from any device, starting from a mobile phone to a tablet. Furthermore, a responsive web design improves users’ browsing experience. Considering this from a quality assurance perspective, a responsive web design requires thorough evaluation using a variety of devices before it is ready to go live. Software testers may find it challenging to perform responsive design testing as a variety of factors are to be looked into during the testing phase. Some points to be understand for Responsive Testing. The challenges involved in testing a responsive website How website testing differs from a mobile device to a computer Rules and guidelines to be followed during responsive design testing and lastly, various tools available to perform responsive testing

Responsive Testing Tools

LT Browser

Lambda Testing

Google Resizer

I am responsive

Pixel tuner

API Testing

* Application Programming Interface (API) is a software interface that allows two applications to interact with each other without any user intervention
* another definition, API (Application Programming Interface) is a computing
* interface which enables communication and data exchange between two separate software systems
* The purpose of API Testing is to check the functionality, reliability, performance, and security of the programming interfaces...
* In API Testing, instead of using standard user inputs(keyboard) and outputs, you use software to send calls to the API, get output, and note down the system’s response.
* API tests are very different from GUI Tests and won’t concentrate on the look and feel of an application.
* **Types of API Testing**
* **There are mainly 3 types of API Testing**
* **Open APIs**: These types of APIs are publicly available to use like OAuth APIs from Google. It has also not given any restriction to use them. So, they are also known as Public APIs.
* **Partner APIs**: Specific rights or licenses to access this type of API because they are not available to the public.
* **Internal APIs**: Internal or private. These APIs are developed by companies to use in their internal systems. It helps you to enhance the productivity of your teams.
* **Tools for API Testing**
* Post Man
* SoapUI
* JMeters
* Versts

**Cross Browser Testing**

* Cross Browser Testing checks the compatibility of a web application or website on different browsers, operating systems, and devices.
* Through Cross Browser Testing we ensure that the web application or website works in a uniform and smooth fashion on the browsers and devices that your **customers may use –**
* Browsers - Chrome, Firefox, Safari, Internet Explorer, Edge, UC Browser, Opera, etc.
* Operating systems - Windows, Android, iOS, macOS, etc**.**
* Devices - Mobile, laptop, desktop, tablet, smart TV, etc.

A user might be using any of the devices with any combination of browser or OS. Hence, it is required to check the compatibility, performance, and UI of the application on all these combinations**.**

**Why is Cross Browser Testing needs?**

* Any website or application consists of HTML, JavaScript, and CSS components. We do not know over which browser our user might see our application.
* We know that each browser has its technology, capabilities, and limitations. Because each browser interprets an application in its own way, this results in different outputs for different users.
* We need to be sure that when rendered on different browsers the final output should be the same for all users.
* Tools Are:
* Lambda Test
* Browser Stack
* Sauce Lab

**Database / SQL**

“The large majority of today's business applications revolve around

relational databases and the SQL programming language (Structured

Query Language). Few businesses could function without these

technologies...”

**Relational Databases**

* RDBMS stands for Relational Database Management System. RDBMSis the basis for SQL, and for all modern database systems like MS SQL Server, IBM DB2, Oracle, MySQL, and Microsoft Access.
* A Relational database management system (RDBMS) is a database management system (DBMS) that is based on the relational model as introduced by E. F. Codd.

**Most of today's databases are relational:**

* database contains 1 or more tables
* table contains 1 or more records
* record contains 1 or more fields
* fields contain the data
* So why is it called "relational"?
* tables are related (joined) based on common fields

**What is SQL?**

* SQL is Structured Query Language, which is a computer language for

storing, manipulating, and retrieving data stored in relational database.

* SQL is the standard language for Relation Database System. All

relational database management systems like MySQL, MS Access,

Oracle, Sybase, Informix, postgrads, and SQL Server use SQL as standard

database language.

* **Also, they are using different dialects, such as:**
* MS SQL Server using T-SQL, ANSI SQL
* Oracle using PL/SQL,
* MS Access version of SQL is called JET SQL (native format) etc.

**Advantages of Selenium over QTP**

**QTP**

* Open source, free to use, and free of charge.
* Highly extensible
* Can run tests across different browsers
* Supports various operating systems
* Supports mobile devices
* Can execute tests while the browser is

minimized to be visible on the desktop

* Can execute tests in parallel.

**Selenium**

* Commercial.
* Limited add-ons
* Can only run tests in Firefox , Internet
* Explorer and Chrome
* Can only be used in Windows
* Supports mobile devise using 3rd party
* Needs to have the application under test
* Can only execute in parallel but using

Quality Center which is again a paid product.

**Selenium IDE**

**What is Selenium?**

* Selenium is a free (open source) automated testing suite for web applications across different browsers and platforms.
* It is quite similar to HP Quick Test Pro (QTP) only that Selenium focuses

on automating web-based applications.

