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***Read Only file- Python project 1***

-Please note that some of the codes have been generated by ChatGPT, so I have taken help from the AI software.

-Codes have been run in Jupyter notebook using streamlit, pandas, MatPlotlib and plotly functions as libraries.

- For the dynamic plot 1, I have created a bar chart of total revenue over time, depecting the change in revenue from 2019 to 2020. I have used a play and pause button which would make the output interactive.

- For the creation of a bar plot I have used the code:

fig = px.bar(data, x='Product', y='Revenue', color='Product', animation\_frame='Date',

title='Total Revenue Over Time', labels={'Revenue': 'Total Revenue'})

-Here, a bar chart is created using Plotly Express. The 'Product' column is used on the x-axis, 'Revenue' on the y-axis, and the bars are colored by the 'Product' column. The animation is based on the 'Date' column, creating a time animation. The title and y-axis label are set, and the resulting figure is stored in the variable ‘fig’. Then type fig.show() to create the output.

-In the second plot, I have created a plotting function:

def plot\_financials(product\_index):

product = products[product\_index]

filtered\_data = data[data['Product'] == product]

plt.figure(figsize=(10, 6))

plt.plot(filtered\_data['Date'], filtered\_data['Revenue'], label='Revenue')

plt.plot(filtered\_data['Date'], filtered\_data['Profit'], label='Profit')

plt.title(f'Financial Analysis for {product}')

plt.xlabel('Date')

plt.ylabel('Amount')

plt.legend()

plt.show()

-This Defines a function **plot\_financials** that takes an index as input (via a slider widget) and creates a dynamic plot for the selected product. It extracts the data for the selected product and plots the 'Revenue' and 'Profit' over time using Matplotlib.

- After this I have created a slider widget for selecting the index of the product.

products = data['Product'].unique()

product\_slider = widgets.IntSlider(min=0, max=len(products)-1, step=1, value=0)

Here 0: Chocolate chip

1: Fortune Cookie

2: Oatmeal Raisin

3: Snickerdoodle

4: Sugar

5: White Chocolate Macadamia Nut

-For making the chart, I have used interact(plot\_financials, product\_index=product\_slider) function.

The **interact** function from ipywidgets to create an interactive plot. The **plot\_financials** function is called with the selected product index as an argument. The product index is controlled by the slider widget (**product\_slider**).

In summary, this code creates an interactive plot in a Jupyter Notebook where you can select a product using a slider, and the corresponding financial data (Revenue and Profit) for that product is dynamically plotted over time.