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SIT225: Data Capture Technologies

Video link: <https://deakin.au.panopto.com/Panopto/Pages/Viewer.aspx?id=ff5f3c8c-33ef-40cc-abd6-b1ff00c7a646>

Activity 6.1: Plotly data dashboard

Plotly Dash apps give a point-&-click interface to models written in Python, vastly expanding the notion of what's possible in a traditional "dashboard". With Dash apps, data scientists and engineers put complex Python analytics in the hands of business decision-makers and operators. In this activity, you will learn basic building blocks of Plotly to create Dash apps.

Hardware Required

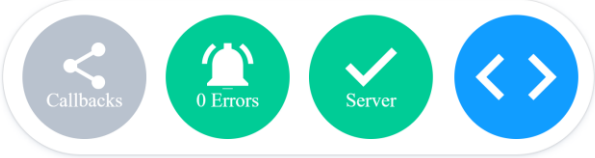
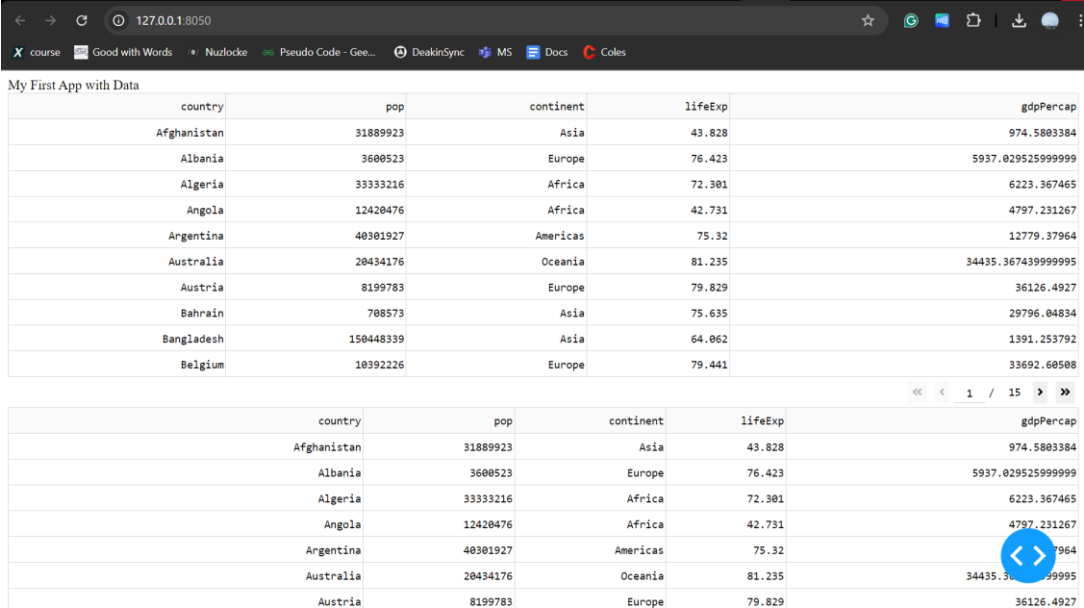
No hardware is required.

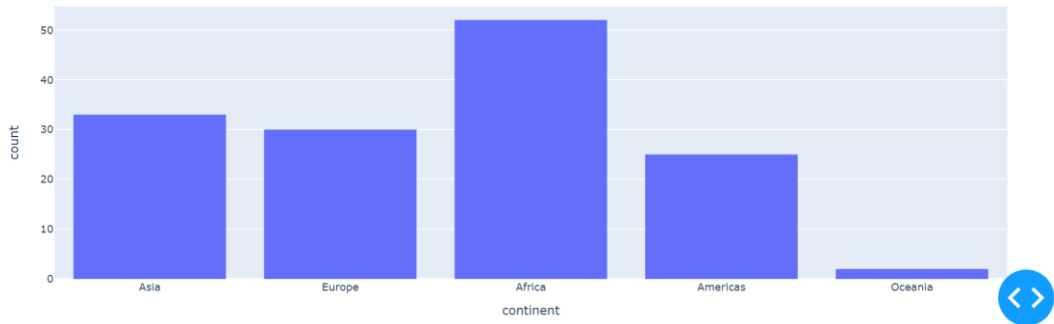
Software Required

Plotly library and Dash module
Python 3

Steps

Step	Action
1	<p>Install Plotly and dash using the command below in the command line.</p> <pre>\$ pip install plotly dash</pre> <p>You can download Jupyter Notebook from here (https://github.com/deakin-deep-dreamer/sit225/blob/main/week_6/plotly_explore.ipynb) and run all the cells. The Notebook contains multiple sections such as Hello World which follows a sample code in a following cell. If you run the Hello world cell it will show Plotly Dash web page. The cell also includes a Question (*** Question) which you will need to carry out to get a modified output. You will need to capture the output and share the screenshot in the following steps.</p>

2	<p>Question: Hello World cell has a question - add another html.Div to show your name, and re-run the cell for output. You will need to update the code, run the cell, capture the screenshot of the output and paste it here.</p> <p>Hello World Rammaka!</p>  <p>Answer:</p>
3	<p>Question: Connecting to Data cell has a question - change page size and observe the change in widget controls such as, total number of pages. You will need to update the code, run the cell, capture the screenshot of the output and paste it here.</p> <p>Answer:</p> 
4	<p>Question: Visualising data cell has a question - explore another histfunc other than 'avg' used above and observe behaviour. You will need to update the code, run the cell, capture the screenshot of the output and paste it here.</p>

	<p>Answer:</p>  <table border="1"> <thead> <tr> <th>Continent</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Asia</td> <td>33</td> </tr> <tr> <td>Europe</td> <td>30</td> </tr> <tr> <td>Africa</td> <td>52</td> </tr> <tr> <td>Americas</td> <td>25</td> </tr> <tr> <td>Oceania</td> <td>2</td> </tr> </tbody> </table>	Continent	Count	Asia	33	Europe	30	Africa	52	Americas	25	Oceania	2
Continent	Count												
Asia	33												
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5	<p>Question: Controls and Callbacks cell has a question - use line graphs instead of histogram. You will need to update the code, run the cell, capture the screenshot of the output and paste it here.</p> <p>Answer: <Your answer></p>												
6	<p>Question: Now you have learned how to use Plotly Dash for visualising your data, describe how you will be using this tool for your desired sensor monitoring dashboard with a number of sensors including DHT22 or accelerometer data.</p> <p>Answer:</p> <p>It can be used to monitor real-time data from sensors such as the DHT22 or accelerometer. By continuously receiving data from Firebase or other cloud platforms, I could display interactive graphs (like line charts) to visualize temperature, humidity, and acceleration data.</p> <p>For example:</p> <ul style="list-style-type: none"> • Use radio buttons or dropdowns to allow users to select which sensor data to view. • Display different graphs for each sensor reading (e.g., a line graph for temperature over time or a scatter plot for acceleration values). • Real-time updates and callbacks can be used to refresh the graphs as new data comes in. 												
7	<p>Question: Convert the Notebook to PDF and merge with this activity sheet PDF. You will need this merged PDF to combine with this week's OnTrack task for submission.</p>												

