# UFO Sightings

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## 1 Introduction

The aim of this assignment is to design and implement an online directory which grants the user several intertwining paths to locate their desired entry. The server side elements are handled by flask where the front end is a series of filled in templates. For persistence I have used a single json file containing a series of entries.
This site has been set up to allow any user to access the site and add new entries.
The topic and content of the site was inspired by the recent resurgence of conspiracy and extra terrestrial content in mainstream media. I have done some research and there are very few sites that allow users to report their UFO sightings.

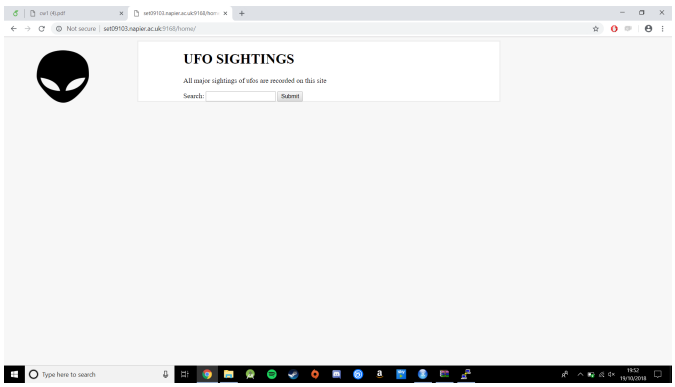


Figure 1: **Home Page** - The home page of my blog)

## 2 Design

### 2.1 Server Side

The server aspect of the blog is upheld through Flask. The HTML is generated by several templates that are dynamically populated with 'sighting' objects from a json file.
The entire site was coded on the class development server to ensure that there are no unwanted bugs upon assessment. I initially used the workbook [1] and Flask Documentation [2]to supplement my learning. I followed the tutorials for routing, redirects, error handling, requests and URL variables to create a functioning search feature which allows the user to search for the name of the sighting, the year or the country of origin This then generates a page with the corresponding data in the json file using URL variables. I had previously implemented a redirect only system but that limited me to only hard coded entries so I felt it had to be changed in order for my site to scale. The URL variable method allows user uploaded sightings to be dynamically generated easily and the provided navigation tools make it easy to get where you want to go.

### 2.2 The HTML

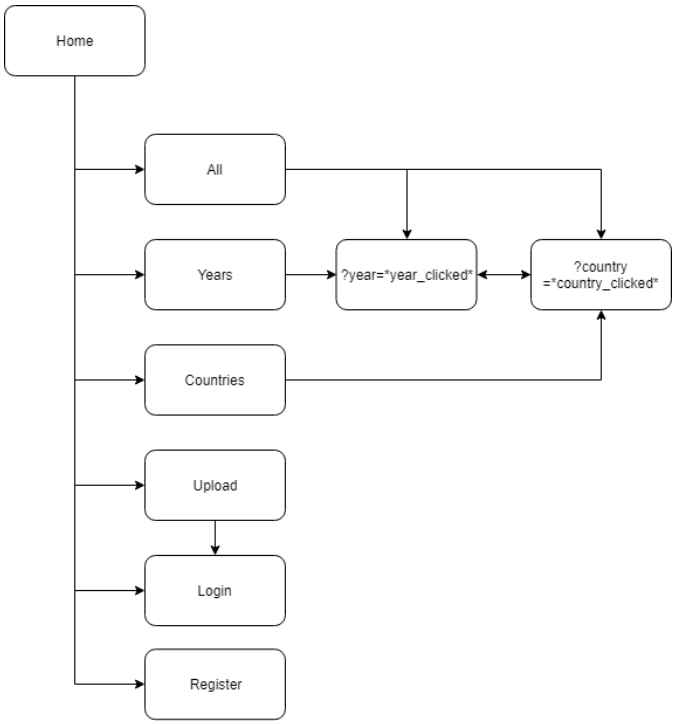


Figure 2: **HTML Navigation Map** - a navigation map representing the URL hierarchy of my site)

There are relatively few URLs in the site, this is because the majority of pages are dynamically generated through URL variables as discussed earlier. I feel that as users mainly use in built navigation as opposed to typing the URL in each time this does not make a difference to them. It also made my site scale a lot better than before.
The each page's HTML is generated by Flask templates keeping the same design but showing different information. The main page is simply a search bar with a hovering logo which acts as a drop down menu. For the search bar I followed the 6th chapter in the workbook [1] and experimented with different routing methods to find the fastest and most scaleable option. In the end I decided to fill a template with the sighting or sightings that match the search. The main drawback of this is the lack of a share-able URL. I feel the speed of the search and the variety of navigation methods make up for that so I have stuck with this method.

