

By

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The University of Roehampton

Software Engineering Group Report CMP020N204S

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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Date: 28/04/23

Signed
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1.

Introduction

The project is to try to create a CRUD application. The front-end database which offers a way to create, read, update, and remove data from a website to a database on a server with the SQL database they provided for. The company requires population data reports. The task is to create and implement a system that will make it easy to access to this population information [1].

Research Question or Problem that will be Addressed

The reports should organise the countries and cities in the database from largest to smallest populations.

What designs should be taken into consideration to make sure the system can effectively and efficiently do all its sorting and organising of the data such as country region, city, and languages?

Aims

The main objective of this project is to create a user-friendly, simple-to-use website that offers accurate statistics on the population of different countries and regions. It will also have a clear user interface to help users understand what they are reading.

Since this is a CRUD application, another objective is to deliver rapid report refreshes so that the user can transition between reports without experiencing any delays when retrieving or showing the data.

Objectives

The simplicity and usability of the website were two of the primary goals. We tried out various designs before settling on the one we liked best.

The database had to be easy to read and use. Users can apply several filters by clicking the header to see the results presented in an orderly manner.

To ensure that we achieve the project requirements, the system will be comprehensively tested with unit testing and integration throughout the sprints.

Another goal was to simplify the website so that the code will be easy to read and comprehend. Only the techniques laid out in the specifications were used.

2.

Legal, Social, Ethical and Professional Considerations

The code of conducts lays out in detail which behaviours are suitable and which are not in terms of legal, social, ethical, and professional consideration. This paper contains a complete description of the work process and rules that apply to it.

2. Technology Review

The coursework specifications specified we had to use certain tools and techniques for the project.

MYSQL for the database

Front end should use PUG [2]

HTML is used to create web pages [3]

Express.js – the front end and back end must communicate through Express.js [4]

The web back end must run via node.js [5]

Application must be deployable as a Docker Container

The project utilised each of these technologies. They provided us with a wonderful learning opportunity that made it possible for us to fulfil the project's requirements.

3.Design or Methodology

The layout was complex, and the overall design had everything clustered together on the main page, but there wasn't enough time for the amount of content required for this type of page. So, I decided to create a simple, user-friendly page with filters. which didn't take long and allowed me to focus more on the website's features and sorting design.

The Agile project management methodology was applied to this project, with the work divided into sprints. Sprint planning would be discussed in regular meetings to manage the project effectively. The needs and features of the application will be outlined using design approaches like user stories

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and use cases, and the development of the software will be made easier by the use of software like Visual Studio, GitHub, and Docker. PUG will be used for front end stuff like making the numbers centred and commas if the number is too large. Node.js and Express.js will be used to develop the back end, and SQL was provided based on the demands of the project[6].

4. Implementation or Results

As a result of the designs' implementation in the project, the requirements and functionality specified in the plan were met. Users of the fully functional application can read and filter data by changing the URLs of the cities that are linked to the backend and database.

The website has eight tabs, each with a separate page:

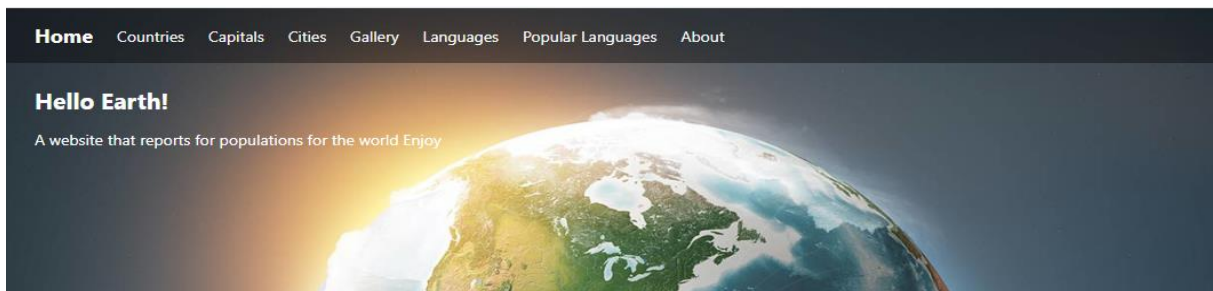


Figure 1: Home page – It has eight tabs at the tops

Figure 2: the countries page displaying details such as country code, capital, population, continent, and region. These can all be sorted by alphabet of A-Z if you click on country header or population size from largest to smallest vice versa. The continent can be sorted as well putting the countries in their continents.

