The Countries I Travelled

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1 Introduction

The Countries I Travelled web-app is an online directory of countries I travelled. It shows the list of countries grouped by a continent. Each country link takes the user to page with main information about the country.
The web-app allows retrievi
The website was programmed with Python language and Flask micro-framework.

Figure 1: **The Countries I travelled** - The Screenshot of the main page

2 Design

The web-app was created with Python programming language, the Flask micro-framework, Jinja2, HTML and CSS.

2.1 Python

The core of web application was programmed with Python programming language, widely-used tool for creating software applications.

2.2 Flask

Flask, an implementation of Python web framework, was used to make web development faster and easier.
The nature of the web-app was considered and the URL Hierarchy was designed carefully to suit the needs of the users of the web-app. The simple navigation of the app was a
Flask also enables easy retrieving of the information via typing a URL variable - the country's name after the *countries* in search bar which is then passed to the function as a keyword argument. priority.

2.2.1 Routing

Flask provides tools for easy dynamically created tools for routing while promoting the usage of templates. By modifying the base template by different inheriting templates. The hierarchy of page templates was build to minimise the repetition of code.
additionally, in some cases there were defined multiple unique rules (routes) for the same function to make it easier to navigate by manual typing in an address bar.

2.3 Jinja2

The Jinja2, templating engine for Python, was used to take advantage of template inheritance. The web application includes a single base template that defines the structure for the rest of the pages. The majority of HTML code was added to the base template to avoid repetition. The subsequent child templates inherit the code of base template and add the unique content needed only for the specific page. The implementation allows consistent layout throughout the website and easy maintenance in the future.

2.4 JSON

The countries I travelled web application stores its data in JSON (JaveScript Object Notation) file. The JSON data were declared inside the separate *json* file.
Python's build-in library json was used to work with JSON format. It parses the *json* data to Python dictionary.
The required values are called from individual HTML files. The key and value pair are manipulated and create individual instances of country details.

Listing 1: Accessing JSON file data in Python

```
1  @app.route("/countries/<name>")
2  @app.route("/country/<name>")
3  def country_detail(name):
4      for country in country_list:
5          if country["name"].lower() == name.lower():
6              return render_template('countries_detail.html', ↩
       country=country)
7      abort(404)
8
```

Python function also sorts and categorises the countries according to the continent they belong to.

Listing 2: Categorising data according to the continent

```
def sort_by_continent(list):
    continents = { }

    for country in country_list:
        continent = country["continent"]

        if continent not in continents:
            continents[continent] = []

        continents[continent].append(country)

    return continents

```

2.5 Static files

The CSS framework Bulma was used for the *The countries I travelled* project. Bulma was chosen for its flexbox support and responsivness for every screen form mobile devices to fullHD screens.
Although Bulma provided the core of CSS many more CSS features were added such as colours, margins and padding.
There were many static images added to make the web-app more visually appealing.

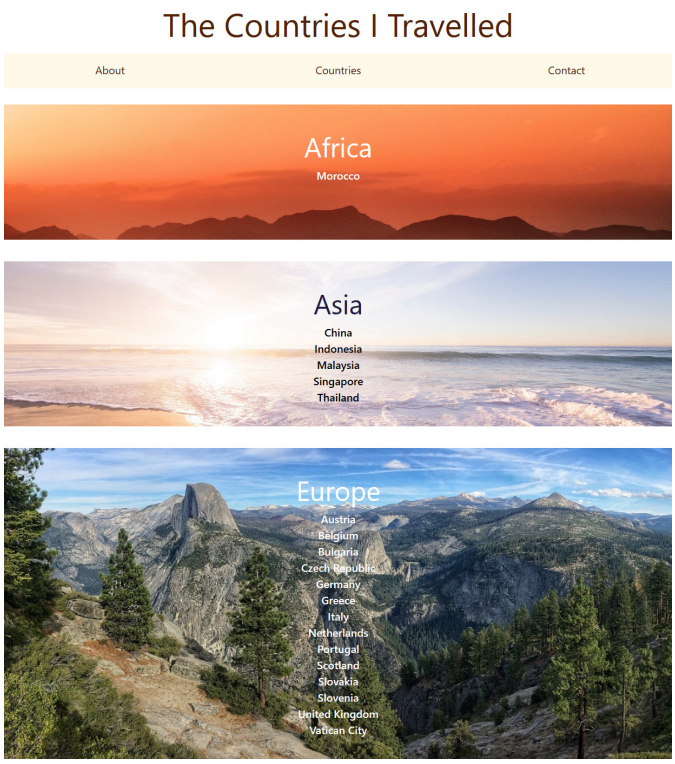

Figure 2: **The Countries I travelled** - The Screenshot of the countries list

3 Enhancements

3.1 Data storage

The Countries I travelled web application currently stores the data about 20 countries but with increasing amount of data the database would be considered. A database is an important part of managing and further manipulating data.

3.2 Error-handling

The web-app could have separate error message for each error. There are many error codes the web-app might need to respond to. The users would benefit from more information of the type of error and how to recover from it.

4 Critical Evaluation

The Countries I travelled is a functioning working prototype of the web-app. It allows users to access data about countries, nicely grouped by continent and sorted alphabetically.
If the user tries to access non existing data he or she would be presented with customised error page. It allows to continue navigating the website without disturbing the experience.
On the other side the country detail page could have been implemented better. The list of countries looks rather simple and does not offer any interaction.

5 Personal Evaluation

The Countries I travelled project for the Coursework was the excellent opportunity to learn new skills and techniques used in modern web technologies.
The coursework was good opportunity to work on back end development of the web application and to work with the server.
The Flask micro-framework was easy to get started with and the features it offers were fast to learn and apply. The Flask's extensive documentation provides many solutions and ways of solving problems and it would be a big help in any future projects.
The Jinja2 was also nice tool to work with. It is designer-friendly and it saved a lot of time that otherwise would be spent on duplicating HTML code.
Overall, creating the Flask web-app was excellent chance to expand the knowledge about web applications, learn about new micro-framework and template system and mainly to use them all together in one single project. These all led to achieving better understanding of back end development.