The alternative navigation methods are to show all years or to show all countries. Both of these work the exact same by showing the user a list of all years or countries that contain hyperlinks that have dynamically generated links to URL variables. This allows for the user to click any year and see all of the sightings that have happened in that year. The reason I have used auto generated URL variables is that it allows for new entries in these lists to be added without the modification of the HTML. These lists are updated as part of the upload feature. If you were to upload a sighting with a year that has previously not been documented it will add the year to the list. The country list functions the exact same.

For uploading, the user first must log in to the site. If they do not have an account they can register relatively easily. Once they have logged in they are greeted with a series of text boxes requesting the name of the sighting, the year, country and a brief description of it. This is then appended to the json file. The user is also given the option to upload an image to support their sighting. If they do, the image is saved into the static folder and the file name is added to the sighting in the json file. Images are kept optional so that any sighting can be reported no matter what evidence you have.

All of the relevant information will be centered on the screen with a logo at the left corner. The logo will act as a hidden menu as upon hovering it will display each function available to the user in the form of links. To make use of hidden menus and text I will first inspect websites that I use myself in order to see how they have implemented similar features. I will also make use of the W3 schools tutorials[3].

## 2.3 The Python

The base of this sites functionality is in three lines of python. Opening a json file, reading from the file and appending to the file. Once this was figured out all I had to do was add a few if statements to allow searching through the data and I had a functioning site. To log in to the site users have to input a username and password. These were encrypted using BCrypt but had to be removed due to the restrictions on external libraries. If the site were to go live in the future I would definitely bring this back as I feel it is essential to any modern site.

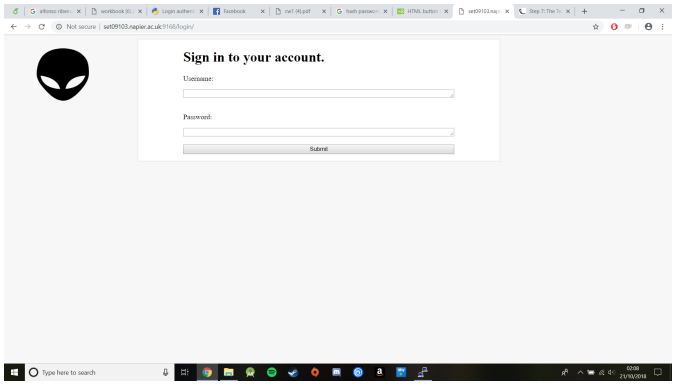


Figure 3: **The Login Page** - The login page for my site

## 2.4 The CSS

The design of the site was inspired by Wikipedia's list of UFO sightings [4] where sightings appear as pages in front of a slightly off white background. I have complimented this with a slightly darker border around the post to give the allusion of three dimensions.
I have decided to use a monochrome theme so not to cheapen the look of the site with colourful text. I feel like there is room for improvement with some highlighting colours to take-https://www.overleaf.com/project/5a8dc7de088e1e6d2ca9ae6c away from the drag of a monochrome theme while maintaining it's professional look. If I were to change the styling in the future I would consider using bootstrap but as the same template is being used so often these days I decided not to in order to stand out.
As far as the menu items are concerned they have a hovering logo that stays in the top left corner which hides the menu items beneath it. This is done through a container holding the logo and each menu item. The menu is then hidden and upon hovering over the container, the menu is released.
The menu is fixed in position and size where everything else on the page is dynamic. This ensures that the menu is always accessible by the user no matter where on the page they are looking.

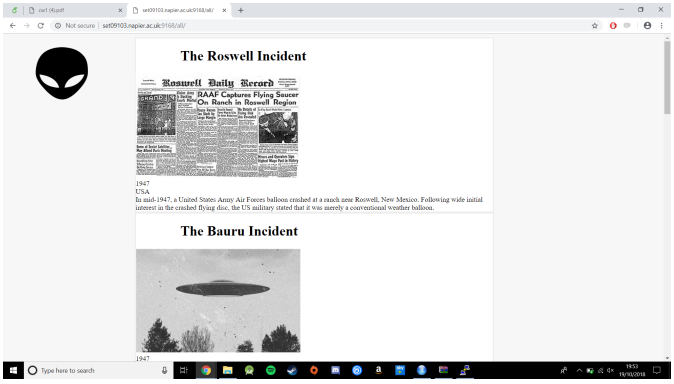


Figure 4: **All Sightings** - The display all page)

