Software engineering group report
Group8 – Th

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1.

Introduction

The project context and is idea is to develop a CRUD application. This is a front-end to a database, providing a method to create, read, update, and delete data from a web site to a database on a server [1]. The organisation requires reporting on population information. A new system must be designed and implemented to allow easy access to this population information.

Research Question or Problem that will be Addressed

View all the countries and cities in the world organised by largest to smallest population.

Aims

Our Aim is to create a CRUD application using the world-db file provided

to us.

Objectives

- Identifying the requirements (functional and non-functional)
- Prioritising the requirements (if applicable)
- Task allocation
- Identifying the scope of your project
- Identifying the stakeholders
- Risk management

Legal, Social, Ethical and Professional Considerations

Legal considerations – being alert when using code/ideas from the internet. Indeed, certain code may be copyrighted and not allowed to be used by other users. [2]

Social considerations – our project may have cultural/political sensitivity. For example, our database has information stating the leader of each country in the world. In certain countries where there is a civil war, certain citizens may disagree on who is the leader of the country.

Ethical considerations - ensuring that the database of the world is accurate and free from bias. The database should not misrepresent the size or location of any country or region or leave out any significant territories.

2.

Professional considerations –maintaining a high level of professionalism throughout the project. This included solving conflicts of interest in an appropriate way (not swearing, being rude, etc) and accepting our personal duties in the project. [3]

Technology Review

A variety of technology was used throughout the project, from them:

Node JS – environment that allowed us to run JavaScrpit on a server. (Web back-end) [4]

Express JS - front-end and back-end must communicate via Express.js [5]

HTML – Hypertext Markup Language – language used to create web pages. [6]

Pug – used by web front-end – template engine for Node.js and the browser. (Creates HTML templates) [7]

All of these technologies were used throughout the project. They were all extremely beneficial as it allowed us to complete the requirements of the project.

Design

We worked as a group and evenly distributed the tasks for each sprint.

Sprint 1: Product Backlog, Code of Conduct, a URL for the team's GitHub project, Dockerfile for project set-up and works.

Sprint 2: Issues being used on GitHub, tasks defined as user stories, project integrated with zube.io, Kanban/Project Board being used, Sprint Boards being used, Personas defined, Full use cases defined, Use case diagrams, Class diagrams.

Sprint 3: Suitable unit tests defined, suitable integration tests defined, tests running on Travis CI/Circle CI, updated task board of user stories showing progress in the technical deliverables, Github repository showing work from all members of the team, database design, database implementation with pre-filled data, some HTML pages available generated from PUG, perhaps with some static content, at least some dynamic content being pulled from database to your templates via Pug.

Sprint 4: Overall application quality and success at meeting the aims set out during the design process, Metrics from GitHub: used to assess individual contribution, Application deployable using a docker-compose file, data can be provided separately, final version of the task board and project requirements met, deployment working, Bug reporting system set-up, a group report.

3.

