JIRA + AGILE

Agenda: Using Jira tool for project management and its related activities Test a credit card online banking application.

Features to develop:

- Develop login module
- Credit card dashboard
- Profile

What is agile?

- Instead of testing the product after the deployment. Agile tests the product on a daily basis.
- For that Agile came up with some frameworks like scrum
- In agile we call “Epic” instead of “features” of the application

What is Userstory?

- Its a smallest unit of agile framework
- At the same time epics are large unit of work
- So big work like epic (feature) are broken down into small parts called user stories.
- User Stories should be written in a way such as: Story title, Steps to Reproduce the issue, expected outcome, Actual outcome

What is backlog grooming?

- All the acceptance criteria will be discussed by product owner and agile team members.
- In backlog all the description will be written for each epic

What is Sprint?

- Imagine You have 25 userstories to complete login Epic(Feature)
- Relese date is 2 months
- So Ideally we dont work for the whole 2 months = 6 Sprints. We divide the 2 months in a set of weeks. So that one week is called a sprint.
- Ideal Duration of sprint is 2 weeks. So you have to take some work and finish it within 2 weeks and again after that you have to take other work for some other sprint.
- Sprint is nothing but the set of work duration.
- This term is mainly used in Scrum Agile methodology.

What is sprint Planning?

- Agile team members will meet together before the sprint starts.
- Team members will discuss and decide how many developers and how many testers are available in that particular sprint time. And then they will decide how many userstories depends on story pointers to work on in the particular sprint. All the planning about the sprint will be discussed in the sprint planning.
- ** You have to groom the story before planning for Sprint.**

- Retrospective:
    - In Retrospective meetings teammates discuss what went well in this sprint and what did not go well in this sprint.

- In the scrum board there is backlog, Sprint, User stories and everything will be in TO DO whenever sprint starts
- In kanban board there is no sprint or criteria to maintain.

STLC (Software Testing Life Cycle):

- Role of QA engineer in SDLC.
- **Requirement Analysis:** The QA team will interact with various stakeholders(client, product owner,business analyst, technical lead, etc.) to understand the requirements in detail.
- For example: Business requirements:
    - Submit the form
    - Navigate to the tabs present on home page
    - Select the products and add to cart
    - Added items in cart should display on checkout page
    - Select the country to deliver before purchase
    - Complete purchase by providing payment details and generating receipts.
- **Test Planning:** Testing is the most important phase of the software testing life cycle where all testing strategy is defined.
    - Test plan is a document which contains the plan related to all testing activities which needs to be done to deliver a quality product.
    - This document is prepared after analyzing business requirements of the project.
    - Usually it is prepared by Test lead or senior QA in an agile team.
    - How to prepare a test plan and what to include in test planning document?
    - What to Test (in scope for testing)
    - What cannot be tested
    - Tools and technologies used for software testing. Environment/ infrastructure required to test
    - Staffing and Training Needs
    - Testing duration
    - Risks and contingencies plan
- **Test Case Development:** This is the phase where the testing team will write down the detailed test cases. Along with test cases, the testing team also prepares the test data if any is required for testing.
    - Once test cases are ready then these test cases are reviewed by peer members of QA lead.
    - The **Requirement Traceability matrix(RTM)** is prepared.
    - The RTM is an industry accepted format for tracking requirements where each test case is mapped with the requirement.
- **Test Environment Setup:**Test environment decides the software and hardware conditions under which a work product is tested.
    - Test environment setup is one of the critical aspects of the testing process.

- **Test Execution:** During this phase, the testers will carry out the testing based on the testing plans and the test cases prepared.
    - Bugs will be reported back to the development team for correction and retesting will be performed.
- **Test closure Activities:** Test closure activities are done mostly after the product is delivered.
    - Test Closure activities mainly comprise of four types:
        - Ensure Test Completion: Check if all test cases have been passed 100%.
        - Handover Test artifacts: Document of test data ,Which tests have been automated and which has been manually tested.
        - Project retrospectives : Discuss about the project and sprint. How did the sprint planning go. Was there any push back or no. What action items to perform next time of not to perform next time
        - Archive test work products: You will save the test plan. So something goes wrong then u can go back to your test plan and check if they want to make any modification in the existing project.