## 2.5 The Directory

The entire directory of sightings is held in a single json file along with a list of the years and countries of origin. I chose to use a single json file as opposed to separate files per entry as I found through initial testing that it sped up my search feature and made the site generally quicker.
There are a few problems that this could cause in the future for example, if I were to remove a certain post without implementing a delete feature I would have to manually traverse a large json file to find the correct entry. This would be very time consuming and would require access to the server which is far from ideal. It could also cause problems if several users were to add sightings at once.
I decided that for the purpose of this site the pros outweigh the cons so I have stuck with the single file solution.
I allow registered users to add their own sightings with an image. This appends their sighting to the existing json file and saves their image to the static folder. I have not allowed the users to edit the sightings as I feel that feature would be abused by the general public. That is the same reason

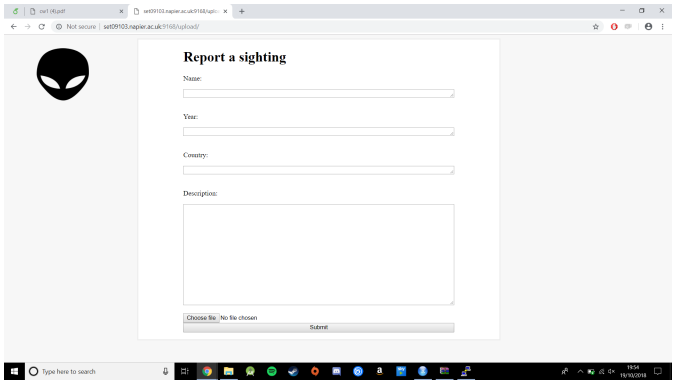


Figure 5: **Upload Page** - The writing page of my site)

Figure 6: **The Logo** - The logo for my site

that I removed the delete function. I may add them again in the future but only behind a log in system that authenticates the user and allows them to edit and delete their own sightings.

# 3 Implementation

The implementation of this site is very simplistic. Sightings can be viewed, filtered, searched and added all without an SQL database. There is no way to format the text like you would in latex. That isn't to say that the site is not well designed and pleasant to use as I have spent a lot of time perfecting the physical design and CSS of the site. I have used a variety of methods such as hover tags, dynamic sizing to make my site look professional and pleasing to the eye. The data it's self has been taken from the Wikipedia list of reported UFO sightings. [4] While this may not be the most accurate or extensive list I feel that on a subject so interpretative as UFO sightings the source it's self does not make a huge effect on the user's perception of the information. For example a user that doesn't believe in UFOs wouldn't place the source of the info as the reason for their disbelief.

I have allowed the user several points of interaction which allow them to navigate the directory easily without fear of getting lost or encountering errors. To ensure this I had potential users try and find sightings using each search method to get their thoughts on each of them. The general consensus was that the search function worked well if you knew the correct spelling. Otherwise you should use the alternative functions as there is a lack of any suggested results. When users were actively researching and looking for patterns the key feature they used the most was filtering by year or country. It is for this reason that I added that to the search feature along with the existing list of each year and country. If the user could not find something using the search feature they are notified that "it could not find what they were looking for they could add it through the upload feature." This use of custom error routing means that the user is never lost in the site. I feel the functionality of the site is it's greatest feature. There are many improvements that can be made to the site which I will discuss below however as a beta product I feel that it meets the user's needs and is pleasing to use.

# 4 Implementation Evaluation

## 4.1 Does It Meet The Spec?

The User is able to navigate throughout a directory of UFO sightings with ease. They have several ways of doing this: either through a search bar where they can search for a given sighting name, country or year, a list of all years in which sightings have taken place, and a list of each country with UFO sightings. This allows the user to see every reported UFO sighting and filter by the year of the sighting and the country of origin. There is also a page that displays all of the reported sightings and if you cannot find what you are looking for you can report one yourself. I feel that the plethora of options for the user to navigate the site make it a pleasant site to use and will satisfy all of the intended user's needs.

The sightings can be viewed easily on the site through the view all feature. This shows each and every UFO sighting reported to the site. The user can then find more information about what else has happened at the given time or place of the sighting by clicking whichever key they want to research. Upon selecting a time or place a list of all sightings with that given key will be displayed for their enjoyment. This means that users can easily navigate discovering new sightings, discovering patterns and forming their own theories all without the possibility of getting lost or frustrated.