Implementation/Results

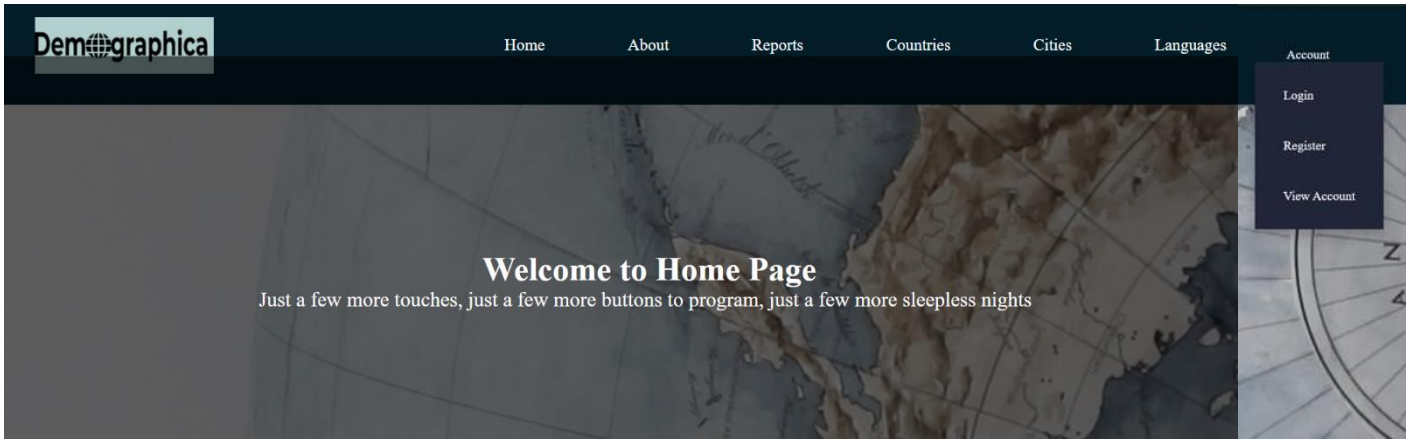

Figure 1: Home page – includes seven tabs at the top

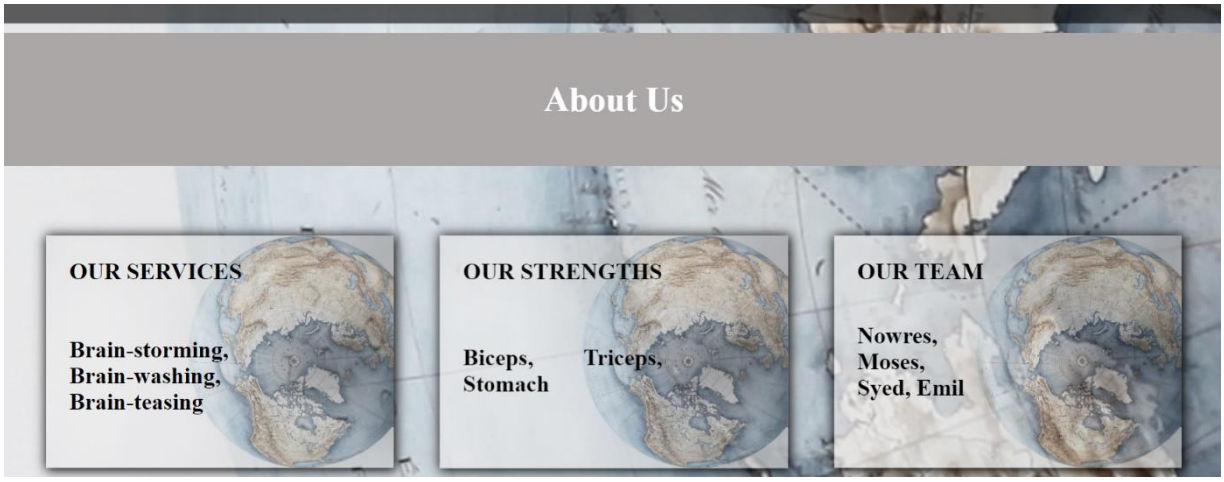

Figure 2: “About” tab

4.

Country Code	Language	Official	Percentage
ABW	Dutch	T	5.3
ABW	English	F	9.5
ABW	Papiamento	F	76.7
ABW	Spanish	F	7.4
AFG	Balochi	F	0.9
AFG	Dari	T	32.1
AFG	Pashto	T	52.4

Figure 3: “Languages” tab (unsorted table)

ID	Name	Country Code	District	Population
1	Kabul	AFG	Kabol	1780000
2	Qandahar	AFG	Qandahar	237500
3	Herat	AFG	Herat	186800
4	Mazar-e-Sharif	AFG	Balkh	127800
5	Amsterdam	NLD	Noord-Holland	731200
6	Rotterdam	NLD	Zuid-Holland	593321

Figure 4: “Cities” tab (unsorted table)

