

# **At Least We Tried Group Report**

Prepared by:

Waris

Barbara

Abanoub

Tony

Submitted to

**The University of Roehampton**

**Software Engineering Group Report**

**CMP020N204S**

# Abstract

The goal of this project was to deliver a website to a customer. It should show information from a database to the user about countries, languages, cities, population, etc. The website needs to be a CRUD system. For this, a team of four people divided the project in equal parts and in a period of 14 weeks implemented the whole website. It was a team learning experience where many techniques, software and communication skills were actively used and exploited. It was not difficult because final product was delivered at each stage with a whole website delivered on time. All the criteria were met and on time. The fourth and last sprint was the most difficult where extra criteria were not developed 100%.

To achieve this, we used PUG for the front-end and Node.js and Express.js for the back-end. The whole application is deployed by Docker. To save our project we used Git and the GitHub repository. Our backlog is on Zube. We used a Kanban board and individual boards for each sprint.

To keep the work of the group organised and to make sure that the tasks were carried out, we held meetings every week.

As this was the first project of this type for each of our team, it was a bit difficult, but the cooperation and good organization of the tasks and time helped us a lot and made the task less challenging.

We have managed to meet all the given criteria. The websites were developed, we used the necessary technologies and documented everything in our GitHub repository.

The most important criteria to be met was to comply with the client's requirements and to develop pages containing information about populations, cities, countries and languages in the world while adhering to the Agile manifesto.

# Declaration

I hereby certify that this report constitutes my own work, that where the language of others is used, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of others.

I declare that this report describes the original work that has not been previously presented for the award of any other degree of any other institution.

**Date:** 24 April 2022

Signed (apply electronic signature below)

Waris  
Barbara  
Abanoub  
Tony

# Acknowledgements

We would like to thank Dr Lisa Haskel who gave us access to the Microsoft Azure Virtual Machine, which enabled us to develop this project more efficiently.

We would like to thank Dr Tehrani for providing class demonstrations of technologies which we used in our project.

We would like to thank W3schools for great demonstrations and examples of features we used in our website.

# TABLE OF CONTENTS

<b>1. Introduction</b>	
1.1– Aims.....	5
1.2– Objectives.....	5
1.3– Legal/Social/Ethical/Professional Consideration.....	5
1.4– Background.....	6
1.5– Report Overview.....	6
1.6– Literature or Technology Review.....	6
<b>2. Literature/Technology Review</b>	
2.1 – Literature Review.....	6
2.2– Technology Review.....	6
<b>3. Design or Methodology</b>	
3.1- Design.....	7
3.2- Methodology.....	7
3.3– Alternative Approaches.....	7
<b>4. Implementation or Results.....</b>	<b>7</b>
4.1 – Outcome Of Project.....	7
4.2 – Related Work.....	7
<b>5. Conclusion/Evaluation</b>	
5.1 – Reflection .....	8
5.2 – Future Work .....	8
5.3 – What next?.....	8
<b>6. References.....</b>	<b>9</b>
<b>7. Appendices.....</b>	<b>10</b>

## **1. Introduction**

This project was to get results from the given database and allow the customer to request for information by presenting it through a website. Back end with front end should be integrated. The front end is simple, but the back end should integrate a database with much information. The style of developing this project is Agile and the team is a DevOps practices. Throughout the sprints we presented our work and regularly talked about our team work to make sure it could be the best possible.

**Problem addressed: Provide the customer necessary data to which ever needed from the database.**

### **1.1 - Aims**

Present readable information to a website user about countries and related information, extracted from a database.

The whole website can run in any machine because of Docker technology used.

Possibility to add information to database from the user input. This information will not be verified.

Use of software to deliver all the project in a team. Work remotely and offline.

Agile, DevOps and Kanban concepts should be practised in this project.

### **1.2 - Objectives**

The most important task, without which we would not have been able to complete the project, was the creation of a backlog, which allowed us to better manage tasks and organise our work.

We started by writing the Code of Conduct, creating, and adapting a GitHub repository for the project. At the very beginning of the project, we decided to write files that would allow us to use the Docker container. During sprint 2 we defined tasks as user stories, moved our backlog to Zube.io, and defined full use cases and use case diagrams that allowed us to design the application to serve user goals. In this part of the project, we also decided to write HTML sketches for our pages (in a further stage of the project we converted them into PUG files).