The writing portion is locked behind a log in system to keep trolling to a minimum. As registering accounts is an easy process, I believe a script to determine whether entries are legitimate and whether the files submitted were safe for work would benefit my site greatly and I would look into adding this before making the site open to the public. The writing portion of the site has similar styling to Microsoft word with the white text area over the slightly off-white background. It contains the same style sheet and logo for design continuity and brand recognition. Through research I have found that users respond better to web pages keeping the same design with only subtle changes. As far as advertising and brand recognition goes, a well designed, subtle, ever present logo has proved one of the most effective ways to drill your brand, site or application to your user to keep them coming back. That is why I have implemented similar ideology for my directory.

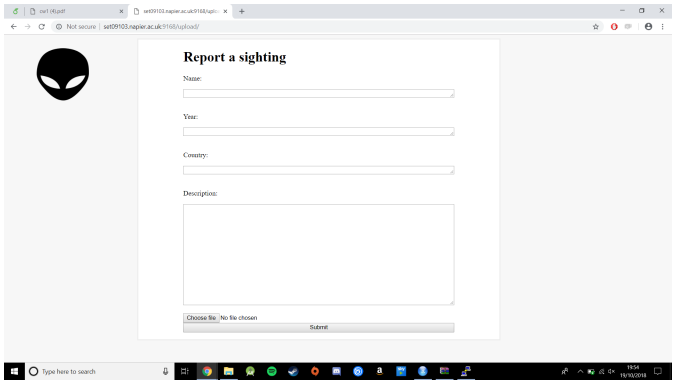


Figure 7: **Upload Page** - The writing page of my site)

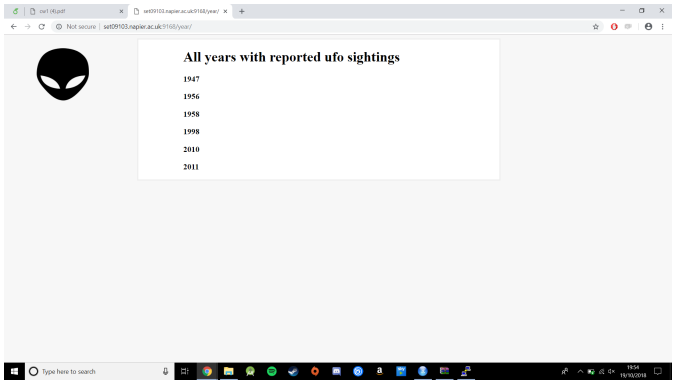


Figure 8: **All Years** - A list of all years in which sightings were reported

The Server persists the sightings within the json file along with a list of years in which sightings took place and the countries of origin. This is done so that the user can easily search by year or country by either using the search bar, clicking each year or country will take you to every sighting that took place at that given tag. This allows the user to navigate throughout my site with ease using only the tags provided. This is before we start looking into the search feature that allows the user to find exactly what they are looking for.

## 4.2 Potential Enhancements

I will have to encrypt the passwords before making the site live for privacy and data protection reasons. As the code is simply commented out for use without external libraries it will be an easy fix.
I could also add a 'user' key to each sighting so that the user could edit and remove their post from the site. I had this implemented in an early build of the site without any authentication however I had to remove it as when testing the site some users were causing havoc by deleting important posts and such like. I would like to bring this feature back so that only the user or myself, the admin, could edit or remove posts. I feel this would bring an extra level of functionality to the site and would make the experience even more pleasant for the user.

The formatting of text, while it is adequate for smaller descriptions which this site centers around. If the user were to enter a detailed description it would be displayed without new line characters. This problem was only discovered after I submitted a rather large place holder that you would never see in real life use. Despite this I feel that due to the nature of the content displayed on the site it is not essential and therefore has not been implemented. This is something I would add to the site before it went live though as I would like all accounts of UFO sightings to display seamlessly on the site despite how detailed they are.

# 5 Personal Evaluation

While I am proud of what I have achieved, I would not let this site go live as there are too many features left on the shelf. The only issue that I am yet to resolve is the lack of ability to format your text. If I were to scale the site I would write a function that would replace new line characters with html tags that are compatible with the template. This would allow users to add more detail to the descriptions of each sighting.

Other than that I feel that I have performed well especially in the physical design of the site. The design in terms of user interaction is what I am most proud of. I feel that the research and experimentation payed off and have made the site look pleasing and professional and these skills will stick with me throughout future projects.

The server side aspects of the site were completely new to me. I am pleased that I have managed to develop a site that not only generates the HTML from a series of HTML templates that I didn't even know was possible beforehand but that it also manages to enable you to store and write new entries to the directory all without the use of a database with full persistence on the site. I couldn't be happier with the server side of the site.

