Case Study On TestRail Software : A Test Case Management Tool

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Abstract- **This research paper deals with the usage of the TestRail software which is widely used in the software industry for the test case management. This web based application is mainly used by the testors, developers and stakeholders inorder to manage and track the software testing efforts. The paper focuses on the functionalities offered by the software and to familarise the software to the beginners.**

Keywords: Test Case Management, Software Engineering, Project Management, Quality Assurance.

1. INTRODUCTION

TestRail is a web-based tool for managing test cases. It is used to manage, track, and organise software testing efforts by QA engineers, developers, and team leads. Team members can use TestRail to design test cases, organise test suites, run test runs, and track results all from a modern and simple web interface. It follows to a centralised test management concept, which facilitates easy communication and allows for the rapid development of tasks across the QA team and other stakeholders. The software was developed by Gurock software. It supports with various Windows OS like Windows XP, Vista, 7 etc. TestRail is a commercial tool and it provides free trial for a limited time of 14 days. The software provides license for both cloud based access and local server setup. TestRail can be integrated with ,many tools like Jira, Version One, Github, Bugzilla, Fogbugz etc. The traditional method of documenting test cases on paper, in wikis, bug tracking tools, or general document management systems quickly runs out of options. TestRail allows you to create, manage, and organise test cases and suites within a user interface and application structure that is optimised. To-do lists, filters, and email notifications in TestRail help testers coordinate test runs and increase their productivity and responsibility. The goal is to ensure that every team member is aware of their responsibilities at all times, and that team leaders can assign new tasks to testers based on their workload. Inorder to make various project decisions it is important to know about the testing progress and testing results. Informations like "what percent of test run is completed, progress of our milestones, which test run is executing currently" can be answered using a tset management tool like TestRail.

2. WORKING OF TESTRAIL

In TestRail, projects serve as the primary organisational unit. It is generally recommended that you create a TestRail project for each real-world software project you want to manage in TestRail. All other data, such as test runs, test results, milestones, and so on, are linked to a specific project. TestRail can also be used to track project milestones. A milestone can be any important project milestone, such as a planned public software release, an internal test version, or a new beta release for a key customer. You can assign test runs to specific milestones after you've added them to TestRail. The benefit of assigning test runs to milestones is that you can easily track the milestones' test results and progress separately.

2.1 LOGIN

To log into the TestRail first move to the website visited during the free trial and click on the login button. Then enter your registered mail id as username and the password. If the entered credentials are correct it will take to the dashboard of the software.

2.2 DASHBOARD

The dashboard is usually the first page you see after logging into TestRail. The dashboard shows you a list of available projects, recent project activities, and your to-do list. When you navigate to a project (by clicking on its title), you enter the project view and land on the project's overview page, which displays project details such as various test cases, active test runs, project activities, and so on. Return to the dashboard by clicking the link in the upper left

corner whenever you need to switch to another project. Dashboard is divided into two sections: the generic dashboard, which lists all projects, and the project specific dashboard. The Navigation Bar at the bottom of the TestRail page will be consistent across all pages/screens of TestRail. It includes options for creating new projects, adding test cases etc.

2.3   ADD A PROJECT

The first step in adding a project to TestRail is to log in as Administrator and navigate to the main Dashboard page, where all projects are listed. On the right side, click the Add Project button. It opens the Add Project form, where the user must enter information in the following fields. We should enter the name of the project as well as project announcements like start date etc. The user can display the announcement on the Project Overview page by checking the box. Choose a repository type based on the project and manage cases. There are three project types in TestRail.

- Single repository
- Single   repository with baseline support
- Multiple Test Suites

A single test suite (repository) is simple to manage and adaptable enough for most projects with a small number of concurrent versions. In this project, you will have a single area where all of your test cases for that project will be stored, and you can organise your test cases using sections and subsections just like you would with folders. With a single test suite (repository), you can also create baselines to manage multiple branches of your test cases at the same time. Projects with test suites enabled can be used to organise your test cases on the test suite level by functional areas and application modules. Each test suite, like a single repository-type project, can be organised into its own sections and subsections. This project should only be undertaken by teams that require much stricter divisions between different testing areas in their system. Because you will be unable to add test cases from multiple test suites in the same test run if you use multiple test suites.