**Introduction Selenium IDE**

* Selenium Integrated Development Environment (IDE) is the simplest

framework in the Selenium suite and is the easiest one to learn.

**Selenium Web Driver**

Simon Stewart created WebDriver circa 2006 when browsers and web applications were becoming more powerful and more restrictive with JavaScript programs like Selenium Core. It was the first cross-platform testing framework that could control the browser from the OS level.

**Pros & Cons Selenium IDE**

**Pros**

* Very easy to use and install.
* No programming experience is required, through knowledge of HTML and DOM are needed
* Can export tests to formats usable in Selenium RC and WebDriver
* Has built-in help and test results reporting module.
* Provides support for extensions.

**Cons**

* Available only in Fire fox
* Designed only to create prototypes of test
* No support for iteration and conditional operations
* Test execution is slow compared to that of Selenium RC and WebDriver.

**Bug (Defect) Life Cycle**

“A computer bug is an error, flaw, mistake, failure, or fault in a

computer program that prevents it from working correctly or

produces an incorrect result. Bugs arise from mistakes and

errors, made by people, in either a program’s source code or its

design.

**Bug** (**Defect) Life Cycle**

* As you can see from above diagram, a defect ‘s state can be divided into

Open or closed.

* When a bug reaches one of the Closed or Terminal states, its lifecycle

ends. Each state has one or more valid states to move to.

* This is to ensure that all necessary steps are taken to resolve or

investigate that defect. For example, a bug should not move from

Submitted state to resolved state without having it open.

* In a typical scenario, as soon as a bug is identified, it is logged into the

bug tracking system with status as Submitted. After ascertaining the

validity of the defect, it is given the “Open” Status.

**Defect Stages**

* New: When a new defect is logged and posted for the first time. It is assigned a status as NEW.
* Assigned: Once the bug is posted by the tester, the lead of the tester approves the bug and assigns the bug to the developer team
* Open: The developer starts analyzing and works on the defect fix
* Fixed: When a developer makes a necessary code change and verifies the change, he or she can make bug status as “Fixed.”
* Pending retest: Once the defect is fixed the developer gives a particular code for retesting the code to the tester. Since the software testing remains pending from

the testers end, the status assigned is “pending retest.”

* Retest: Tester does the retesting of the code at this stage to check whether the defect is fixed by the developer or not and changes the status to “Re-test.”

**Defect Stages (Cont...)**

* Verified: The tester re-tests the bug after it got fixed by the developer. If there is no bug detected in the software, then the bug is fixed and the status assigned is “verified.”
* Reopen: If the bug persists even after the developer has fixed the bug, the tester changes the status to “reopened”. Once again, the bug goes through the life cycle.
* Closed: If the bug is no longer exists then tester assigns the status “Closed.”
* Duplicate: If the defect is repeated twice or the defect corresponds to the same concept of the bug, the status is changed to “duplicate.”
* Rejected: If the developer feels the defect is not a genuine defect, then it changes the defect to “rejected.”
* Deferred: If the present bug is not of a prime priority and if it is expected to get fixed in the next release, then status “Deferred” is assigned to such bugs
* Not a bug: If it does not affect the functionality of the application then the status assigned to a bug is “Not a bug”.

**Jira**

**Introduction**

* JIRA is a tool developed by Australian Company Atlassian.
* It is used for bug tracking, issue tracking,

and project management.

* The name "JIRA" is actually inherited from the

Japanese word "Gojira" which means "Godzilla".

* The basic use of this tool is to track issue and bugs

related to your software and Mobile apps.

* The JIRA dashboard consists of many useful functions

and features which make handling of issues easy

**Importance of JIRA**

* Requirements and Test case management
* In Agile Methodology
* Project Management
* Software Development
* Product Management
* Task Management
* Bug Tracking

**How to Use JIRA?**

* Step 1) Open Jira software and navigate to the Jira Home icon
* Step 2) Select Create project option
* Step 3) Choose a template from the library
* Step 4) Set up the columns as per your need from Board

Settings

* Step 5) Create an issue
* Step 6) Invite your Team members and start working

**Bugzilla**

* Bugzilla is an open-source issue/bug tracking system that allows developers effectively to keep track of outstanding problems with their product. It is written in Perl and uses MYSQL database.
* Bugzilla is a defect tracking tool, however it can be used as a test management tool as such it can be easily linked with other test case management tools like Quality Center, Test link etc.
* This open bug-tracker enables users to stay connected with their clients or employees, to communicate about problems effectively throughout the data- management chain.
* Key features of Bugzilla include
* Advanced search capabilities
* E-mail Notifications
* Modify/file Bugs by e-mail
* Time tracking
* Strong security
* Customization
* Localization