We then defined the appropriate unit, integration, and Circle CI tests to check that the written code works as intended and to detect possible errors in the code. In Sprint 4 our objectives were to complete the pages containing the information the customer wanted, make sure they were deployable using docker-compose files, write the group report, set up the bug reporting system and make sure we met the project requirements.

### **1.3 - Legal, Social, Ethical and Professional Considerations**

There were a few legal issues which was relevant to our project, one was that we had to agree we would only use our GitHub repository for education purposes and nothing outside of it since our GitHub accounts were made under the condition to only be used for educational purposes. A social issue we faced was the use of using images available on the domain without permission therefore we used pictures available only under Creative Commons License. A professional issue we faced was disagreeing with each other based on opinions and choices this was resolved by democratic vote where we would choose our decision based on the majority. An ethical issue we faced was having unrealistic and conflicting goals. An example was at the beginning of the project we had decided to have a globe with interaction where user can click on the globe and look at information, by the end of the project we did not have time for this, and it was shown that this goal was unrealistic due to the lack of time.

We did have an ethical clearance, and this would be checked by the Group Leader when the whole project was finished, the inspection was done over a few days and looked at every aspect of issues and how to fix it.

### **1.4 - Background**

This project is suitable for Master students because it combines two philosophies together. First the idea of designing a website, something easy and which is looked at by most software engineers. The second idea is the human approach to develop it such as working in a team, with small steps and in modern times this is mostly done remotely. The second idea applying Agile methodology to web development, this can be a difficult task especially if you are not familiar with the applications and tools necessary to build it. This second idea is in any field around the world in these days. This would also be suitable to any master student because it has in great depth aspects of working in a group environment which is something most people struggle with because of lack of communication and not enough experience in how to talk with teammates and integrate opinions of other members.

### **1.5 - Report overview**

In the upcoming following pages, we will explain the whole project and talk about group work and how we met our requirements given by the customer. It will contain a review based on the work we did and how we felt towards it.

## **2. Literature/Technology Review**

### **2.1 - Literature Review:**

We made a lot of decisions which heavily relied on group feedback and group opinions, we managed to listen to each of our suggestions and integrate it together. This was done through democratic vote of the majority from the group since this was written in our code of conduct which we signed at the beginning of the project; this makes sure that there are no bad feelings towards other members of the group just because their opinion goes against yours. On some occasions there were a split decision where 2 members suggested 1 thing and the other 2 members suggested another. With this we integrated both opinions so that it would be met, and all members could be happy. Throughout the sprints we would have daily meetings where we would evaluate our decisions and rate our group work out of 10. We went from 8.9/10 in the first sprint to 9.6/10 in the final sprint 4, this shows that our group work interaction improved drastically throughout the weeks as we got more familiar with each other strengths and weaknesses.

### **2.2 - Technology Review:**

Throughout the project we had to make some decisions on which technology to use. Such as when we used Circle CI, this decision was made based on group feedback and opinions. This decision was taken as the suggested technology given by the customer was not available to use due to restrictions that is why we moved to Circle CI as it was free, easy and the very simple to integrate it with the project.

Circle CI is a great application for continuous integration. It is also a delivery platform which is processed very easily for the users to see. It also helps teams to produce code which is checked automatically to see if there are any dependencies. If there are any issues it is reported through email. Any changes are also emailed where other teammates can see any new updates to the code. [1]

### **3. Design or Methodology**

#### **3.1 - Design**

Our group decided to create 4 pages with information on: languages, populations, cities and countries and a homepage. To make this possible we implemented our application using a Docker container. Thanks to this we could store our database in a container and create an isolated environment. For the front-end, we used Node.js, Express.js and PUG. The database we used to store the data we needed, thanks to the docker-compose file, was placed on port 8081 and password-protected.

#### **3.2 - Methodology**

We had to create a database where all four of us had admin access to it and able to use the CRUD application through admin features. This was done so that only admins could add new information and website visitors did not have the ability to do this. We used SQL queries to print out results and we added a search bar where users could look up any statistic needed. The data was also organized based on highest to lowest and other conditions.

#### **3.3 - Alternative Approaches**

An alternative approach we could have done was to make sure all of us use SQL workbench since there is a feature on the application where group work can be done, this is not possible using Xampp. Another approach we could have done was to use React JS for our front-end and back-end, we did not take this approach as React JS is very difficult to use and no one in our group had experience with React JS beforehand. [2]

### **4. Implementation or Results**

#### **4.1 - Outcome Of Project**

The outcome of our project was that we had a CRUD application where people with admin access would be able to add new data. The teammates gained an amazing experience with Node.js and Express.js because we had not used such technologies before. Overall, this project helped us to improve our soft skills such as: teamwork, time and task management, taking responsibility and conflict resolution. This is important for the jobs in software engineering, the final application was a website which had both static and dynamic content.

