# Project Plan for Bangkit 2022 Company-based Capstone

**Team ID : C22-CB03**

**Active Team Member:**

- **(ML) M2008G0791 - Ananda Daffa Abdillah - Universitas Gadjah Mada**
- **(ML) M2008G0792 - Daffa Haj Tsaqif - Universitas Gadjah Mada**
- **(ML) M2191F1819 - Mario Hagi - Universitas Bina Darma**
- **(MD) A2110F1435 - Alheta Wahyu Matalarens - IST AKPRIND Yogyakarta**
- **(MD) A2183F1767 - Ary Bayu Nurwicaksono - Universitas AMIKOM Yogyakarta**
- **(MD) A7183F1768 - Hafit Abekrori - Universitas AMIKOM Yogyakarta**
- **(CC) C2307F2632- Muhammad Acla Alamsyah Nurdin Hamzah - Universitas Raharja**
- **(CC) C2323J2836 - Aimar Anand - Universitas Tadulako**
- **(CC) C7005F0459- Ariel Peaceo Gunawan - Universitas Bina Nusantara**

**Inactive Team Member:**

**Title of the Project:**
[C22-CB] Traveloka Singapore - Chatbot for optimizing customer operations

**Executive Summary:**
A short (~1000 chars/200 words) abstract, **describing your project**. Includes your **Problem Statement, Research Questions, background information**, and **why** your team wants to tackle the problem.

The lack of customer desires to read and understand the FAQ results in customer service dealing with almost similar questions daily. Most of the customers find it more convenient to ask directly to customer service by chat to ask the FAQ, but this habit is not only time-consuming and labor-intensive for the customer service division, but it's also costly for the company. This is why we want to add machine learning implementations to deal with such repetitive tasks automatically that can make customers get the answer in real-time and reduce the customer service workload.

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We as a team also sometimes have to deal with similar problems in the Bangkit Official Discord server where fellow cohorts ask the same questions all the time while the answer can be searched easily, so we know how tiring it is to deal with such tasks. So we decided to make a Chatbot mobile application for replying to FAQ questions with the right reply.

**Project Scope & Deliverables:**
Machine Learning Path will translate the SQuAD dataset from English to Bahasa in the first then preprocess the translated dataset to be used for transfer until the middle of the second week, then in the third to fourth week with the processed datasets ready the pre-trained model will be loaded then used for transfer learning, the newly trained model will be passed to CC cohorts to be deployed.

Cloud Computing Path will finish 4 main tasks. First, we will do some research on which Cloud Storage Option is the best to be chosen for saving our Machine Learning model and also cost-efficient based on the usage calls. The second task that we will do is prepare the bucket in Google Cloud Storage after deciding on the right Cloud Storage option and when the model is finished, we will upload the model to the bucket made before. For the next task and the third one, we will make the backend API that mainly functions to run the prediction from the model uploaded in the Cloud Storage and return the result, where this backend will be run when the mobile app calls the backend. After finishing the backend, we will containerize the application using Docker as an image, then deploy the image to the App Engine. Then the last task, we need to make sure the mobile app can communicate well with the deployed backend and the mobile app can run the backend and give the right result.

While waiting for the Machine Learning and Cloud Computing path, Android development will create UI design and convert it to XML. After the other paths are complete, we will work on the app using the restful API provided by cloud computing to create the main feature.

