**Website**

For the website we had a couple of things we had to make sure of before we started the website development. The main thing was what to code the website in. Originally the scripts the website is meant to run are scripts created in Python, knowing this we decided to look for platforms that supported this. Python has plenty of frameworks to help us with this. After a bit of research there were a couple of frameworks that would work well for us. There were a few options such as Flask or Pyramid but, in the end, we went with the most popular one, Django.

**Django**

The reason we decided to choose Django is because it is well established in the sense that it has a big community of supporters, which is good for us as this is our first time trying to build a website using Python and Django and because of this there are a lot of resources on it and makes it easier for us to pick up and learn things quickly and easily through a couple of Google or YouTube searches. Django supports machine learning and is considered one of the better frameworks to use because it is simple and flexible to use since we can develop frontend and backend with it. Basically, Django has plenty of features which make it easier for us and we don’t have to waste too much time researching.

**Design**

After deciding our framework, we had to come up with a design for the website. First how many pages this website is going to have. We decided that the website will have a Portal page, a page for the AI Engine and a About Us page. The portal page is supposed to be a place where the people from the judiciary can come and find useful resources. The AI Engine page is going to be the page where the neural network is linked to and people can use it from here. The About Us page will be where we have the roles of the people who are involved with major parts of the project such as this team and its supervisors.

After deciding the pages, we had to come up with the UI design, but this would be very difficult to do as it would be our designer’s first time doing it and we had no leads as to how to start. Luckily for us, Alison asked a couple judges for a list of websites they use on a daily basis so that we could study their designs and be able to get some ideas from them. A common trend with these designs were that they would have links to different pages, and it would be a box style with a picture and a bit of text as a preview to the link. This was a design idea we used greatly within the Portal page as we thought this would be a good choice since the look would be familiar to the people who would be using the website.

We moved on to making the UI for the website. First, we decided on what colours we wanted. We decided to go with the PNG national colours which are red and black. We primarily used red in the design. We made multiple designs but, in the end, we chose 2 to show Alison and see which one she and the other judges liked the most.

With the designs, Alison did give feedback before she showed the other judges and we had to make a couple changes to them. The first one was the name of the website which is now PNG e-Judiciary Judge Support Portal. The other change was with the first design and we had to change the icon we had which was a gavel at first but is now a scale as Alison said it would be a better fit.

Here are both of them:

1.

.A screenshot of a cell phone

Description automatically generated

Figure - Design example 1

2.

A screenshot of a cell phone

Description automatically generated

Figure - Design example 2

Out of both of them, the second one was chosen for the main design of the website.

**AI Engine Web Page**

After our designs were approved, we went on to deciding how to make the AI page so that we can have a simple way for people to use it. Originally, we decided we wanted a few text boxes where people would enter their case notes into the fields and after hitting a button the result would show up. Since we didn’t know what information the AI would need for an accurate prediction, we thought this would be fine but then we found out that it would be a lot more complicated because the AI required more information than just a few fields. We then decided to just put a huge text area where people would put in all of their case notes and the AI will be able to get the full picture of the case so then the prediction could be more accurate.

Here is the final look of the AI Engine page.

A screenshot of a cell phone

Description automatically generated

Figure - AI Engine web page

**Portal Web Page**

One of the other objectives of the website was to create a portal where people can come and easily access resources that could help them when it comes to understanding cases or just wanting to learn more about the matter. Currently with the Portal page, it has links to several parts of the PNG PACLII website. Since we are not sure if the website will be approved by the judges, we were limited in what we could put on this page. Despite this we still put in links to the National and Supreme Courts of Papua New Guinea and the public database which goes along with them. With the design we wanted to make sure the homepage looked easy to use since we didn’t want people to struggle to figure out the objective of the page or what the use of it was.

Here is our final look for the home/portal page.

A screenshot of a cell phone

Description automatically generated

Figure - Portal page 1

A screenshot of a social media post

Description automatically generated

Figure - Portal page 2

**About Us Web Page**

The About Us page was originally meant to be a Contact Us page but since we are not sure if the website will be published online, we changed it to About Us since it seemed more fitting than a Contact Us page which might not have any use. We did not completely get rid of the Contact Us part since we put in the footer of the website. The goal of this page was simply to show who was involved in the project. Since we do not have images of everyone, we put place holder avatars representing where the image of the person could be. The other reason for putting avatars was because some people might not be comfortable with their faces on the website. We put a small description with the role each person had, and the description is nothing more than a couple words.

