



Internship Report

by

ROCHELLE MARTINS

CST - 1930

REPORT OF INTERNSHIP DONE AT INFUSE CONSULTING

submitted by

Rochelle Martins

CST - 1930

UNDER THE GUIDANCE OF

Mr. Subodh Borkar

(Head of Product Development, useMango, Infuse Consulting)

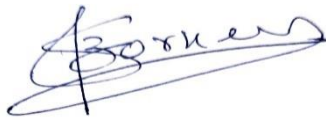
6th June 2022

INTERNSHIP CERTIFICATE

This is to certify that Rochelle Martins, Roll. No. 1930, studying in 6th Semester Goa University MCA department, is working as an intern with us from 10th January 2022 and has successfully completed the various tasks related to feature development, bug fixing, etc. assigned to her during the internship period.

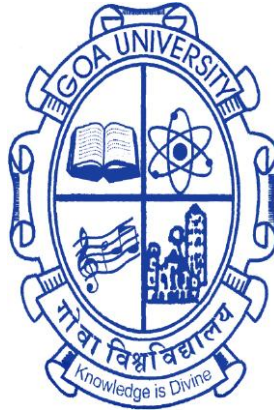
Rochelle is a self learner and needs minimal supervision to complete her tasks, She has learned the product domain knowledge and required technologies at a fast pace and has contributed well towards the team delivery.

Yours Sincerely,



Subodh Borkar,
Head of Product Development - useMango

GOA UNIVERSITY



GOA BUSINESS SCHOOL

CERTIFICATE OF EVALUATION

This is to certify that Miss Rochelle Martins has been evaluated for the project work titled “Report of Internship done at Infuse Consulting” in partial fulfillment for the award of the degree in Master of Computer Application.

Examiner 1

Examiner 2

Place: Goa University, Taleigao Plateau

Date: 11th June 2022

Dean, Goa Business School

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Acknowledgements

Internships play a crucial role in shaping one's career since they allow one to gain real-world experience in a working environment and I couldn't be more gratified and proud that I have done so at Infuse Consulting.

I would like to thank Mr. Nalin Prabhu, CEO, Infuse Consulting for this wonderful opportunity to intern at Infuse Consulting.

My special and most sincere gratitude goes out to Mr. Subodh Borkar (Head of Product Development, useMango, Infuse Consulting) for his constant guidance and mentorship. I consider myself extremely fortunate to be under the tutelage of one of the industry's greatest with years of expertise.

I am also grateful to my senior colleagues and the entire Infuse team for their assistance and guidance.

Furthermore, I would like to thank my colleagues who I've had the pleasure of working alongside who have made learning and working fun and never hesitated to help.

I also would like to express my deep gratitude to M.S. Dayanand (Dean, Goa Business School, Goa University), Mr. Ramdas Karmali (Prof. and TPO, MCA, Goa Business School, Goa University), Dr Jyoti Pawar (Program Director, MCA, Goa Business School, Goa University), Mr. Jarret Fernandes (Assistant Professor, MCA, Goa Business School, Goa University) and all the faculty of MCA, Goa University who have been supportive throughout.

Finally, I would like to thank my family and friends for their continuous support and trust in my endeavors.

Rochelle Martins

Introduction

This report documents my full-time, onsite internship at Infuse Consulting as a Team Intern for useMango.

I started my internship on 10th January 2022 and have been here ever since. The office is located at MeWo, Patto, Panjim and office days are from Monday to Friday.

This report contains all the necessary information about the organization, the projects and mini projects I worked on and the other tasks and special training I received in this internship period.

This report highlights my learning experience and my contributions to the organization as a useMango team intern.

It also contains the tools and technologies used and an account of my weekly diary and ends with my reflection on my time here at Infuse Consulting.

Company Profile

About Infuse Consulting



/// <https://infuse.it>

Infuse Consulting is an international company and leverages strategic consulting partners as well as its technology partners to deliver the best solution.

