Project Plan for Bangkit 2022 Product-based Capstone

Problem Statement:
People sometimes have limited knowledge when they want to assemble a computer because it is quite complicated to understand whether part X can be compatible with part Y. For example, we once met someone on the forum who bought some parts that were not compatible with others, namely he bought a processor with AMD brand but also bought motherboards that are only compatible with Intel. Aside from that, people often find difficulties when it comes to the budget. Some people certainly want maximum performance at the lowest possible price.

Research Question:

1. How can the app help users to effectively optimize their budget to build the desired PC?
2. What are the most effective ways to help users when it comes to compatibility for each part of the PC?
3. How to help users to determine the category (Gaming, Editing, etc) of the PC they currently build?

Team ID : C22-PS254

Active Team Member: Please adjust according to your team members

- **1. (ML) M2250F2202 – Calvin Marcellino Kianto – Universitas Ma Chung**
- **2. (ML) M2006F0573 – Saihan Nabawi – Universitas Brawijaya**
- **3. (ML) M2369F2921 – Maya – STMIK Amik Bandung**
- **4. (MD) A7006F0500 – M. Aldhika Yandaputra – Universitas Brawijaya**
- **5. (CC) CC2250F2204 – Yohanes Yuandri Lily – Universitas Ma Chung**
- **6. (CC) CC7250F2203 – Reza Ananda Prissyandi – Universitas Ma Chung**

Inactive Team Member: Please adjust according to your team members (if any)

- **-**

Final Selected Themes

- Tourism, Creative, and Digital Economy

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Title of the Project:
AIROBuild (Mobile Web App for PC Building)

Executive Summary/Abstract:

- There are people who **don't know how to build their own PC**, because of their lack of information and inefficient access to that information. People tend to search combinations of hardware and software through the internet, search every component one by one, and calculate the total cost to build their desired PC. But what if there is an app/software that can **formulate the best combination** of PC's components with much **less effort**.
- How can a web app **ease** and **shorten** the process of **PC's building**? AIROBuild is a project that focuses on helping people to **build their own PC efficiently**. AIROBuild will give the needed information to build the user's desired PC in a **short time** process with a **brief and personal input** such as; (**budget, how the user will use the PC, how long the user will use the PC, etc.**) and **accurate** recommendation for the output. (Project's Name) will use **machine learning** to train the **app/software** to give the best combinations with **various input** and **user personalization**. With an implementation of **cloud computing** for the **hosting** and **mobile development** to create the **interface of the app**.

How did your team come up with this project?

- As college students in an IT Based environment, the members of this project team have one or more similar **experiences of** having **inconvenience at building** and deciding the **PC** we need. We have to search the components **manually** from the internet, match the specification of the components, see the price, compare to others, and calculate the cost. But it's **consuming most of our time and energy**, when we can use it for other things. So, we decided to find a solution regarding this problem, with the skills we learnt from the Program.

Project Scope & Deliverables:

PURPOSE: This Project Scope Document will explain the boundaries and also the draft plan of how the team will tackle and do the project. The purpose of the project is to produce a basic webapp that focuses on giving information about PC's Building. The product itself won't cover some areas that are possible to be developed in the future

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such as transaction process or shipping are considered to be our optional target rather than our main target.

Project Name	**AIROBuild (Mobile Web App for PC Building)**
Project Objectives	**The Objective is to create a webapp that can give the best recommendation of PC's Components that is compatible and in accordance with the user's needs.**
Project Requirements	**The project will respect and commit to follow these requirements:** **1. The project will only take approx. 1 Month length** **2. The project will produce and give the deliverables written in this document** **3. The project will avoid to use cost/money for its development** **4. The project will be done according to the WBS that's been attached in this document**
Project Boundaries	**The project has some boundaries, such as:** **1. The product will focus on giving user recommendation, with less input** **2. The product won't give further web app features such as; transactions, shipment, account management, shop creation, etc. (Those features will be considered as possible webapp development, but only optional if the core features is successfully applied)** **3. The dataset that will be used for the development and web app creation is limited to those who were available as an open source in the internet.**

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Project Deliverables	**The project will produce these deliverables, such as:** **1. Code Documentation (On Github)** **2. Progress Report (Weekly) to track the process of web app creation** **3. Webapp Documentation and/or Demonstration**

Project Schedule:
GANTT CHART - Google Sheets

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

- Python Programming Language
- Tensorflow's Library
- Python's Library
- Jupyter Notebook
- PC Components Dataset
- Android Studio
- Kotlin Programming Language
- FIGMA
- Node.js
- Express Framework
- Google App Engine
- BigQuery
- Cloud Build API
- Cloud SDK
- Postman

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

- ML, CC, and MD Mentors
- More PC Components Dataset

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

- We will use JupyterNotebook to code our script for PC components recommendation. We plan to convert the model to TF.js and apply it on webapp.
- We train the machine so the program can update the recommendation feature based on most sales, most famous, and etc.

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

- We will use Figma to design the User Interface of the Apps.
- We will use native Kotlin and Android Studio to create the Android app.
- Using retrofit's library to handle all things related to data connection from Android to internet.

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

- The API will contain public function such as 'setCity' with parameter 'city' to set the User's preferred City, 'setRegion' with parameter 'region' to set user's preferred region (Kecamatan), 'pcPart.getList' to get all PC list like Processor or Motherboard, and pcPart.totalPages to configure how much amount of the page that user want to return in single call.
- We'll use the Google App Engine service to deploy our PCPartList API. For that we need to enable Cloud Build API, installing and initializing the Cloud SDK.
- Before deploying our API to Google App Engine and hoping for the best, we need to configure the requirements.txt file that will contain a list of Node.js packages for App Engine that need to be installed.

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

- Web limit requests that often make the servers down.
- The limitations of PC Components Dataset.
- Compatibility Problems with Certain Devices.

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

- None