Coursework

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1 Introduction

Nephology is the study of clouds and cloud formation. Clouds are given different names based on their shape and their height in the sky. Some clouds are near the ground, while others are almost as high as where jet planes fly. Clouds have an enormous effect on the weather, and therefore are and have been and important part in the evolution of life. But yet, people seem to know little about the different types of clouds, what they mean, and where or when to find them.

Because of this, I have chosen to make a website that catalogues the various forms of clouds, with friendly and easy to understand descriptions of clouds and what they mean, where to find and what precipitations they bring. The main page of the website offers easy access to all the pages of the website, search, and community submission[Figure 1].

I have included all the basic cloud types, from which all the others are derived, the descriptions, the data was catalogued on meteoblue[1], a very useful website who offers real-time weather forecast information, but also has easy accessible information about various factors studied by meteorology. The clouds are categorised by the altitude where they can be found, and also the precipitation they produce(if any)[Figure 2].Apart from the cloud types I have included, the website also offers the visitors to submit their own cloud findings, if they can supply all the information. Once submitted, the community submitted clouds can all be found on a separate page[Figure 3].

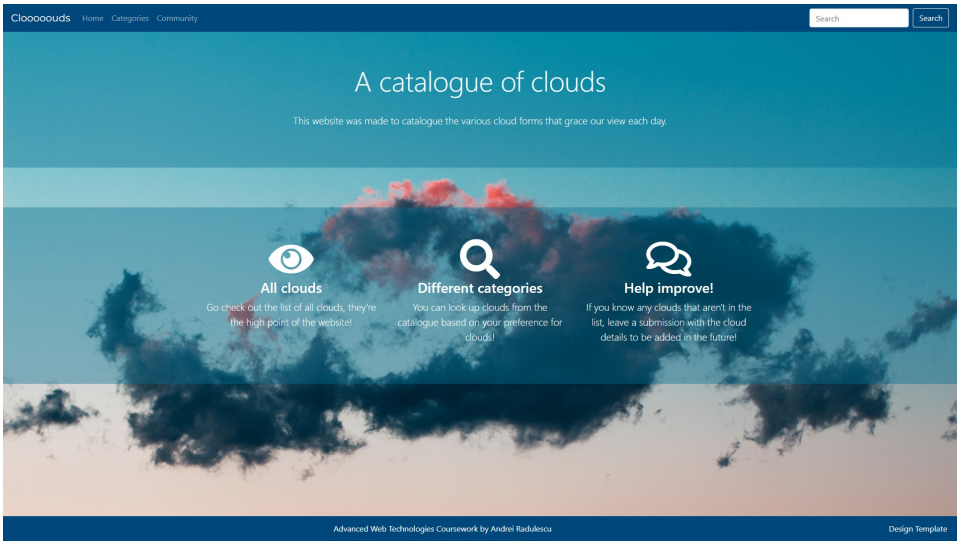

Figure 1: **Main Page** - Where the user can access every feature on the website

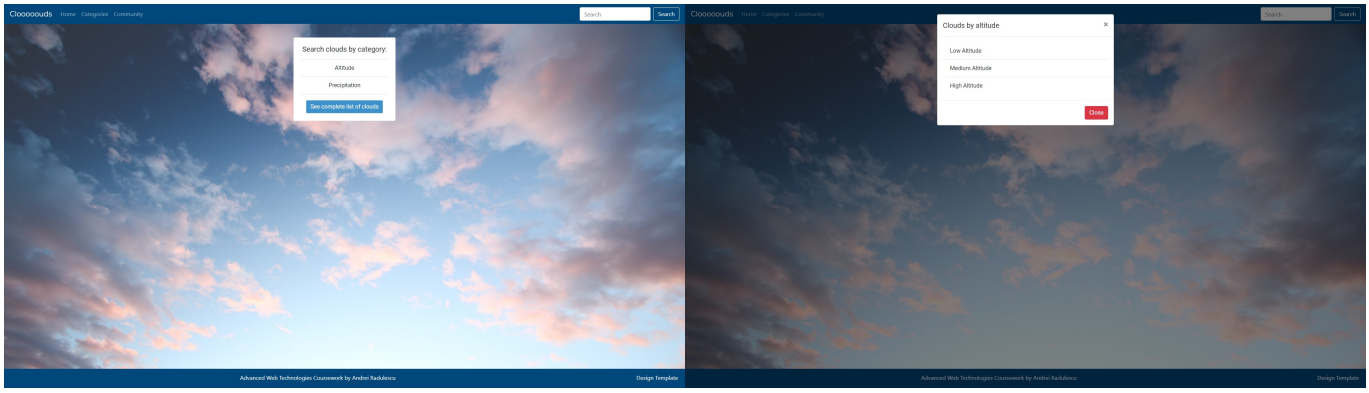

Figure 2: **Category Page** - Where you can see the cloud categories(left) and choose an option(right)