2.4.   TEST CASES

In TestRail, a test case consists of a description of the prerequisites for the test, a list of test steps, and the expected result. A test case should ideally be verified in a short period of time by a single tester and confirms a specific functionality, documents a task, or verifies a project artifact. Test cases in TestRail are divided into sections and sub-sections. Sections and sub-sections are collections of test cases that are frequently created for specific project modules or product areas. The size of your project will determine how you organise your sections. If you have a large number of test cases for a project module, it is recommended that you divide your sections further and create sub-sections for specific features or functionality. Following steps can be performed to add the test cases.

- Click on the tab test cases and select add test cases. It opens a window where the user can enter the title.
- User can enter the test conditions, steps and the expected results of the test cases.
- Then click on add test case.

Sections can be created for the test cases by clicking on the test cases tab. We can provide title as well as the description for the section. In the description field users can add images or tables. Now click on the Add section option and folder structure gets created.

2.5   TEST RUNS

Start a test run for a specific test suite to run a test and enter test results for the cases you added. A test suite is similar to a plan that specifies how an application is tested, whereas a test run is the actual test that you are running. In most cases, you will start multiple test runs for a specific test suite over time. Similarly, multiple test runs for a specific test suite can be active at the same time. When you begin a new test run , you can include all cases in the test suite, select specific test cases, or set a dynamic filter. A run is made up of individual tests for each case you add. Each test has one of five different statuses by default, which are indicated in TestRail by specific colours. You can add a test result and change a test's status by clicking the Add Result button on the test page or directly on the run page. By default following test status are available.

- Untested: When new test are assigned it is marked as untested.
- Passed: A test is marked as pass if the test steps and results are verified by the tester.
- Retested: When the developer or tester marks a test to be retested.
- Blocked: The Blocked status indicates that a test cannot be run right now due to an external dependency.

When a test run is finished, you can close it from the run's edit page. Closed run tests cannot be edited or changed, making them ideal for archiving test runs. Furthermore, if you change any of the attributes of the associated cases (such as the expected result), the change will not be applied to the closed and archived run.

2.6   TODOS AND NOTIFICATIONS

Team members can be assigned tests. You can either assign tests when you create a run or later

from the run or test pages. When a test is assigned to a user, it appears on the user's todo list. Every user has their own to-do list for each project she/he is working on, and the Dashboard provides a quick view of the user's todos for all projects. The todo page can be used to view the todos of other team members or the entire team , allowing team leaders to easily assign tests to team members who have the least workload. Email notifications are another useful feature. Email notifications inform test owners of test changes made by other users. For example, if a user (i.e. the test owner) assigns a test and another user adds a comment or result to the test, the test owner is notified via email. Subscribing to other users' tests or entire runs is also possible by clicking the small email icons on the relevant pages.

2.7 TEST PLANS AND CONFIGURATIONS

TestRail's test plans come in handy when you need to manage multiple test runs and configurations for a single project. If you want to test against multiple configurations, you can use a test plan to start multiple test runs at once. A configuration can be anything that you need to test your projects against, such as various operating systems or web browsers. To create a test plan, go to the Test Runs & Results page and click the Add Test Plan button. You can configure all properties of the test runs, just like you can with a single test run. A specific test run must frequently be tested against multiple configurations, such as operating systems or web browser versions. You can specify and select all configurations for your test runs within a plan to make it easier to create a separate test run for each configuration combination.