How to write an effective Test Case?

1. Test case Name/ ID
2. Requirements ID
3. Description
4. Assumptions and precondition
5. Input Test Data
6. Test execution steps :
    a. Action / Steps to reproduce
    b. Expected result
    c. Actual test
7. Test case status

*****For example, In the facebook app I want to create a test case for change password functionality.*****

//Testcase

1. **Test case Name/ ID** : AaccountSettings_Resetting_Password_ValidUser - 13425
2. **Requirements ID** : BR-9 (from requirement document)
3. **Description** : Verifying password resetting functionality with valid user
4. **Assumption and preconditions :** Valid enrolled User with manage account access
5. **Input Test Data :** UserID and Password
6. **test execution steps :**
    a. **Step 1 : Steps to reproduce/ Action -** Login into facebook application with valid credentials. Menu > Click on settings.
    b. **Step 2 : Expected result -** Facebook home page should be displayed

    c. **Step 3 : Actual result -** Not accepting the new password (provide a link or screenshot)
7. **Test case status:** Failed

QA Tasks for Bug Identification and Defect

In interviews, interviewers may ask how will you troubleshoot if some app or website is not working?

Troubleshoot options when application is not working

1. **Check in Network tab** : Right click> inspect> click on network
2. **Check in browser console logs** (for front end validation) : Right click> inspect> click on console
    a. You will see all the front end communication in the console. If there is any error you will be able to see it in the console itself.
3. **Check in app server logs**

Once Bug is confirmed, what information do we provide to create a defect? Bugzilla tool is used to create defects

Steps to reproduce:
Test Data with URL:
Expected result:
Actual Result:
Timestamp:
Troubleshoot thoughts:
Screen shots:

Difference between Severity and priority of defect?

Severity: It is the extent to which the defect can affect the software/application. In other words, the degree of impact a defect has on the application being tested.
Defect severity can be categorized into 4 class:

- **Critical** : This defect indicates complete shut-down of the application, Nothing can proceed further if the severity is critical. (Ex. Shop tab not working in the shopping website **High Priority**)
- **Major :** It is a highly severe defect and collapses the system. However, certain parts of the system remain functional. (Ex. Cannot add few products in cart in the shopping website **Medium priority**)
- **Medium :** It causes some undesirable behaviour, but the application is still functional. (Ex. Navigating to checkout page without selecting any orders **Low priority**)
- **Low :** It won't cause any major break-down of the application (Ex. Cart is getting cleared on page refresh **Low Priority**)

Priority: Priority is defined as the order in which a defect should be fixed. It can be categorized as **low, medium, high.**

Can there be a defect with low severity and high priority?
Answer is Yes. For example we are building an application for amazon and on the home page the amazon logo contains the wrong name (amzon). This bug won't affect the functional or software breakdown, so the severity is low. But we cannot deliver a product with the wrong product name so here priority is high.

What is Defect Triage?

Defect triage is a process where each bug is prioritized based on its severity, frequency, risk, etc. Triage term is used in the Software testing / QA to define the severity and priority of new defects.

For more details Use below link:
https://www.guru99.com/bug-defect-triage.html#:~:text=Defect%20triage%20is%20a%20process,and%20priority%20of%20new%20defects.

How smartly QA should retest the application once the defect is fixed?

Validate all the functionality related to the specific change developer has modified. This is how you retest the application once the defect is fixed.

What are the different types of testing and when they are needed?