Here is the final look of the About Us page. A screenshot of a cell phone

Description automatically generated

Figure - About us webpage

**Conclusion**

Overall the website development went quite smoothly. The major problems were during the start of it where we had to set up the Python environment and make sure everything was running properly and during the end when we had to link the neural network up to the website and getting some results from it. Besides that, the UI didn’t have any problems besides responsiveness issues. Trying to make the website responsive to medium and small screens became a problem due to time constraints so we were not able to complete that but most of the website is complete and also follows our original design well. Since this website was more of a template as to what the website should look like, we think the small features we weren’t able to complete shouldn’t affect the overall objective of what the website development was for. In this case, a platform for the AI engine to be run on.

**Recommendations for website**

The first recommendation would be an improved design. Overall the design is fine but certain things can be improved such as responsiveness. Making it work on all screen sizes will be great for mobile user. Another one would be that information in footer can be more filled out and the About Us page should have a bit more information on the people who worked on the project.

The second recommendation would be to add more features to the website. The website right now is very simple with not much to it besides three pages. Some more pages and features would really make the website feel a lot better in the sense that it would less of a prototype website. Currently we feel as though the website needs more usability and a more concrete reason for people to visit the website often. One idea which could be considered is creating a page or section with articles on the latest news within PNG Judiciary.

The third recommendation is to fill out the homepage with more websites from across the internet. Currently the homepage has links to just the PNG PACLII website and the pages within the website. Having plenty of websites would make the page useful and not repetitive as it is now.

The final recommendation would be to add in a secure way for people to use this website and the powerful function it has. We think the AI could be misused in different ways and we wouldn’t know how, so we recommend the website has a way to add user accounts or authorized accounts who can access the feature and not have it public for everyone to use. This would help with misuse of it by limiting the people who access it and make it easier to find out who could be exploiting it if a situation did occur where this did happen.

**How to run the website**

1. Download latest version of Anaconda
2. Download the .yaml file from our project
3. Open Anaconda Prompt
4. We will now create the environment to run the website. Type this into Anaconda Prompt “conda env create -f <path\to\file.yaml”

My one looked like this “conda env create -f C:\Users\Michael\Downloads\file.yaml”

1. Wait for the packages to install
2. Once that has finished its time to activate the environment. Type “activate IndustryProject”
3. Wait for this to finish and once it has it will say IndustryProject on the left. To deactivate it you will need to type “deactivate” but do not do this yet.
4. Once activated, type this into Anaconda Prompt “python”
5. Then type “import nltk”
6. After that type “nltk.download(‘stopwords’)”
7. Once that has finished, then type “nltk.downlaod(‘punkt’)”
8. Once this is done, you have now got the necessary packages installed to run the website and the environment should be ready to use.
9. To run the website, you will need to make sure the “IndustryProject” environment is activated
10. Make sure you have downloaded the website. If not, then do so.
11. Unzip it to your preferred folder.
12. Once that is done go back to Anaconda Prompt and type the path to the website. For me I typed “cd C:\Users\Michael\Downloads\Portal\django\_website”. This will set the path to the website.
13. After your path is set, it is now time to run the server. Type “python manage.py runserver”
14. Once the server is running, copy the localhost which will look something like this “<http://127.0.0.1:8000/>”
15. After you have copied this, paste it into your browser and it should be the working website. To deactivate the server, go back to Anaconda Prompt and press ctrl+C and this should stop it.

Finish

To run the server again, you will need to activate the IndustryProject environment again with “activate IndustryProject” and path to the website if it isn’t done already and run the server with “python manage.py runserver” again.

**Hours Breakdown for Michael**

Total hours = 451

Meetings + conversations/discussions + travel time (cut in half) = 70 hours (rough estimate not accurate)

data scraping = 70

website design and research = 62

Django and Python learning = 40

website development = 148

documentation = 51

Python setup = 10