I have faced many challenges throughout the making of this site. My initial challenge was with dynamically shaping the background. To begin with everything was fixed meaning if you have a 1080p display you would find the website pleasing to use but if the site was windowed or used on a lower resolution display, the border will extend past the screen. This makes my site almost inaccessible to anyone with different specifications to myself. As I am unaware what computers my site will run on I had to make the text's border dynamically fill the screen. This caused me a multitude of problems as initially my border would fit in the screen but would shift my text too far to one side. In order to then center my text I had to put my background on a second div two above the body so that it would not affect the layout of the text.

Placing a drop-down menu under my logo was another challenge. It would not allow me to hover over the image id as I then wouldn't be able to select an option whereas, if I were to set a div, the border that was surrounding the logo it would be an awkward shape and would still not fit the entire menu. Eventually I set a div around the logo and drop-down menu, set an on hover which would make the drop down menu appear and removed the border which actually made the site look better.

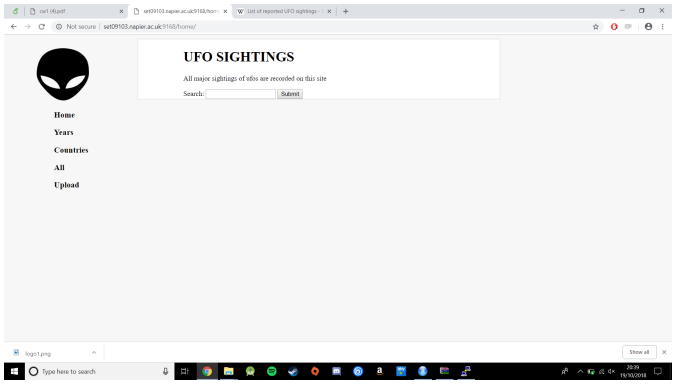


Figure 9: **The Drop down Menu** - The drop down menu)

I spent a lot of time struggling with adding sightings. The problems came after I had users test my initial upload feature. When they tried to report a sighting without an image the site would crash. To fix this I added a simple if statement to check that there was a file in the input. Upon adding this I noticed that sightings in my template would still have a 300px bar above the text in place of an image. To sort this I had to add an if statement to the template to check that the sighting had an image and if it did that another div should be added with the img tag inside. There are many other ways that this could be achieved however, I feel this method is the most consistent. If I were to improve this in the future I would have a query that checks the type of file being uploaded as to only allow supported image types.

Encrypting passwords was a huge challenge for me and has become the largest drawback of my site. I used the tutorial in the workbook[1] to get me started and eventually ended up appending the created accounts to a json file. The passwords were initially all encrypted through BCrypt however that had to be removed due to the restriction on external libraries. This is something I would add back to the site before it goes public as I feel encryption is essential to any modern website.

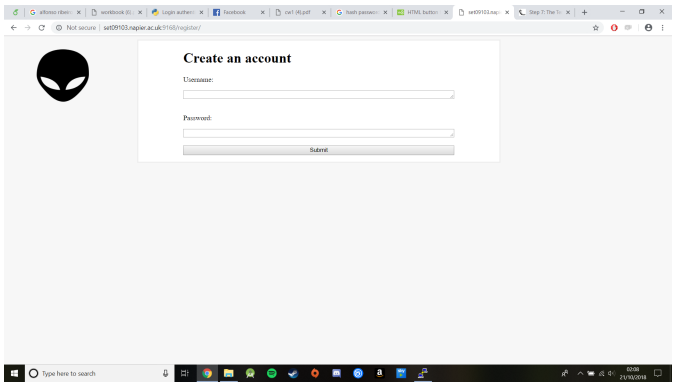


Figure 10: **The Registration Page** - The registration page for my site

Possibly the biggest challenge has been searching through the json document to find an entry. I began with a simple collection of pre-made routes however as I began to experiment with user added entries I discovered that this solution was not viable and would not scale well. For this reason I added a query using URL parameters that would search through the json file to find what the user is looking for and display a populated template. This took slightly longer than the routing option and requires case sensitivity but I feel that the pros of the scale-ability outweighs the cons so I stuck with it.
These cons are compensated for by the several other ways for the user to navigate the site for example they can see a list of every year that sightings have taken place and display all sightings that happened in that year. The same can be done with the country of origin. This means that the search engine is more of a secondary solution for navigating the site and is more focused towards users that know what they are looking for.

# References

[1] S. Wells, *Advanced Web Tech Workbook*. 2018.

[2] Pallets, "Flask documentation," 2018.

[3] w3schools, "The world's largest web developer site," 2018.

[4] Wikipedia, "List of ufo sightings," 2018.