1. **Regression Testing:** Regression testing is the process of testing changes to applications to make sure that the existing application still works fine with the new changes.
    - Automation testing is majorly used in regression testing. Because at release of the product, there is not much time to manually test every test case. So automation is the easy and reliable solution in regression testing.
    - Recommended before every release
    - Effective regression tests can be done by selecting the following test cases
        i. Test cases which have frequent defects
        ii. Functionalities critical
        iii. Integration test case
2. **Smoke Test/ Sanity testing:** Smoke test development and regression test development are related and similar, The only difference is in depth scope and duration of running the test. **Jenkins is used for smoke testing which is automated.**
    - Typically runs after every code commit (Build)
    - Add the most critical tests to the smoke test suite
    - Automate smoke testing in your CD(Continues delivery) environment
3. **Component Testing:** Component testing is a method where testing of each component in an application is done separately. (for ex. Home page or Shop tab)

    - Component testing may be done in isolation from the rest of the system depending on the development life cycle model chosen for the particular application.
    - Component is all about **front end testing**
4. **Integration Testing:** Integration testing is defined as a type of testing where software modules are logically and tested as a group.
    - For example. We are checking a udemy website. When you click on the course tab it will lead you to the connected page of that particular course. So that is called integration test. But checking the content of the course like whether the course name is displayed or not is called component test.
    - Give all the information in your register form > click submit.
        i. Here before clicking submit all the tests are called component tests.
    - After clicking submit, verify whether it is stored in database or not
        i. This is called integration test.
5. **System/End to End Testing:** System testing is a level of software testing where a complete and integrated software is tested. The purpose of this test is to evaluate the system's compliance with the specified requirements.

Difference between Verification and Validation:

1. **Verification:** The process of evaluating work-products(not the actual final product) of a development phase to determine whether they meet the specified requirements for that phase. (Verify if the button is working, or register tab is working fine)
2. **Validation:** The process of evaluating software during or at the end of the development process to determine whether it satisfies specified business requirements.

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3. **UAT(Universal accept) Testing:** This is typically the last step before the product goes live or before the delivery of the product is accepted. UAT is after the product itself is tested throughout.
    - UAT is tested by the client. The Client will check the product before accepting.
4. **Load Testing:** Load testing helps us to study the behaviour of the application under various loads. (In simple words How much time it takes to load a register page)
    - The main parameter to follow is response time.
    - This study reveals how many concurrent users that servers can handle effectively and quickly.
5. **Stress Testing:** Stress testing helps us to observe the stability of the application. The main intention is to identify the breaking point of the server. At what peak moment the application will drop that is called stress testing.

Functional And Non-Functional Requirements:

Business requirements are classified into functional and nonfunctional.

- The functional requirement is describing the behaviour of the system.
- **Functional requirements** are the main things that the client expects from the software
- Functional requirement is from client to developer side that is regarding functionality to the user by the software end.
- **Non-Functional requirements** are any other requirement than functional requirement. This are requirements that can be used to judge the operation of a system, rather than specific behavior.
- Non functional requirement is from developer to client i.e. the requirements is not given by client but it is provided by developer to run the system smoothly.
- Typically areas associated with non functional requirements includes:
    - **Performance:** How application handles with 1000 active users.
    - **Scalability :** How server handles Terabytes of data
    - **Usability :** How convenient to access application from mobile
    - **Reliability :** How secure application is
    - **Recoverability :** what action plans are executed on disaster recovery.
    - **Security :** what security practices are followed to build the application

Top 25 Software Testing Behavioral interview questions:

1. **Suppose you find a bug in production. How would you make sure that the same bug is not introduced again?**

- First of all I will make sure it is the part of regression testing. If it has been automated a regression suite, then write a new script which validates above functionality.

2. **What do you do when your developer denies that what you file is a BUG?**

- Provide business documentation reference to support why the existing functionality is not as per design.
- Involve product owner/ business analyst for discussion
- If the bug is not reproducible then?
- Provide screenshots of the bug, give a timestamp on when you reproduced this so that developers can check in application logs.
- Provide test data you have used for replicating issues.

3. **What has been one of your greatest challenges while doing regression testing?**

- Test data issue
- Improper selection of regression test cases might skip a major regression defect to be found.

4. **Difference between functional and non-functional testing?**

- Functional testing verifies that features of the application are working as expected according to requirements.
- Non-functional requirements check how well the system performs.