Home Countries Capitals Cities Gallery Languages Popular Languages About						
Countries						
ID	Code	Name	Continent	Region	Population	Capital
1	ABW	Aruba	North America	Caribbean	103,000	Oranjestad
2	AFG	Afghanistan	Asia	Southern and Central Asia	22,720,000	Kabul
3	AGO	Angola	Africa	Central Africa	12,878,000	Luanda
4	AIA	Anguilla	North America	Caribbean	8,000	The Valley
5	ALB	Albania	Europe	Southern Europe	3,401,200	Tirana
6	AND	Andorra	Europe	Southern Europe	78,000	Andorra la Vella
7	ANT	Netherlands Antilles	North America	Caribbean	217,000	Willemstad
8	ARE	United Arab Emirates	Asia	Middle East	2,441,000	Abu Dhabi
9	ARG	Argentina	South America	South America	37,032,000	Buenos Aires
10	ARM	Armenia	Asia	Middle East	3,520,000	Yerevan
11	ASM	American Samoa	Oceania	Polynesia	68,000	Fagatogo
12	ATG	Antigua and Barbuda	North America	Caribbean	68,000	Saint John's
13	AUS	Australia	Oceania	Australia and New Zealand	18,886,000	Canberra
14	AUT	Austria	Europe	Western Europe	8,091,000	Wien
15	AZE	Azerbaijan	Asia	Middle East	7,734,000	Baku
16	BDI	Burundi	Africa	Eastern Africa	6,695,000	Bujumbura
17	BEL	Belgium	Europe	Western Europe	10,239,000	Bruxelles [Brussel]
18	BDI	Benin	Africa	Western Africa	6,007,000	Porto-Novo

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Figure 3: the capital page with the country code and population, these can be sorted by alphabet of A-Z if you click on country header or population size from largest to smallest vice versa.

Capitals			
ID	Name	Country	Population
1	Oranjestad	ABW	29,034
2	Kabul	AFG	1,780,000
3	Luanda	AGO	2,022,000
4	The Valley	ALA	595
5	Tirana	ALB	270,000
6	Andorra la Vella	AND	21,189
7	Willemstad	ANT	2,345
8	Abu Dhabi	ARE	390,695
9	Buenos Aires	ARG	2,982,146
10	Yerevan	ARM	1,248,700
11	Fagatogo	ASM	2,323
12	Saint John's	ATG	24,000
13	Canberra	AUS	322,723
14	Wien	AUT	1,608,144
15	Baku	AZE	1,787,000
16	Bujumbura	BDI	300,000
17	Bruxelles [Brussel]	BEL	133,859
18	Porto-Novo	BEN	194,000
19	Ouagadougou	BFA	824,000
20	Dhaka	BGD	3,612,850
21	Sofia	BGR	1,122,302

Figure 4: the cities page with the city, country code and population and the district of the city. these can be sorted by alphabet of A-Z if you click on country header or population size from largest to smallest vice versa.

Cities				
ID	Country	City	District	Population
1	AFG	Kabul	Kabul	1,780,000
2	AFG	Qandahar	Qandahar	237,500
3	AFG	Herat	Herat	186,600
4	AFG	Mazar-e-Sharif	Balkh	127,000
5	NLD	Amsterdam	Noord-Holland	731,200
6	NLD	Rotterdam	Zuid-Holland	593,321
7	NLD	Haag	Zuid-Holland	514,661
8	NLD	Utrecht	Utrecht	234,323
9	NLD	Eindhoven	Noord-Brabant	201,843
10	NLD	Tilburg	Noord-Brabant	193,238
11	NLD	Groningen	Groningen	172,701
12	NLD	Breda	Noord-Brabant	160,398
13	NLD	Apeldoorn	Gelderland	153,491
14	NLD	Nijmegen	Gelderland	152,463
15	NLD	Enschede	Overijssel	149,544
16	NLD	Haarlem	Noord-Holland	148,772
17	NLD	Almere	Flevoland	142,465
18	NLD	Arnhem	Gelderland	138,020
19	NLD	Zaanstad	Noord-Holland	135,621
20	NLD	's-Hertogenbosch	Noord-Brabant	129,170
21	NLD	Amersfoort	Utrecht	126,270

Figure 5: if you want to update a city name you just check the ID and type in the URL /"id" then input the new name of the city and it will change on the database.