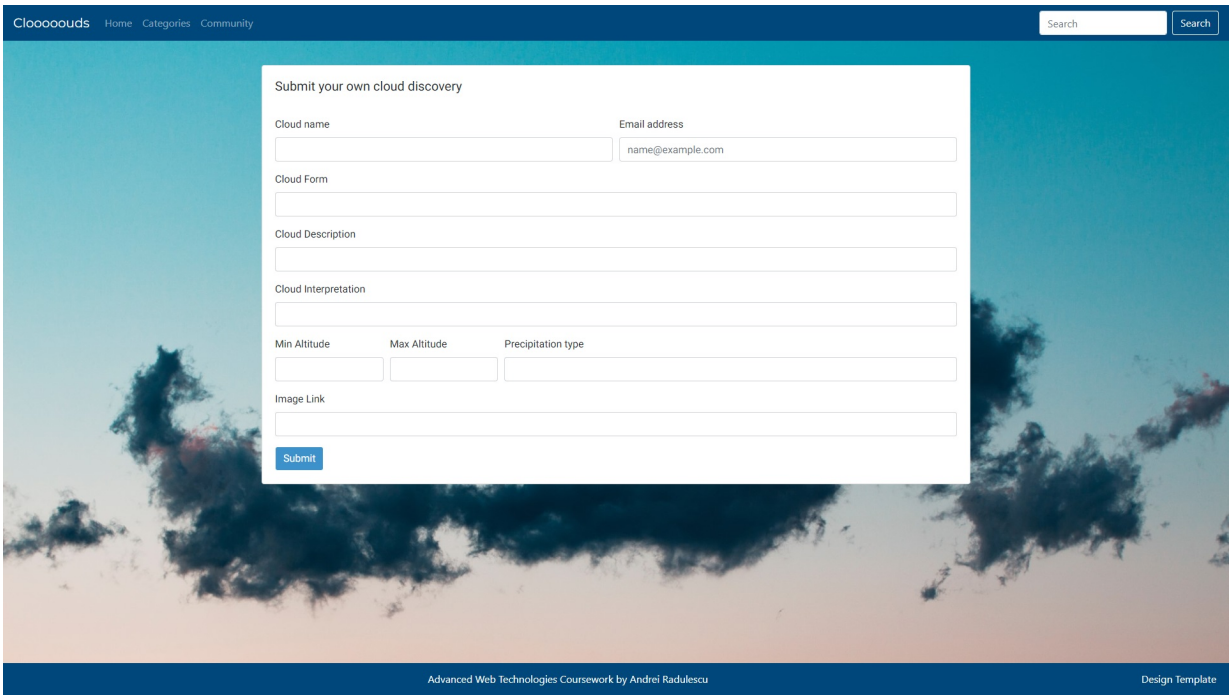

Figure 3: **Community Submission** - Where you can submit a new cloud

2 Design

I started the assignment working through the workbook practicals as I had no previous experience with Flask or Python. The workbook was very useful and Python was easy to understand after a few hours of using it. At first, I decided to make a website about wine reviews, because I found an interesting database of reviews in a json format on the internet, but that proved unreasonable, because it had 130 thousand entries,and without using a proper database system(such as MySQL) filtering through the data was too time consuming and in most cases made the server time out. I decided to do clouds based on one of the examples given in a lecture, as it seemed an interesting topic and most of the people I've talked to since have been surprised that there is so much variety in cloud forms.

With a topic selected, I went on searching for cloud types, which is where I found meteoblue's website about classification, which was neatly organised by shape,description,altitude and precipitation. Since shape and descriptions are close to unique for each type of cloud, but altitude and precipitation were perfect to be used as a way to categorise clouds. With this in mind, I made a diagram of how the website would be structured and how a user would navigate it[Figure 4].I connected all the pages to the home

page, either through content on the page itself, or the navigation bar. The links that can be found on the navigation bar(categories and community) can be accessed from any of the other pages as well.