Code	Name	Continent	Region	Surface Area	Independence Year	Population	Life Expectancy	Local Name	Form of Government	Head of State
ABW	Aruba	North America	Caribbean	193.00		103000	78.4	Aruba	Nonmetropolitan Territory of The Netherlands	Beatrix
AFG	Afghanistan	Asia	Southern and Central Asia	652090.00	1919	22720000	45.9	Afganistan/Afqanestan	Islamic Emirate	Mohammad Omar
AGO	Angola	Africa	Central Africa	1246700.00	1975	12878000	38.3	Angola	Republic	José Eduardo dos Santos
AIA	Anguilla	North America	Caribbean	96.00		8000	76.1	Anguilla	Dependent Territory of the UK	Elisabeth II
ALB	Albania	Europe	Southern Europe	28748.00	1912	3401200	71.6	Shqipëria	Republic	Rexhep Mejdani

Figure 5: “Countries” tab

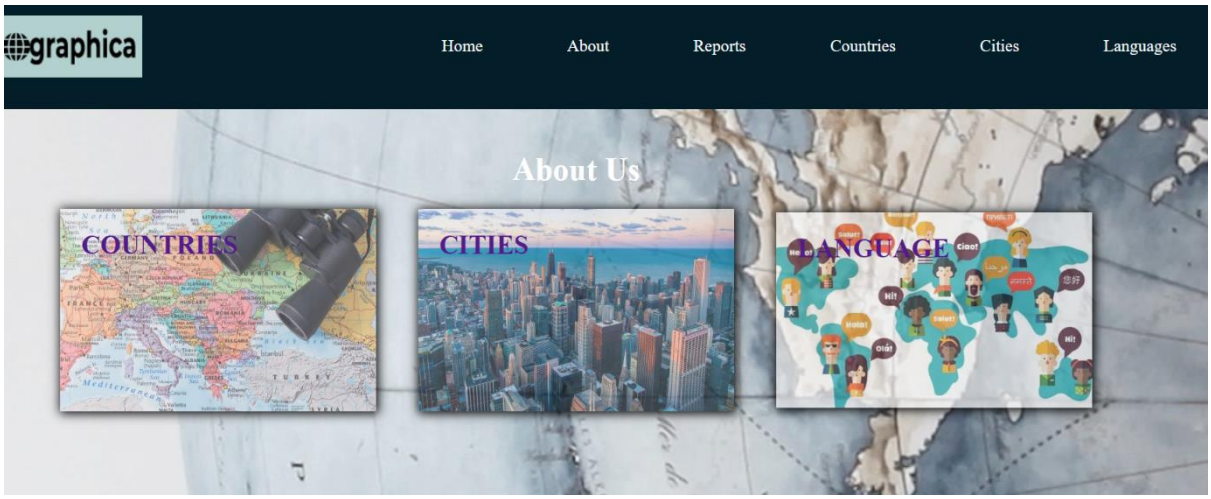

Figure 6: “Reports” tab

5.