Some of our strengths was group work and implementation of ideas from discussion to actual reality, we managed to fulfil this by having many group meetings in person where we would talk about how we will be able to implement it and what websites to use. We also had a few weaknesses such as sometimes we would leave the tasks until the final day and underestimating how much time would be needed to complete the task. Although we did manage to meet all specifications, we did not really add any extra features, and this is one thing that could have been improved if we had more time.

#### **4.2 - Related Work**

Similar websites can be found from organizations like the CIA [3], The World Bank [4], EU, but focused on EU countries etc.

Wikipedia and similar websites have information about all countries around the world with much more details and a lot of information and pictures. Google is the best example of this approach because any country can be found with many websites about related country.

Travel advice websites from governments is also extremely useful as it shows all the information about language, population, capital, etc.

## **5. Conclusion**

Project delivered to customer using Agile technique. Team working and team communication is the key and is difficult at times especially now due to COVID. In this project everyone in the team experienced what is working in a team to develop software. Next team project should be easier for all of us.

### **5.1 - Reflection**

Time management was really important in the project because we had a very limited amount of time to produce all 4 sprints and make sure we meet the requirements. We managed to do it in time due to assigning tasks to each individual team member and not over assigning tasks, so they do not get stressed out with a lot of work. Our code of conduct we signed was to always make sure the work is not left until the last day and that we should always ask for help if needed.

### **5.2 - Future Work**

The customer should use our website with business purposes mainly. For this, customer should make available the website online on the Internet. To make rentable the hosting, advertisement can be used from different governments around the world. For example, "Go Tokyo" [1], "Visit California" [2], and more government and private companies could put their ads on the website. Hotels, travel agencies, financial institutions dedicated to issue bank cards, travel insurances could use the website for let to know the customer.

Better front-end design of the website should be done after meeting the initial requirements. It is an innovative idea to have a good artist designing a website in a team. And more functions could be added as different languages of the website, typing by voice, accessibility for disabled people, etc. Weather, and weather forecast could be included on the website when a user selects specific city.

### **5.3 - What next?**

It would be a great idea to add more filtering options to the tables on the websites we have created. It would be worth to work on the coherence of the pages, so they have a similar design and appearance. It would be important to improve the necessary tests, such as unit tests and integration tests.



## 6. References

- [1] Emanuel Evans. (Apr 8, 2019). Reviews, Pros & Cons Companies using CircleCI : StackShare  
Available From: <https://stackshare.io/circleci>  
[Accessed 15/04/2022]
- [2] Nitin Pandit. Feb 10, 2021. What And Why React.js: C-Sharpcorner  
Available From: <https://www.c-sharpcorner.com/article/what-and-why-reactjs/>  
[Accessed 18/04/2022]
- [3] Available From: <https://www.cia.gov/>  
[Accessed 19/04/2022]
- [4] Available from: <https://www.worldbank.org/>  
[Accessed 19/04/2022]
- {Figure 1} Available from: <https://ibb.co/r7M4xvJ>  
[Accessed 24/04/2022]

## 7. Appendices

To run the website, you will need to install node, express, pug, mysql and mysql2 on your terminal.

Without this it will not be possible to look at the website. You cannot access the CRUD application unless you are an administrator. These Permission will only be given to some people. The application will be run on your local host machine so make sure your PC/Laptop has the capability to open it on local host without any restrictions. On our GitHub Repository you can look at the “tutorial folder” to see how to access the website.

Below is the GitHub Repository:

<https://github.com/wariskhan1/Software-Engineering-Coursework>

(Figure 1)

### Group PERFORMANCE REVIEW

NAME	Waris, Barbara, Abanoub, Tony
------	-------------------------------

CHARACTERISTICS				
QUALITY	UNSATISFACTORY	SATISFACTORY	GOOD	EXCELLENT
Works to Full Potential				Y
Quality of Work				Y
Work Consistency			Y	Y
Communication			Y	
Independent Work			Y	Y
Takes Initiative			Y	
Group Work				Y
Productivity				Y
Creativity				Y
Honesty				Y
Integrity				Y
Coworker Relations			Y	
Client Relations				Y
Technical Skills				Y
Dependability				Y
Punctuality				Y
Attendance			Y	