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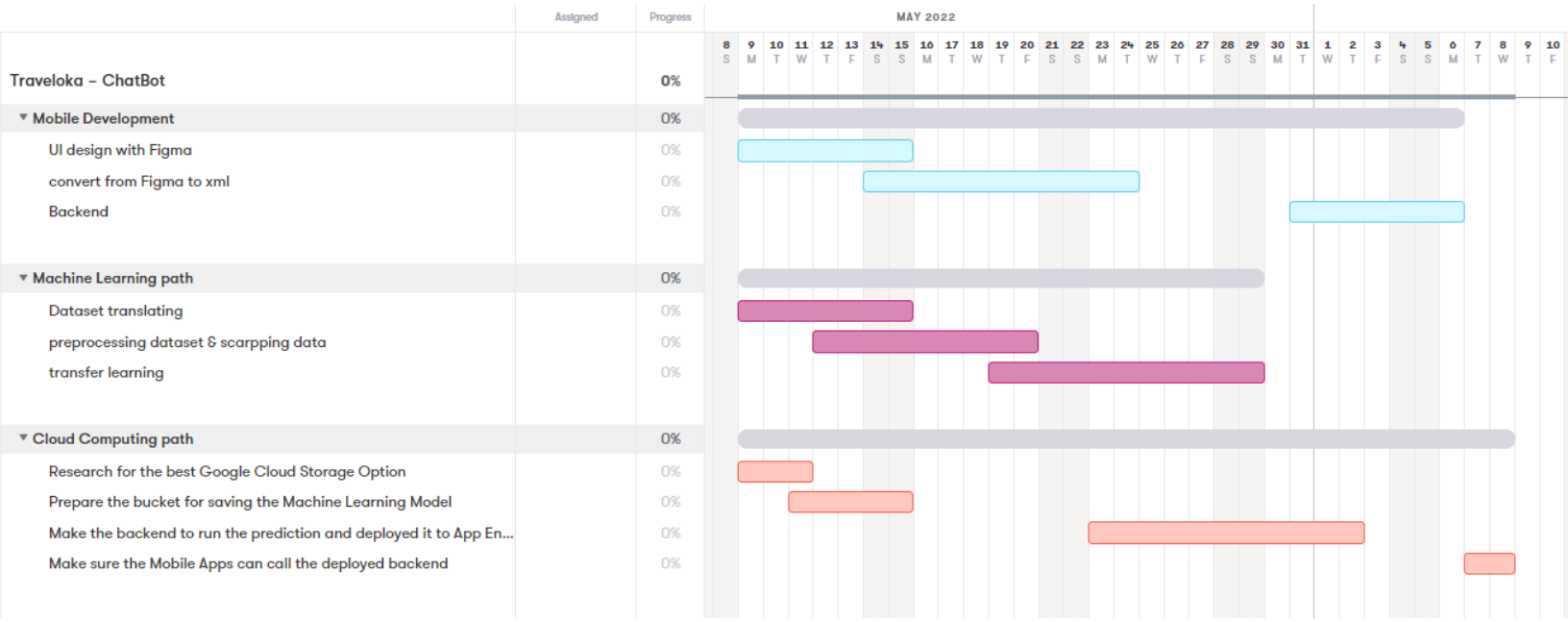
**Project Schedule:**




**Based on your team's knowledge, what tools/IDE/Library and resources that your team will use to solve the problem?**

**List of tools:**

- Docker
- Postman

**IDE:**

- VSCode
- Android Studio

**Platform:**

- App Engine
- GCS (Google Cloud Storage)

**Library:**

- Tensorflow
- Transformers

**API:**

- JSON

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**Based on your knowledge and explorations, what will your team need support for?**

- Team mentor
- Google Cloud Credits

**Based on your knowledge and explorations, tell us the Machine Learning Part of your capstone?**

Machine Learning Part will do a transfer learning of an existing model, more specifically "DistilBERT base model" which is a lighter version of BERT, this model is used to Fill-mask but we are gonna transfer learn it for question-answering using SQuAD 2.0 dataset that has been translated into Bahasa.

**Based on your knowledge and explorations, tell us the Mobile Development Part of your capstone?**

Mobile Development Path will use Android Studio and native Kotlin for creating the Android app. Figma is attached below for UI reference. We are also using Retrofit to manage API data from CC Path.

Figma: https://www.figma.com/file/sjN5tkJ6jzRbhkDVtFB29o/Untitled?node-id=0%3A1

**Based on your knowledge and explorations, tell us the Cloud/Web/Frontend/Backend Part of your capstone?**

Cloud Learning Path will provide the Google Cloud Storage for saving the model from ML Path and for the backend API we will use App Engine as the serverless service and make sure the backend API can communicate with MD Path to run the prediction using the built model.

**Based on your team's planning, is there any identifiable potential Risk or Issue related to your project?**

- Most of us are from different Universities and different years. A different agenda is expected when one of us works on other obligations, and other members will fill the task.
- Unexpected events happen to our members and delays in finishing the task.
- The backend app deployed to App Engine can't communicate well or can't be accessed by the mobile app

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**Any other notes/remarks we should consider on your team's application**

This team consists of cohorts where every learning path has members who have some experience in their respective fields. We have a concrete plan to work on this project to the respectable requirement while finishing it on time.