

Project Plan for Bangkit 2023 Product-based Capstone

Team ID : C23-PR523

Active Team Member :

1. (ML) M309DKX4405 – Muhammad Zakaria Saputra – Universitas Pendidikan Indonesia
2. (ML) M181DSX0326 – Muhammad Irham Luthfi – Universitas Indonesia
3. (ML) M078DSY0434 – Elma Anjelina Sondakh – Sekolah Tinggi Ilmu Ekonomi Ekuitas
4. (CC) C309DSX2193 – D’Riski Maulana – Universitas Pendidikan Indonesia
5. (CC) C038DSX1358 – Arya Abdul Azis – Institut Teknologi Sepuluh Nopember
6. (MD) A309DKX4026 – Novaldi Sandi Ago – Universitas Pendidikan Indonesia

Final Selected Themes:

Water, Forest, and Natural Resources ▾

Title of the Project:

Decorative Plant Marketplace with Plant Identification Feature (BibitUnggul.id)

Executive Summary/Abstract:

Our project aims to develop an e-commerce mobile application that allows users to purchase decorative plants, while also utilizing machine learning technology to identify unknown plants. The lack of a specific platform for buying and selling decorative plants, combined with the common problem of individuals being unsure of the specific type or name of a plant they wish to purchase, served as the inspiration for our idea. Our app will provide a user-friendly interface for customers to browse, purchase and review a variety of decorative plants, as well as enable them to take a photo of an unknown plant to identify it using our machine learning feature. Through our research, we hope to answer the questions regarding the demand for an e-commerce platform that specializes in decorative plants and the effectiveness of the machine learning feature in identifying different types of decorative plants. We believe that our project could greatly benefit individuals who enjoy purchasing and caring for decorative plants, but struggle with identifying them.

How did your team come up with this project?

This project was initiated based on the observation that many people have a hobby of collecting decorative plants, and according to reliable journals on the decorative plant industry in Indonesia, there is potential for this industry to exist in the global market. Therefore, the common problem of individuals being unsure of the specific type or name of a plant they wish to purchase also served as the inspiration for our idea. With the application that we will develop, we aim to facilitate the growth of the decorative plant

Project Plan for Bangkit 2023 Product-based Capstone

market and educate customers by helping them identify the decorative plants they wish to purchase.

Project Scope & Deliverables:

The scope of the project is to develop a Decorative Plant Marketplace with a Plant Identification Feature that allows users to search for and identify plants based on visual characteristics. The marketplace will enable users to browse, search, and purchase decorative plants from various vendors. Additionally, the website will have a comprehensive database of plant species and their visual characteristics, which will be used for the Plant Identification Feature.

Deliverables:

ML:

1. Prepare dataset & data gathering: 4 days
2. Preprocessing & cleaning data: 3 days
3. Modelling: 10 days
4. Optimization: 4 days
5. Deployment & Integration: 3 days

CC:

1. Cloud Architecture Design Diagram: 6 days
2. Entity Relationship Diagram: 6 days
3. Build Database: 5 days
4. Build Backend: 14 days
5. Deployment: 7 days

MD:

1. Create a workflow program: 2 days
2. Create wireframe app: 2 days
3. Development: 18 days
4. Testing: 5 days

All:

1. Report: 2 days
2. UAT: 2 days

Project Plan for Bangkit 2023 Product-based Capstone

Project Schedule:

 Project Schedule Bangkit

Trello Board

Bangkit 2023		Trello: https://trello.com/b/YAaZv95k/capstone-2023																											
No	Task Schedule	Week 1							Week 2							Week 3							Week 4						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12
1	Preparation and Machine Learning Planning																												
	Prepare dataset																												
	Data gathering																												
	Evaluate and understand image pattern																												
	Pre-processing data																												
	Designing model architecture (trial&error)																												
	Model training																												
	Model optimization																												
	Deployment																												
2	Android Application Development																												
	Build a list feature																												
	UI Design																												
	Develop application																												
	User Testing																												
3	Cloud Computing Development																												
	Cloud Architecture Design Diagram																												
	Entity Relationship Diagram																												
	Build database																												
	Build API																												
	Deployment																												
4	Testing																												
	Alpha testing																												
	Fix and solving problem																												
5	Report																												

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

- Tensorflow
- Tflite
- Firebase
- Android Studio
- Retrofit
- Glide
- Figma
- Postman
- NodeJS
- ExpressJS

Project Plan for Bangkit 2023 Product-based Capstone

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

- Need free and legal decorative plant datasets.
- Need a mentor who can support our project with knowledge and experience in Android, Machine learning, and Cloud.
- Need an expert mentor with an e-commerce business background to help enhance our business and improve our idea.

Based on your knowledge and explorations, tell us the Machine Learning Part of your Capstone!

We will train a machine learning model to identify decorative plants from user-submitted images using CNN. We will create a labeled dataset using public datasets, crowdsourcing, or nursery partnerships. To improve the model's efficiency, we will preprocess images. After training the model using supervised learning with TensorFlow, we will evaluate its performance using various metrics and perform cross-validation.

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

We will create a prototype using figma as the application display design after that we will create an android application using kotlin and jetpack compose. We will also connect the app with the backend using retrofit to connect the api.

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

We will build the backend for the application using NodeJS with the Express library and use CloudSQL as the database service. We will also use Cloud Storage to store image data and only store the public URL in Cloud SQL. The deployment of the backend and machine learning models will use the Cloud Run service.

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

- Various types of plants with similar shapes, colors, and sizes can make it difficult to classify images. Therefore, there must be many image datasets for each type of plant so that the accuracy of image detection is increased.
- Blurry, under/over exposure, and unclear data from the user can affect predicted
- Our team may encounter technical challenges such as compatibility issues, data management, scalability, and security.

Project Plan for Bangkit 2023 Product-based Capstone

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

Our project has the potential to provide valuable data on the market for decorative plants, and could be expanded to include other features such as plant care tips and personalized recommendations.