FYP Handbook

- Chapter 13 A Template for Project Proposals

Aim: define the objectives of the project

Word limit: 1500

# Cover Page

Name: (MUID)

Name: (MUID)

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Name: (MUID)

Programme of Study:

Date:

Supervisor:

Project Title:

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# Chapter 1. Introduction (Problem Definition)

* 1. Introduction (The Background of What is the Problem)

(2 to 3 Paragraphs)

* 1. Project Aim (What is the Problem)

(1 to 3 Paragraphs)

* 1. Project Objectives (High Level How You Solve the Problem)

(Point Form with a Short Introduction)

* 1. Value Propositions (The Value of Your How)

(1 to 2 Paragraphs)

# Chapter 2. Background or Literature Review (1 Paragraph Overview)

* 1. Review of Existing or Related Solutions for the Problem (Existing How)

(A Paragraph Each)

* 1. Related Supporting Technologies (Existing How)

(A Paragraph Each Technology)

Document processing SaaS / software

a. SaaS solution from public cloud providers

Nowadays, many companies consider migrating their on-premises data centers to the cloud to enjoy the benefits of cloud services. Companies can pay based on the actual usage, enjoy high availability and scale with high elasticity. This can help companies reduce their maintenance cost and respond to sudden demand change quickly.

Likewise, the big three cloud providers – Amazon web services (AWS), Microsoft Azure and Google Cloud Platform (GCP) are also offering their intelligent document processing solution in software-as-a-Service (SaaS). Users upload the documents to the cloud. The SaaS solution will analyze the document layout and extract the key-value pairs based on their pre-built AI model. We can also train our custom model to achieve better performance and fit the specified use case.

b. AI-powered document processing software

Meanwhile, there are several AI-powered document processing software available in the market. This kind of software makes use of their custom AI models to analyze the document and extract the key-value pairs. Studies showed some can outperform current available AI models.

Despite being powerful, there are several concerns when using these market-available technologies as an enterprise solution.

a) Data residency and governance policy

We have to update our client's secured data to the public cloud for document processing, which may not be allowed in IT policy.

b) Black Box nature of AI models

We have no idea of the details of the AI models, including the algorithm and exact structure of their models.

c) Lack of control

We expect to have better control on the model. However, in a SaaS solution, the provider is responsible for providing the update and patch. We have to verify the correctness of the model afterwards.

So, we decided to build our AI model. In recent years, studies on machine learning have been greatly shifted to deep learning, which is a subset of machine learning using artificial neural networks such as CNN and RNN for tasks such as object detection and layout analysis. They achieve outstanding results in general.

However, there are some constraints on building these neural models - To train the model, we need to input a large (labeled) dataset with powerful GPUs and long training time.

Fortunately, many big techs have developed their open-source, transformer-based model. where we can use a smaller dataset for tuning the big, pre-trained model instead of building from scratch.

For example, YOLO for image detection. We found that there were three FYPs last year using YOLO for their object detection model. Also, DocBERT for document classification and LayoutLM and Donut for document layout analysis. These are potential models that can be employed in our project.

* 1. Conclusion (Justification for Your How)

(1 Paragraph)

# Chapter 3. Preliminary Methodology

* 1. Overview (Summary of Your How)

(1 to 3 Paragraphs - Supplemented with a schematic diagram)

* 1. Requirements, Supporting Technologies, and Technical Gap (Basis and Structure of Your How)

(2 to 3 Paragraphs - Supplemented with figures if needed)

* 1. Architecture or High-Level System Design (Your How at Deeper Level)

(2 to 3 Paragraphs - Supplemented with diagram)

Note that figures and diagrams are effective communication tools. Readers will find understanding your report easier if you provide well designed figures for illustrations.

# References

There should be at least 5 references; optimally, 2 of them are formal publications found in a journal or conference proceedings.

APA or IEEE referencing.

# Appendix A. Project Plan

The Project Plan should include a Gantt chart describing the schedule of the expected start time and end time of the objectives of the project.

# Appendix B. Team Members' Roles and Responsibility

## Roles

| Roles | Member(s) | Remarks |
| --- | --- | --- |
| Team coordinator | Amy | Manages the project in general and keeps records, reports, and other documents in order, and prepare the submission of reports |
| Secretary | Betty | Prepares meeting agenda and minutes |
| System analyst & Designer | Amy, Betty, Candy, Doris |  |
| Programmer | Amy, Betty, Candy, Doris |  |
| Tester and evaluator | Amy, Betty, Candy, Doris |  |
| Database Expert | … |  |
|  |  |  |

All team members should share the roles of System Analyst and Designer, Programmer, and Tester. (*Computing FYP Handbook p.112)*

## Responsibilities and Task Assignment

| Tasks | Responsible Member(s) | Target Date |
| --- | --- | --- |
| Preliminary research | Amy, Betty, Candy, Doris | Nov 21 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

*(Computing FYP Handbook p.112)*

# Appendix C. Team Meeting Minutes

There should be at least one formal team meeting to confirm the project aim and objectives, and to determine the roles and responsibilities of the team members.

Meeting minutes should be written up and endorsed by all team members for the formal team meetings. Meeting minutes can have a basic format:

* Date, time and place of the meeting
* Members present at the meeting
* Decisions made
* Actions need to be taken and by whom

Meeting minutes is very important to record important decisions, especially those concerning

Responsibilities of team members.