**Software Engineering Group Coursework**

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**Abstract**

In this project we tasked with creating a system that allows easy access to population information. We were tasked with creating a website that stores the names of counties and cities and the population of said cities and country. The order of the list can be interchangeable between alphabetical and population order. Whilst working on this project we were part of a scrum team. Whilst working with this scrum team we also had to follow the scrum process. Processes that were followed are:

* Creating a product backlog
* Estimating the product backlog
* Planning the work to be done in each sprint
* Starting the work
* Check-each day
* End of sprint, review
* End of sprint, reflect
* Check velocity, return to 2

**ACKNOWLEDGEMENTS**

First and foremost, I would like to thank all the members in the scrum for their hard work and dedication to this project. They have worked extremely hard to make sure that the project criteria was achieved with minor setbacks and no delays as everything was delivered on time.

**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.

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1. **Introduction**

The aim of this project is to create a website that stores the names and population all the countries in the world and displays them in order. The goal is to provide a system that enables an organisation to acquire and analyse demographic information for diverse regions, cities, and districts across the world. The countries can be displayed in either an alphabetical or a population-based order. The webpage ought to indicate which continent each of the nations is on. Additionally, it will produce a number of reports, including population, city, country, and capital city reports.

**Objectives**

To achieve the desired outcome, there are some tasks that need to be achieved. Tasks that need to be completed include:

* Product backlog (sprint 1)
* Code of conduct(sprint 1)
* Dockerfile needs to be created(sprint 1)
* Sprint/project boards need to be created(sprint 2)
* Github needs to be set up(sprint 1)
* User stores/user personas need to be created(sprint 2)
* Class diagrams(sprint 2)
* Integration tests(sprint 3)
* Coding for the final product(sprint 3)
* Github repository needs to be updated(sprint 3)
* Bug report(sprint 4)
* Deployment(sprint 4)
* Dockerfile final version(sprint 4)
* Github final update(sprint 4)
* Group report(sprint 4)

**Legal, Social and Ethical issues**

A legal issue that the organisation faces are privacy issues. The system will have access to very sensitive information, and it needs to be protected so that the privacy of everyone involved is protected. The system must comply with data protection laws and to make sure that the user data is not misused or disclosed to a third party.

A social issue could be transparency. The system should be designed to be as transparent as possible so that users understand how it works and how it concluded. This will help to build trust in the system and ensure people are making informed decisions based the data.

An Ethical issue could be consent. The organisation needs to get consent from users to be able to use their personal data. However, the organisation needs to be transparent on exactly how the data will be used so that the user can make an informed decision. Knowing exactly how their personal data will be used so that they can choose whether they want to be involved or not.

**Background**

Our project is population data website that stores and provides information on the population of countries, cities and regions around the world. The website will generate reports on the population of different parts of the world. In order to meet the requirements, set, we will need to allocate tasks to team members and manage any associated risk. We will also need to identify the stakeholders who will be using the website and ensure that all their needs are met. The website will generate all the reports that requirements state as well as a database of population data for different regions, countries, and cities. To ensure that all requirements are met we will need to carefully plan this project to reduce risks and mitigate them should they arise. We will need to make sure that the final project is tested thoroughly and make sure it meets the needs of the stakeholder.

**Literature or Technology review**

We used website such as geeks for geeks to find out the basics on how to use PUG and also how to install it on our personal computers so that we could work on it at home. “PUG is basically and engine for node.js and browsers to render dynamic reusable content” said prerak.

**Design and methodologies**

The code used is an implementation of a web application that displays information about cities and countries. The application uses Express.js, a node.js web application framework and MYSQL, a relational database management system, to manage the framework.

Some of the main routes in the code are:

* The ‘/gallery’ route renders a gallery page that displays images of different cities.
* The ‘/about’ route renders an about page that displays some information about the application
* The root route(‘/’) renders a home page of the application
* The ‘/api/cities’ route returns a JSON array of information about cities

**Implementation or Result**

The outcome of this project was successful as we achieved most of the requirements set. We have delivered a fully functioning website that achieves a lot of the stakeholders needs. The website stores names, population size. It has the ability to order them in Alphabetical order and also in population size. However, It wasn’t a complete success as we couldn’t get the population report to work to the fullest extent and we also could not get any protection to the website i.e. entering a password in order to access it which was one of the additional requirements.

‘app.get('/population', async (req, res) => { ‘

This line of code is creating a route for the GET request to the ‘/population’ in a express.js application. When the client makes the request. The code inside the callback function will be executed.

‘app.get('/capital-city-report', async (req, res) => {‘

This line of code is creating a route for the GET request to the ‘/capital-city-report’ in a express.js application. When the client makes the request. The code inside the callback function will be executed.

**EVALUATION**

The outcome of this project was good. We completed most of the tasks and our group worked very well together with no issues. We were very open on what we are doing and we were very good at communication any problems we had. The final deliverable was good but it has not been completed to the fullest extent due to complications in the coding. We have fallen just short of meeting every requirement set by the stakeholders. The requirements were very complicated and have not been fully met but would be if more time was given.

**Conclusion**

In conclusion, this project requires identifying and prioritizing functional and non-functional requirements allocating tasks, managing risks and identifying stake holders. The organization has requested various reports on population cities and countries and also capital cities.The project must ensure that all the necessary information is provided accurately. Overall this project requires a calculated and strategic approach to ensure all the project ad stakeholder requirements are met and the quality of the deliverable is high.

During the course of this project, The group has worked exceptionally well with each other. All members have obeyed the code of conduct that has been established and were very good at communicating with each other. We met up once a week in person to discuss tasks and and we had daily meetings to update each other on where we were in the tasks and how much we had done.

**Reference**

[**https://www.geeksforgeeks.org/pugjs-basics-and-installation/**](https://www.geeksforgeeks.org/pugjs-basics-and-installation/)

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