Recognized as the leading provider of Test Automation and Lifecycle Transformation Services for successful, ambitious organizations, Infuse Consulting is headquartered in the UK and since 2002 has helped more than 500 businesses get the most out of their Software Delivery Teams.

Infuse Consulting works hard in the fields of Test Automation and DevOps to reliably deliver a number of clear benefits for organizations seeking assistance with their Software Delivery.

Infuse is a Gold Partner of Micro Focus and Oracle, and has a partner network including CA, Microsoft, AWS and SAP.

Infuse prides itself on its ability to provide innovative solutions, especially in test automation. They have been automating mobile testing since 2003 and developed a functional scriptless test automation tool, useMango™.

About useMango™



/// <https://www.usemango.co.uk/>

With useMango™ tests are quicker and more efficient, saving businesses time and money. With useMango™ you can build a test by selecting from 200+ pre-built components, just add data and it is ready to run. If you have problems with forms, or complicated pages useMango provides an easy solution, you can activate the useMango™ scanner to scan your application, with a single click, this will identify all the testable objects on any UI and create a new component.

If you need to create a custom component, useMango™ provides you the means to do so. A software tester can complement the useMango™ generated scripts with custom code, using in-built frameworks made with Ruby, VBScript etc.

Features

- Easy to use Test Automation Tool.
- Designed so non-technical individuals can build robust automation scripts.
- Flexible framework functionality that can be adapted to match your testing ability.
- Avoids the costs of engineering your own high maintenance frameworks.
- You can use useMango to create automated tests for web and packaged applications such as Oracle and SAP.

What are the key benefits of using useMango™?

- Component based test building removes the need for technical developers.
- Reduce months of manual testing into minutes.
- Fast ROI, allowing you to focus on business-critical issues.
- Increase confidence in your continuous delivery output with automated end to end testing.
- Enable Continuous Delivery by adding automated end-to-end testing of your build pipelines

Other key features

- Works on modern web & desktop applications.
- Codeless test tool & framework.
- Extended to support Package Applications SAP (GUI and Web Variants), Oracle E-Business, MS Dynamics, Oracle Fusion.
- Ensure application quality with fast and frequent testing.
- Test processes from end-to-end across multiple platforms and technologies.
- Business users and manual testers can automate tests without coding.
- Easily keep hundreds of tests up to date as your application changes over time.
- Expand the scope of your testing with data-driven tests.

- Meet exceptional or challenging automation requirements with simple scripted components.
- A scalable cloud-based test service which meets your growing needs.
- Get automated test outcomes directly in your continuous integration pipelines.
- Integrates with your modern continuous integration tooling!

Product – UseMango™

Overview

UseMango™ is a windows application which has several different architectural structures, from the server to website and common libraries that contain shared code. UseMango™ is maintained and developed by the Infuse team and has customers worldwide.

Tools and Technologies used

- C#
- .NET framework
- WPF
- Ruby
- VBS
- React JS

My Contributions

During the first initial days, I was assigned a task to create a feature and upload it to GitHub and to AWS. The feature included writing code in C# handler function to return the latest driver version given a browser and make a cloud template for the same to deploy to AWS Lambda.

I was then given various topics to study along with my colleagues on backend development in C#. We each picked topics and presented to others so as to speed up the learning process by each sharing the knowledge we picked up individually and collectively. The topics included Basics of C#, SOLID principles, ASP .NET Core principles, SQL fundamentals, RDBMS ORM, Dependency Injection, Caching, API Clients and Communications, Design patterns, Continuous Integration, Microservices, DevOps. Our seniors also conducted hands-on demos on useMango's hot technologies like React JS and Cloud formation in AWS.

The following month we were included in the sprint for the Test Creation team (Development of the useMango™ application) and spent a first sprint solving bugs in the useMango™ application in a pair programming environment. This gave me a lot of exposure to the useMango application, putting the skills I learnt the previous month to practicality. The next sprint I was assigned bugs to solve on my own, outside the pair programming environment. After having gained some insights into working on useMango, I was assigned a feature to work on.

