Individual Project Report

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# Your personal contribution to the project.

This project experience is quite rewarding and interesting for me, and with the great help of my team members, I can immerse myself into the project from the very beginning to the report part.

As the leader, in actual development, I was mainly responsible for the **data preprocessing**, **model building**, **model training**, **backend**, and also helped with the **frontend**. To be honest, I put a lot of effort and time on this project. Also, I was always actively involved in the team meeting to discuss what we should do next, and always gave my suggestions and made a project plan for team members. And I was very honored to work with such enthusiastic and interesting members, and enjoyed the whole process with them.

# 2. What you have learnt from the project.

From this project, I have learnt the basic and important part of an actual pattern recognition system, and I gained crucial understanding and knowledge mainly from the backend, model building and training part.

I firstly learnt the basic usage of Flask, Flask is a lightweight customizable framework, written in Python, which is more flexible, lightweight, secure, and easy to use than other frameworks of the same type. It can be well developed in combination with the MVC mode, and realizes the enrichment and expansion of functions while keeping the core functions simple. Its powerful plug-in library allows users to realize personalized website customization and develop powerful websites. And I learnt the basic method to do the request: GET and POST methods are two HTTP request methods. The GET method is used to get some information from resources, and the POST method is used to submit some form data that needs to be processed and get responses.

When it comes to the model training part, I faced the problem that the test and validation accuracy of the model is much lower than training accuracy and sometimes the validation loss even went higher in the end compared with the beginning. After searching on Google, I adjusted the learning rate which the default value is 0.001, and upsized the batch size from 32 to 512 to avoid over-fitting. And it improved a lot in the end.

So for my job, I just need to invoke the model in the back-end and make sure the data can be got or posted and the result after recognizing can be transferred to the frontend interface.

Also, I think I learnt a very crucial lesson about being a good leader. I learnt to organize meetings, led everyone to discuss the key points, and arranged the related work of all members reasonably.

# 3. How you can apply this in future work-related projects.

First of all, the leadership ability can help me be more confident and decisive in my future work both in personal and group projects.

Meanwhile, the ability to acquiring the data and preprocessing data is very crucial in almost every AI-related project, cause our machine needs massive data to train a well-performed model. Also I can apply the knowledge from here to do data analysis by virtue of the complexity of raw data in every project. So it is very important for me to go deeper in this area.

Also, if we need to build an interactive or a minimal viable product of pattern recognition system, we definitely need to know how to combine the frontend with backend, otherwise it is just a local project.