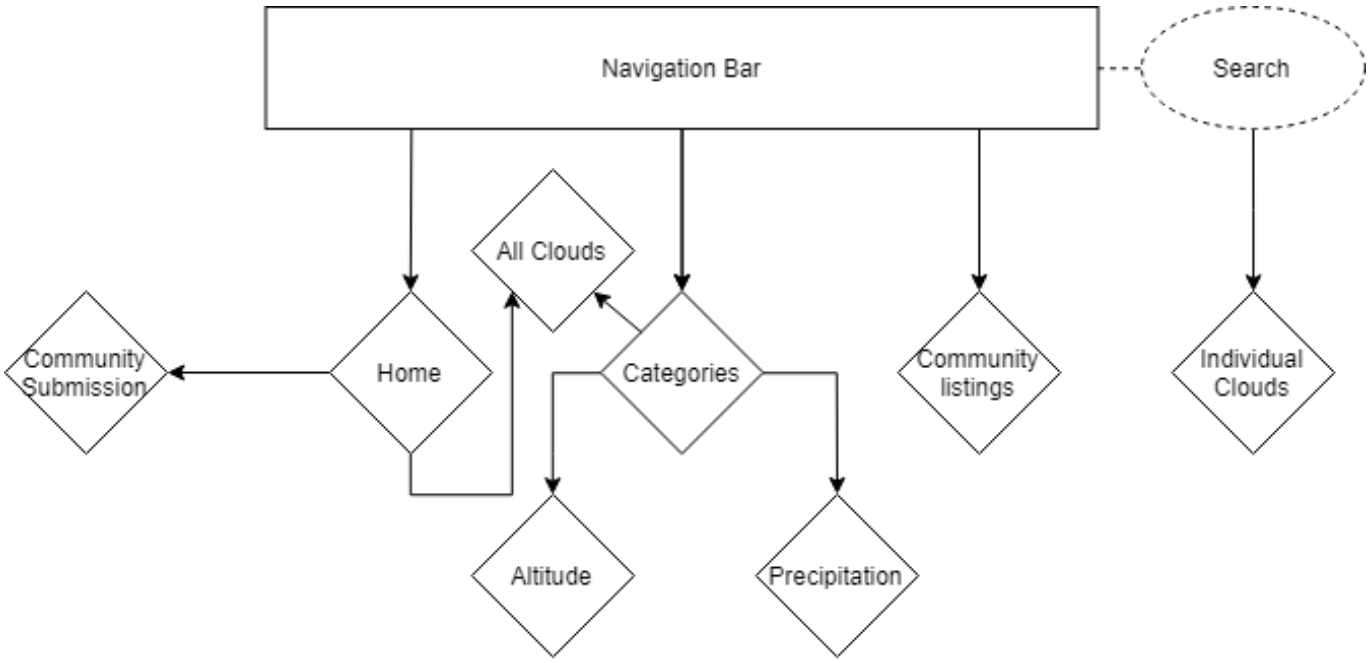

Figure 4: **Website Layout Diagram** - Where you can see how the various pages are connected

I have used Bootstrap[2] for the CSS and JavaScript of the website. The community submission page uses Bootstrap's JavaScript for verifying the fields as well as my own custom rule for the validity of the altitude entered(minimum altitude shouldn't be higher than maximum altitude). Apart from these, I have used the Flask template method that uses Jinja to reuse my templates for multiple pages and to keep duplicated code to a minimum.

3 Enhancements

The website has, in my opinion, enough features to keep the user engaged in finding more about the subject, without overwhelming them. One thing I would improve on is the community part of the website. Right now, a user can submit a cloud's details and leaving the user's email, which is not displayed to others for anonymity. But as is, the email is stored plain in the json file, and also there is no way to tell by just looking at the website who are the authors of the submissions. I would improve this by adding a user system, where people can submit clouds and have access to all their submissions in order to edit, or even delete them. Going a step further, all submission would be first sent for review to a website admin in order to check the validity of the submission.

Another feature that could be improved on could be categorisation. As more and more community submissions are brought in, they would likely need their own categorisation by altitude and precipitation, and since I have covered all the major cloud types, all the community submissions would potentially be variations of those, and could then be categorised by their base shape as well.

A comment system could be implemented for the users to share opinions and other photos of clouds.A badge reward could be also added for the users, depending on their submissions and their quality, letting others know the dedication and at the same time creating a level of fun and goals to pursue.

4 Critical Evaluation

I started this coursework with the goal of making a friendly and easy to use website that will help people learn more about clouds. I am very happy with the result as I have achieved everything I set out to do and more. The categories are easy to understand and use, and they can also be accessed through the url bar, which has an intuitive hierarchy.

A feature that I didn't plan on at the beginning was the Community page, which is a good way to make the website interactive, although it is far from being the best it could be, as previously mentioned in the last section, nonetheless I am pleased that it exists and that it works well.

5 Personal Evaluation

As I already had some experience with server-side development from using Node JS last year, using Python Flask was different and gave me the opportunity of not only learning a new way of managing the back-end, but as well as a chance to learn Python, as this has been the first project I have used Python in. Python has been a very interesting approach to programming, while most of its features resemble other languages, indentation was probably the most interesting way of managing code. Even so, Python Flask made it very easy to manage and maintain the server side, with a lot of help from the official documentation on the website, as well as the Advanced Web Technologies workbook.

References

[1] meteoblue, "meteoblue Cloud Types,"

[2] Bootstrap, "Bootstrap Website,"