Bugs fixed in the useMango Test Creation team

- Add ellipsis where parameter names were clipped.
- Error when another user renames test variable
- Error relating to composite components rename
- Disable variables and parameters panel when there are no steps
- Handle error on saving screen captures with same name
- Fix scrolling issue for 20+ tests
- Catch error when test containing Python steps is run on a different engine other than Python

I've conducted an online training session on `Automation Testing with useMango` for interns that were part of our consulting team in Pune.

Being enthusiastic about JavaScript, I was glad to be then moved to and having a chance to contribute to the System Management team that involved management of the app website and related services. Here, I started working on a backend feature - writing queries to the RDS database and sending back a response to the frontend. I worked on about a half dozen features and bugs in the System Management team that helped further my knowledge of React, Redux, SQL, Python and AWS. The development changes were pushed to production and my changes were then live in the new release.

Features worked on in the System Management team

- Handling backend request for the filters, querying from RDS and serving back the response
- Clicking on the bars on executions' graph takes you to the executions' page for date ranges
- Feature to handle click on bars for group bys and filters
 - Change to the controller on the server
 - Change to UI for clicking on executions' graph
- Feature to add testID filter to the executions' graph
 - Change to the warehouse to include testId in RDS query
 - Create a dropdown using antd's Select component and creating infinite scrolling in the dropdown
 - Add filters' query parameters to the URL
- Feature to export to PDF and download executions' report

Bugs fixed in the System Management team

- Bug related to executions' report click
- Bug related to decimal points and ticks on the executions' graph
- Bug related to crash of useMango's execution report
- Bug related to crash of useMango's executions report's page when date is empty
- Bug related dates in JavaScript on the executions' page

Alongside my gig in the SM team, I also assisted the QA team in manual testing following a test plan that was set up.

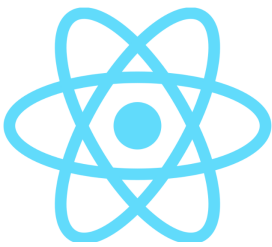
I also wrote release notes for the new release of useMango™'s app website documenting the changes that were included in the new release.

Tools and Technologies used



JavaScript

JavaScript (JS) is a lightweight, interpreted, or just-in-time compiled programming language with first-class functions. JavaScript is a prototype-based, multi-paradigm, single-threaded, dynamic language, supporting object-oriented, imperative, and declarative (e.g. functional programming) styles.



React

React is a free and open-source front-end JavaScript library for building user interfaces based on UI components. It is maintained by Meta and a community of individual developers and companies.

Some notable libraries used:



Ant Design

A set of high-quality React components out of the box.



Nivo






Nivo provides a rich set of dataviz components, built on top of D3 and React.

Axios



Promise based HTTP client for the browser and node.js

React is used on the app website.

	<p>Redux</p> <p>Redux is an open-source JavaScript library for managing and centralizing application state. It is most commonly used with libraries such as React or Angular for building user interfaces.</p>
	<p>npm</p> <p>npm is a package manager for the JavaScript programming language maintained by npm, Inc. npm is the default package manager for the JavaScript runtime environment Node.js.</p>
	<p>Tailwind CSS</p> <p>A utility-first CSS framework packed with classes like <i>flex</i>, <i>pt-4</i>, <i>text-center</i> and <i>rotate-90</i> that can be composed to build any design, directly in markup.</p>
	<p>Postman</p> <p>Postman is an API platform for building and using APIs. Postman's features simplify each step of building an API and streamline collaboration to help create better APIs—faster.</p> <p>APIs are tested using Postman.</p>
	<p>AWS</p> <p>Amazon Web Services, Inc. (AWS) is a subsidiary of Amazon that provides on-demand cloud computing platforms and APIs. These cloud computing web services provide distributed computing processing capacity and software tools via AWS server farms.</p>



Amazon S3

Amazon Simple Storage Service (Amazon S3)

Amazon Simple Storage Service (Amazon S3) is an object storage service offering industry-leading scalability, data availability, security, and performance.