5. **Enlist some of the key challenges that are faced while performing software testing.**

- Test Data issues (we have to feed data every time to perform testing)
- Environment available
- Using right set of tools

6. **What are the different levels of testing?**

- Unit testing
- Integration testing
- System testing/End to End testing
- Acceptance Testing

7. **What are the drawbacks of the agile implementation/ methodology that you faced?**

- Sprints are usually very deadline constraints
- Documentation is not the priority
- Frequent change in requirements

8. **What is your approach when you have a high priority release to be delivered in a very short time?**

- Run automation suites
- Run Unit tests. (Run the code and check weather its working fine)
- Manual testing on high level priority business test cases

9. **Give an example of high priority and low severity bug.**

- Wrong logo image in an application

10. **What is your understanding regarding a Test plan?**

- Test plan is a document that consists of scope (What are the areas and functionalities we have to test), approach (how should we start testing, which method should we use), resources and outline of the testing project as well as the activities for tracking the progress of the project.

11. **Explain what your reaction was if a project you had been working on got sudden change in its deadline?**

- As an QA engineer, be open to your thoughts if you can deliver the project with a QA sign off covering all test cases.
- If pre-release is must, then discuss the opportunities of increasing QA resources or possibility of partial product delivery. (offer if you can deliver some features of the app in the release and other in 2nd release)
- You have the power to hold QA sign off if you are not satisfied with the quality of the product which eventually stops the release date.

12. What is the difference between smoke and sanity testing?

- **Sanity testing** is a kind of software testing **performed after receiving a software build**, with minor changes in code or functionality to make sure that the bugs have been fixed and no further issues are introduced due to these changes.
- **Smoke testing** is a special type of testing **performed on software build** to check critical functionality of the program.

13. If a small section of the code in the application is updated, what would be your test approach in validating it?

- Test the code of all the sections. Suppose the developer has updated his code related to the register tab then checks all the sub areas included in the register. Don't check the whole application after the update.

14. Differentiate Ad-hoc testing and exploratory testing?

- **Ad-hoc testing** includes learning the application first and then proceeding with the testing process.(you will test randomly/blindly but you need to learn about app first)
- **Exploratory testing** is a form of testing which includes learning the application while testing.

15. What are your daily activities as a member of the automation tester in your office?

- Running smoke suites on a daily basis and giving an update to the team on the health of the application.
- Verify defects assigned to you and take appropriate actions
- Working on manual and automation testing for the stories in the current sprint.

16. How do you select regression test cases from a regression test suite?

- Include the test cases that verify core features of the application
- Include the test cases for functionalities that have undergone recent changes
- Include test cases that have frequently yielded bugs

17. Have you ever managed writing test cases without having any documents?

- In one of my previous projects, we had to redevelop our internal tool with new technology, But there was no documentation for the old/existing product. As there was no documentation, below are the steps I followed.
    - Understanding and exploring the existing product to come up with scenarios.
    - Spending time with product owners or seniors to understand the business of the tool.
    - Going through production bugs which were found previously for the product so that edge test cases are not missed in writing tests for upgraded product.

18. What is the first action you would perform as a tester when application throws any weird errors?

- Open developer tool> right click> inspect> check in console for any javascript error

- Open network tab> and see if any request responses are failed
- Verify application logs to understand the actual issue.

19. How do you solve if there is any conflict with your peer QA on any technical aspect?

- There should be an argument only up to certain extent with your peer on why you are correct.
- If it is still a conflict,
- Involve team and discuss the conflict issue with a larger audience. Be open to take suggestions from your team
- Accept any decision made in a team meeting with a positive attitude.

20. How do we decide if a test case is not an ideal candidate for automation?

- Tests which are highly dependent on data with frequent changes every time. (If we have to fill some data in the system everytime and the data is unique all the time then it is suggested to run manual testing)
- Tests which cannot be automated due to technical challenges. (for example if the banking app where it always generates OTP and we have to enter OTP from our cell phone to proceed to the next step. In this case new framework we have to build which is time consuming so it is suggested to go with manual testing)
- Test which are unstable due to complex nature of application

21. Difference between retesting and regression testing?

- Retesting is done to make sure that the test cases which failed in last execution, are passed after the defects are fixed.
- Regression testing is to ensure that changes have not affected unchanged parts.
- Regression testing is not carried out for specific defect fixes.