3. CHARTS AND DASHBOARDS

3.1 STATUS CHARTS

This chart can be found on the Milestones and Test Runs pages. These charts, as the name implies, show the status of your ongoing testing. The pie chart appears after you select a Milestone or a Test Run.
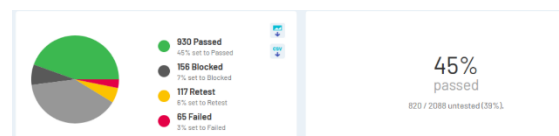
Fig .1   Pie chart

3.2 STATUS CHARTS: BAR PLOT

This type of chart is found in Milestones and Test Runs overview pages; it provides a summary of the test cases that are included in each (Milestone or Test Run).
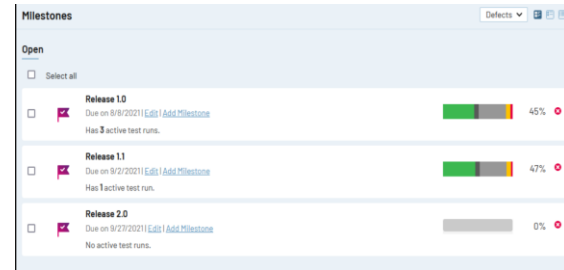
Fig.2 Bar plot

3.3 ACTIVITY CHARTS

These charts can be found on the Project's Dashboard and Overview. Click on Activity on the right panel inside a Milestone or a Test Run to see a chart with the dates and number of tests run.
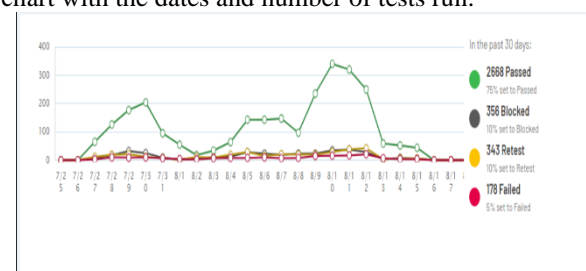
Fig.3   Activity charts

3.4 PROGRESS CHARTS

These charts are available on Milestones and Test Runs. Select a Milestone or a Test Run, then click Progress on the right panel to see a chart displaying the dates and number of test runs. It displays the remaining tests, effort, and ideal progress.
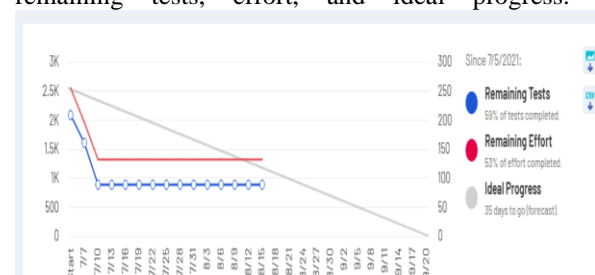
Fig.4   Progress charts

3.5 DEFECTS CHARTS

This chart type can be found in Milestones and Test Runs. Select a Milestone or a Test Run and then, on the right panel, click on Defects. You will see a bar chart displaying the Milestone or Test Run's Tests, Results, and Defects.
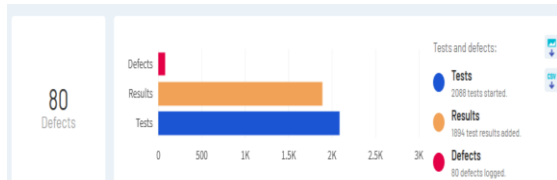
Fig.5   Defects chart

3.6   WORK LOAD CHARTS

Theses charts are based upon to-do lists. Here we can see active test runs per user.

Fig.6   Work load charts

4. CONCLUSION

As discussed in the research paper TestRail is a web application for the test case management which is widely used around many industries among various testors and developers for the quality assurance activities. TestRail helps to create various testcases for each projects and track the progress of these projects. Test cases can be further divided into section and subsections. Test runs can be conducted to evaluate each test cases. TestRail creates To-do lists and notifications to make the team members aware about their works. This research paper provides guidelines for users on how to use this tool effectively for testing activities.

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