Used to store execution's reports among other things



Amazon RDS

Amazon RDS

MySQL is the world's most popular open source relational database and Amazon RDS makes it easy to set up, operate, and scale MySQL deployments in the cloud. With Amazon RDS, you can deploy scalable MySQL servers in minutes with cost-efficient and resizable hardware capacity.



Amazon Lambda

AWS Lambda






AWS Lambda is an event-driven, serverless computing platform provided by Amazon as a part of Amazon Web Services. It is a computing service that runs code in response to events and automatically manages the computing resources required by that code.


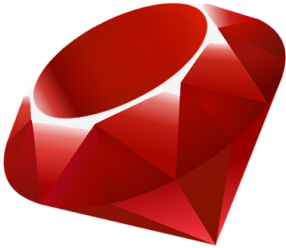





AWS Cognito

AWS Cognito

Amazon Cognito provides solutions to control access to AWS resources from your app.

	<p>Git</p> <p>Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.</p> <p>GitHub is used to host the repositories for version control.</p>
	<p>Azure DevOps</p> <p>Azure DevOps provides developer services for allowing teams to plan work, collaborate on code development, and build and deploy applications.</p>
	<p>C#</p> <p>C# (C-Sharp) is a programming language developed by Microsoft that runs on the .NET Framework.</p> <p>The code-behind in the useMango application written in C#.</p>
	<p>.NET</p> <p>.NET is a developer platform made up of tools, programming languages, and libraries for building many different types of applications.</p>
	<p>WPF</p> <p>Windows Presentation Foundation is a UI framework that creates desktop client applications. The WPF development platform supports a broad set of application development features, including an application model, resources, controls, graphics, layout, data binding, documents, and security.</p> <p>It is used in the useMango application.</p>

	<p>Python</p> <p>Python is a high-level, interpreted, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation.</p> <p>It is used in the data warehouse.</p>
	<p>Ruby</p> <p>Ruby is an interpreted, high-level, general-purpose programming language which supports multiple programming paradigms.</p> <p>Ruby is used for standard components.</p>
	<p>Selenium</p> <p>Selenium is an open source umbrella project for a range of tools and libraries aimed at supporting browser automation.</p>
	<p>MongoDB</p> <p>MongoDB is a document-oriented database program. MongoDB uses JSON-like documents with optional schemas.</p> <p>It is used to store executions' data.</p>
	<p>MySQL</p> <p>MySQL is the world's most popular open source relational database.</p> <p>It is used to store executions' data.</p>

Project Timeline

Week 1 (10th January to 16th January)

1. Formal orientation and onboarding
2. Introduction to the Infuse team - engineers and management
3. High level overview of useMango
4. Wrote my first AWS function
5. Setup of tools and environment to run useMango
6. MFA setup via Authy

Week 2 (17th January to 23rd January)

1. Explored useMango
2. Deployed AWS Lambda functions
3. Self study - ASP .NET Core
4. Attended a sprint review meeting

Week 3 (24th January to 30rd January)

1. Learnt about the MVC, MVVM frameworks of ASP .NET Core
2. Attended React training by associate engineer

Week 4 (31st January to 6th February)

1. Group learning on topics of self study
2. Cloud Formation training by associate engineer
3. Self study - API Clients and Communication, REST, Postman

Week 5 (7th February to 13th February)

1. Self study topic - CI/CD, Azure pipelines
2. Testing APIs

Week 6 (14th February to 20st February)

1. Self study - WPF and the MVVM architecture
2. Inclusion to Test Creation team
3. Attended Sprint planning meeting

4. Assigned first bug (Add ellipsis to clipped parameters and variables), pair programming with Minaxi Patil

Week 7 (21th February to 27th February)