← → ↻ ⓘ localhost:3000/cities/6

Gmail YouTube Stream labs guide Student portal home friday lesson V

Home Countries Capitals Cities Gallery Languages Popular Languages

Rotterdam

Netherlands, Western Europe

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Figure 6: Gallery Page



Figure 7: Language page displaying the official language of the country and the percentage who speak it. These can be sorted by clicking on the headers.

Languages				
ID	Country	Language	Official	Percentage(%)
1	ABW	Dutch	True	5.3
2	ABW	English	False	9.5
3	ABW	Papiamentu	False	76.7
4	ABW	Spanish	False	7.4
5	AFG	Balochi	False	0.9
6	AFG	Dari	True	32.1
7	AFG	Pashto	True	52.4
8	AFG	Turkmenian	False	1.9
9	AFG	Uzbek	False	8.8
10	AGO	Ambo	False	2.4
11	AGO	Chokwe	False	4.2
12	AGO	Kongo	False	13.2
13	AGO	Luchazi	False	2.4
14	AGO	Luimbe-nganguela	False	5.4
15	AGO	Luvale	False	3.6
16	AGO	Mbundu	False	21.6
17	AGO	Nvaneke-nkhumbi	False	5.4

Figure 8: The most popular languages which can be sorted by clicking on the headers.

Popular Languages		
ID	Language	Population
1	Dutch	21,388,666
2	English	347,077,867.3
3	Papiamentu	266,055
4	Spanish	355,029,462
5	Balochi	6,456,116
6	Dari	7,293,120
7	Pashto	32,404,553
8	Turkmenian	4,934,965
9	Uzbek	22,535,760
10	Ambo	309,072
11	Chokwe	1,470,648
12	Kongo	11,480,181
13	Luchazi	309,072
14	Luimbe-nganguela	695,412
15	Luvale	463,608
16	Mbundu	2,781,648
17	Nyaneka-nkhumbi	695,412
18	Ovimbundu	4,790,616

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Evaluation

The project successfully met all its goals and deadlines, producing a top-notch, fully functional CRUD application that complied with all performance, functionality, and quality requirements.

After sprint 2, I worked on the project alone, but I was still able to complete it on schedule, demonstrating effective resource allocation and project management throughout the entire project lifecycle. In order to increase outcomes and efficiency, future initiatives can take into account areas for improvement and best practises.

5.Conclusion

Reflection

I now have a better understanding of how group projects function in IT organisations because to this assignment. I realised the importance of working as a team and the necessity of considering the requirements of other team members in order to complete the project successfully. I learned from this course that effective team communication is essential for producing high-quality work on schedule. My group's disagreement prevented me from achieving all of my goals on time, which may have had a major impact on the project's ability to produce the desired results. If I could recreate this project, I would emphasise group selection more and impose stronger rules. As a result, we are certain that everyone involved in the project is staying on task and is aware of the goals that must be accomplished during the upcoming sprint.

Future Work

The improvement or adjustment I would make to the website in future work would be a login page for both users and administrators. Allowing the user to choose the number of rows to display will also help the project reach its full potential. Finally, I believe that if I had more advanced web development knowledge, I could have implemented more advanced features in PUG, saving a lot of time and improving the quality of the work.

7.

6. References

- [1] J. Joe, 'What is a CRUD app and how to build one | Ultimate guide', Jul. 06, 2021. <https://budibase.com/blog/crud-app/> (accessed Apr. 28, 2023).
- [2] 'Getting Started Installation '. Getting Started Installation ¶ (accessed Apr. 28, 2023).
- [3] 'HTML Tutorial'. <https://www.w3schools.com/html/> (accessed Apr. 28, 2023).
- [4] 'ExpressJS Tutorial'. <https://www.tutorialspoint.com/expressjs/index.htm> (accessed Apr. 28, 2023).
- [5] 'How do I start with Node.js after I installed it?' <https://nodejs.org/en/docs/guides/getting-started-guide> (accessed Apr. 28, 2023).
- [6] Max Rehkopf, 'Scrum Sprints'. <https://www.atlassian.com/agile/scrum/sprints> (accessed Apr. 28, 2023).

7. Appendices

<https://github.com/Ddang168/SE-CW-SOLO>