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| Digital technology |
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Introduction

# 1. Problem

# 2. solutions

# 3. Pre-production

## 3.1 Development tool selection:

I have chosen “Plotly Dash” to develop my data visualisation project. “Plotly” is a Python library which offers multiple data visualisation models such as different plots, charts, and graphs. A library is a collection of pre-written code that makes coding quicker and more efficient, by reducing the amount of code a programmer needs to write.[[1]](#footnote-1) Plotly integrates Python’s leading data visualization and UI (user interface) libraries, making it suitable for a data visualization project.

“Dash” is the interface that Plotly’s data visualisation will be displayed. This is developed by Plotly developers to easily implement a web interface and create dashboards without having to learn JavaScript, HTML and other web technologies.[[2]](#footnote-2)

**Business viewpoint:** When combined, Plotly Dash is a platform that offers a high-potential tool to leverage Python in creating data visualisation dashboards. Plotly Dash’s structure is “low-code” because of its low requirement for manual coding, making it well-suited for a beginner to deploy and iterate a functional data application.[[3]](#footnote-3) This “low-code” structure allows flexible customization, quicker development, and scalability to handle growth of a start-up business. Plotly Dash allow users, through the “low-code” structure, to create data apps for their projects and businesses. Data app is the cross-over between web-apps and traditional dashboards, making it easier for decision-makers to understand their data in a corporate environment or for research purposes. This will bring value to end-user of my project. These apps are suited for non-technical users (those that are not data scientists or analysts) to make data-driven decisions, showing that it could resonate with most audience.

**Technical viewpoint:** Plotly Dash offers the “Dash Open Source Framework” that supports open-source libraries for Python’s leading data visualization and UI (user interface) libraries. Plotly for Python is a free and open-source software, which means the original code is available for anyone to redistribute and modify. Also, Plotly Dash is free to install and use. The commercial, more advanced version of Plotly Dash is Dash Enterprise.[[4]](#footnote-4) An opensource platform largely benefits an industry beginner because it offers opportunities for customization, learning, extend skills and knowledge. Any beginner can reference the open-source code and documentation to make their own app while learning new coding knowledge and practices, that sharpens their skills in the longer term. In contrast, commercial-based platforms such as Tableau, is not beneficial to industry beginners by limiting customization and research capabilities.

To develop my project, I will learn through the Plotly Dash Course from the Plotly YouTube Channel (<https://www.youtube.com/@Plotly>) published on March 2024, including 6 sessions that guide developers through development of their webapp and dashboard.

In the first session, I have discovered the main elements of a Plotly Dash code for a web-app.

Library

Dataset

App layout/component

Callback

The first element is the libraries, which are collection of pre-written code that developers can use to perform a specific task. For example, the “plotly.express” library offers most common charts and plots such as scatter plot, 1D/2D distributions.

The next component is the dataset, containing information.

**There are 5 elements of a plotly dash code which is:**

* Library
* Dataset
* App layout
* Components
* Callback

Project approach:

Technical

Business

The principle is that cache, save and cache data source in local storage to improve performance and follow zero-trust rinciple risk broken link or data unavailable.

<https://youtu.be/uhxiXOTKzfs>

This video shows me the step-by-step guide to create a data visualisation dashboard using Panel/Hvplot package - source code for Python. The first step is to identify the issue then look for datasets online (Github, Tableau,...) then I will choose the tools, in this video she chooses Panel. The process includes: set up system, ideate dashboard, and code the dashboard using some source code from Panel package.

<https://youtu.be/hSPmj7mK6ng>

1. Woke, G. (2023). The difference between libraries and Frameworks. Retrieved from <https://www.red-gate.com/simple-talk/development/other-development/the-difference-between-libraries-and-frameworks/#:~:text=A%20library%20is%20a%20collection,be%20called%20upon%20as%20needed>.

   [↑](#footnote-ref-1)
2. Jack022Jack022                  1, vlizanavlizana                      3, & ruslanivruslaniv                      53011 gold badge66 silver badges1717 bronze badges. (1964). What’s the difference between dash and plotly? Retrieved from <https://stackoverflow.com/questions/53146357/whats-the-difference-between-dash-and-plotly>

   [↑](#footnote-ref-2)
3. Plotly. (n.d.). What’s better: Low-code or no-code data app development? Retrieved from <https://plotly.com/blog/low-code-vs-no-code-data-app-development/> [↑](#footnote-ref-3)
4. Is Plotly for Python Free? (n.d.). Retrieved from <https://plotly.com/python/is-plotly-free/> [↑](#footnote-ref-4)