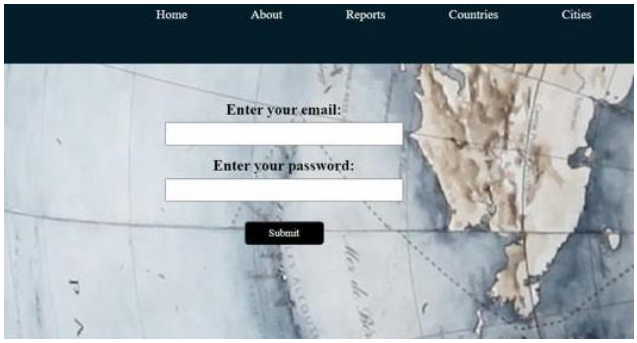

Figure 7: “Login” page from the “Account” tab

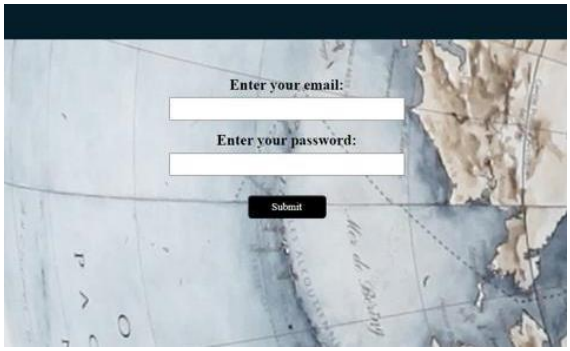

Figure 8: “Register” page from the “Account” tab

Evaluation

Reverse Order

Name	Population
China	1277558000
India	1013662000
United States	278357000
Indonesia	212107000
Brazil	170115000
Pakistan	156483000
Russian Federation	146934000
Bangladesh	129155000
Japan	126714000
Nigeria	111506000
Mexico	98881000

Figure 7: “Countries” tab from “Reports” tab

The table displays all the countries in the world from highest to lowest population. (An option to display lowest to highest is also available).

Lowest Population

Name	Country Code	Population
Mumbai (Bombay)	IND	10500000
Seoul	KOR	9981619
São Paulo	BRA	9968485
Shanghai	CHN	9696300
Jakarta	IDN	9604900
Karachi	PAK	9269265
Istanbul	TUR	8787958
Ciudad de México	MEX	8591309
Moscow	RUS	8389200
New York	USA	8008278
Tokyo	JPN	7980230

Figure 8: “Cities” tab from “Reports” tab

The table displays all the cities in the world from highest to lowest population. (An option to display lowest to highest is also available).

6.

Both outcomes from the two research questions were met: View all the countries and cities in the world organised by largest to smallest population. Further, an option to display lowest to highest is also available.

Overall, all the requirements were met successfully.

Conclusion

To conclude, a website was created displaying the world.db file successfully. Countries, cities and languages are all displayed separately in separate tabs/pages on the website. Further, the user has the option to sort the table into low to high or high to low on the website.

Reflection

Overall, we completed the project in good timing. We split up the tasks equally, ensuring that we completed everything on time. Further, every member had another member to shadow them in case they became stuck or confused on a matter.

A challenge we had was understanding the tasks our group members were doing. Indeed, because a group member was busy with their task, they did not understand what the other member was doing until it was explained to them. Thus, we learnt about the importance of knowing what everyone was doing, this ended up making our project easier to understand and complete.

7.

References

[1] J Johnston, "CRUD Application: What It Is and How to Build One," Budibase, Jul 6, 2021, [Online]. Available: https://budibase.com/blog/crud-app/.

[2] LawBite, "Legal considerations when developing and supplying software," LawBite, February 07, 2022, https://www.lawbite.co.uk/resources/blog/legal-considerations-when-developing-and-supplying-software.

[3] BCS, "BCS Code of Conduct," BCS - The Chartered Institute for IT, Accessed on April 24, 2023, [Online]. Available: https://www.bcs.org/membership-and-registrations/become-a-member/bcs-code-of-conduct/

[4] "Node.js Introduction," W3Schools, Available: https://www.w3schools.com/nodejs/nodejs_intro.asp. [Accessed: Apr. 23, 2023].

[5] "What Is Express.js? An Introduction to the Fast, Unopinionated Node.js Web Framework," Kinsta, Available: https://kinsta.com/knowledgebase/what-is-express-js/. [Accessed: Apr. 23, 2023].

[6] "HTML Introduction," W3Schools, Available: https://www.w3schools.com/html/html_intro.asp. [Accessed: Apr. 23, 2023].

[7] D. Atkinson, "A Beginner's Guide to Pug," SitePoint, Apr. 11, 2019. Available: https://www.sitepoint.com/a-beginners-guide-to-pug/. [Accessed: Apr. 23, 2023].

Appendices

https://github.com/SyedZaidi69/Group-Project-Software-Engineering-