1. Participated in first standup meeting
2. Created first PR in useMango repository
3. Assigned bug - Error when another user renames test variable. Again, pair programming with Minaxi Patil

Week 8 (28th February to 6th March)

1. Pair programming with Preshly Fernandes on bug relating to composite components rename

Week 9 (7th March to 13th March)

1. Demo on Oracle EBS Tests & Web Tests related service requests by technical pre-sales representative
2. Demo on SAP tests & client's environment by technical pre-sales representative
3. Demo on HTML Canvas and SITS by technical pre-sales representative
4. Demo on server API testing by Subodh Borker

Week 10 (14th March to 20th March)

1. Fix bug - Disable variables and parameters panel when there are no steps
2. Moved to the System Management team

Week 11 (21st March to 27th March)

1. Worked on my first product backlog story in the System Management team. The story was about retrieving records from RDS and sending back a response based on the request.
2. Understanding the App website codebase.

Week 12 (28th March to 3rd April)

1. Lead and conducted online `Automation Testing with useMango` training for consulting interns in Pune

Week 13 (4th April to 10th April)

1. Worked on task to click on executions bar in reports' graph
2. Worked on bug to fix test containing Python component but not running on the Python

engine (Backend fix)

3. Researched on Ruby to fix error in existing Ruby component
4. Wrote UI tests on useMango for the app website

Week 14 (11th April to 17th April)

1. Continued working on feature from previous week
2. Participated in feature discussion

Week 15 (18th April to 24th April)

1. Fixed bug related to executions' graph

Week 16 (25th April to 1st May)

1. Continued fixed bug related to executions graph
2. Fixed bug related to execution's report
3. Bug related to crash of useMango's executions' page when date is empty
4. Fixed bug to remove ticks in executions` graph for decimal number
5. Worked on bug on useMango app to fix scrolling when lazily loaded

Week 17 (2nd May to 8th May)

1. Worked on fix for bug produced from storing screenshots with the same name
2. Tested website according to a test plan before live release
3. Prepared for second useMango training for consulting interns

Week 18 (9th May to 15th May)

1. Lead and conducted the second useMango training for consulting interns
2. Tested all newly developed features in useMango's System Management team and reported bugs found

Week 19 (16th May to 22nd May)

1. Worked with updating the controller on the server to accept more filters on the executions` page.
2. Worked with feature to execution page direct on click sections of bars on the reports' graph
3. Worked with feature to filter executions by test name and update related elements to accommodate this filter

Week 20 (23rd May to 29th May)

1. Continued working on feature to filter by test names
2. Worked on feature to export reports' graph to downloadable PDF

3. Hands-on and practical study of Redux

Week 21 (30th May to 5th June)

1. Continued working on feature to export reports' graph to downloadable PDF
2. Hands-on and practical study of Redux
3. Watched and experienced events surrounding and post release of a major useMango feature
4. Worked on date related bug on the app website

Reflection

My Internship at Infuse Consulting has been a fantastic learning experience for me. Facing new challenges every day is a norm here at Infuse. We are encouraged to have an insatiable desire to keep learning and facing challenges.. Being in industry and working on a product helped me a lot to learn and gain experience and adjust to an industry setup.

At Infuse Consulting, I had the freedom to interact, consult, seek help and guidance, from any colleagues. I got to learn a lot about what goes on to build and manage software and got an opportunity to see the frenzy around a new feature being released as well as work on hot technologies like React and AWS. I also took part in daily stand-ups and sprint planning meetings, sprint reviews, spring retrospectives that helped me really understand the Agile Methodology. I built upon my version control knowledge, creating PRs on GitHub and receiving feedback that taught me to write clean and better code.

Trying out new stuff and getting it implemented in the product without even knowing about it, is what makes it possible to try out and learn new things every day.

Overall, I'm very happy to be part of Infuse and learning a lot of new things. My best of wishes to everyone here.

"You can't connect the dots looking forward; you can only connect them looking backward." ~ Steve Jobs

References

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