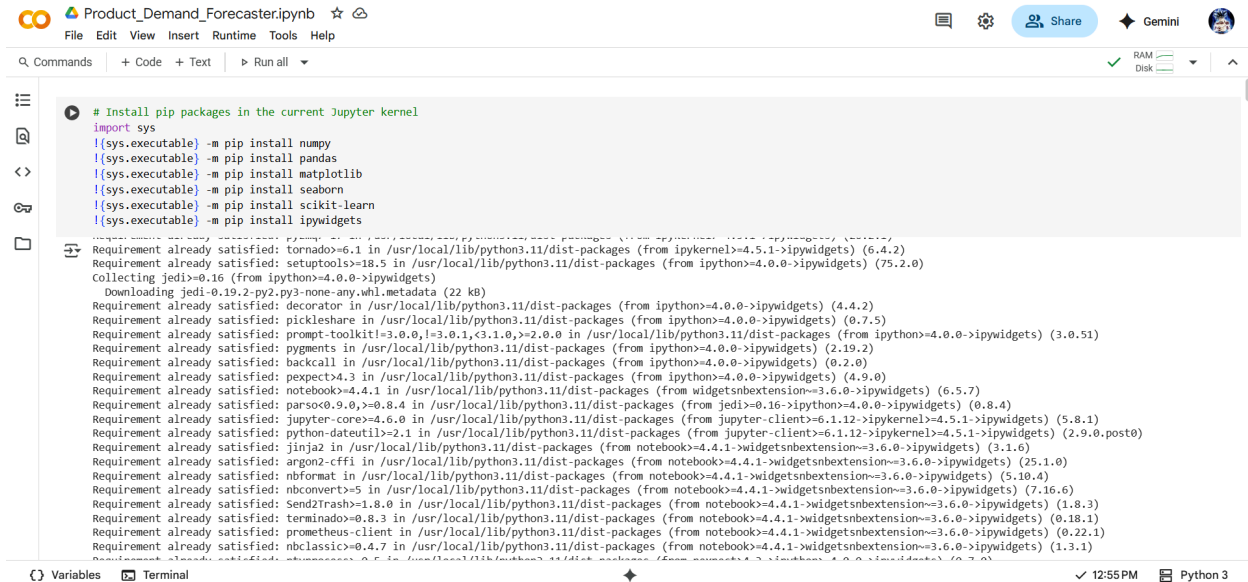


Steps to Run Project

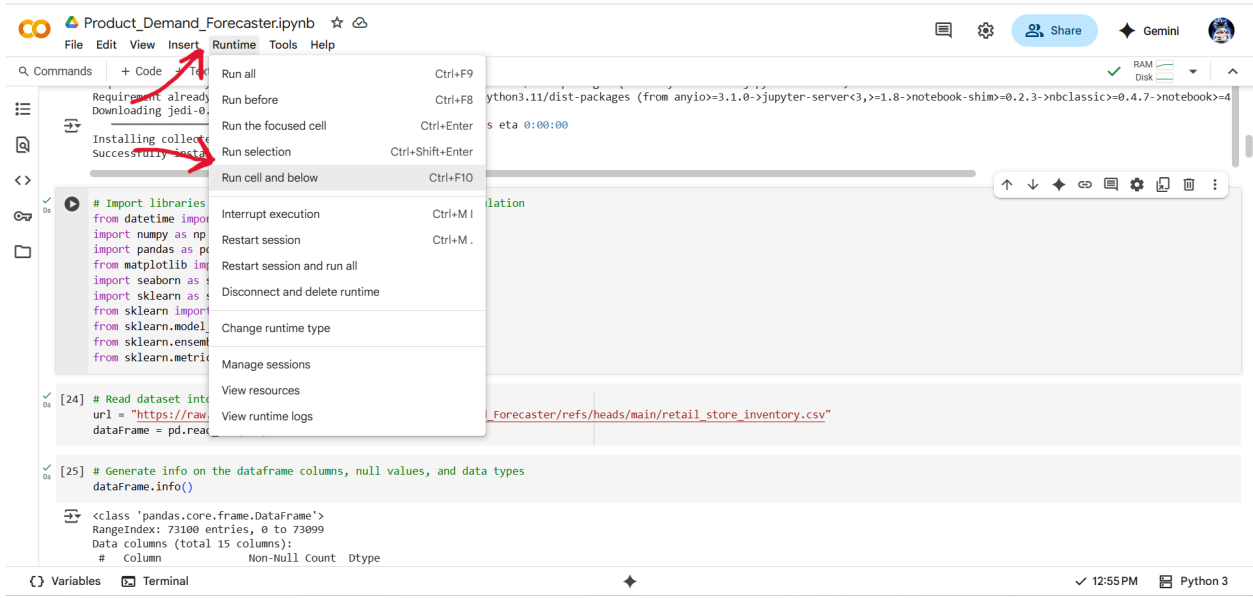
1. Open the Colab project via the link.



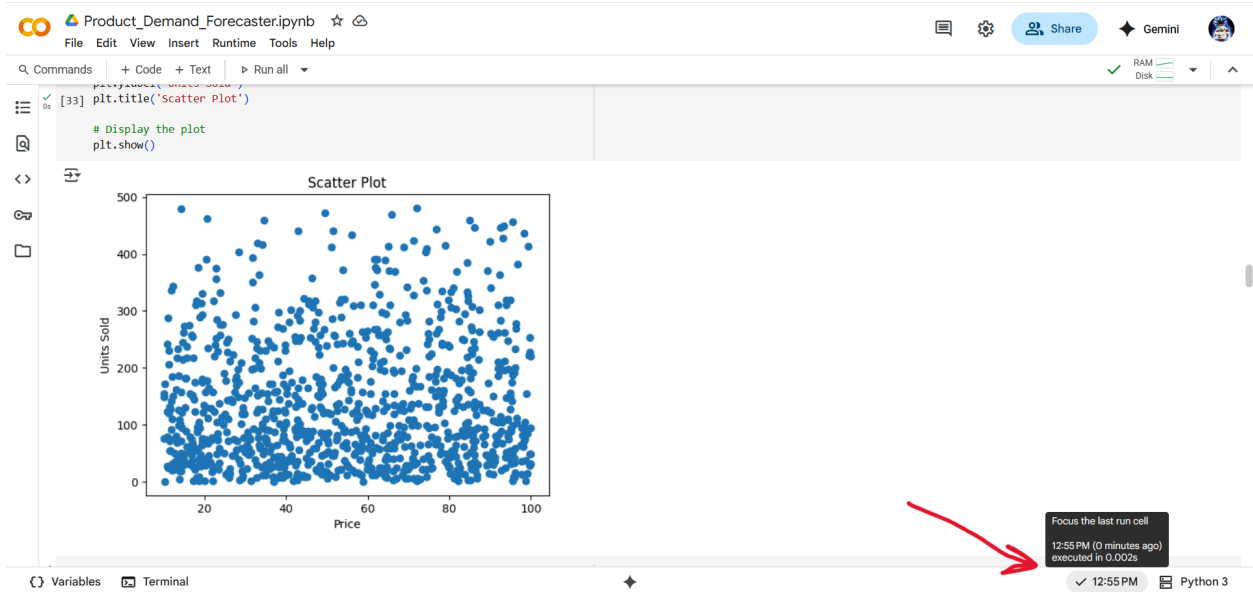
```
# Install pip packages in the current Jupyter kernel
import sys
!{sys.executable} -m pip install numpy
!{sys.executable} -m pip install pandas
!{sys.executable} -m pip install matplotlib
!{sys.executable} -m pip install seaborn
!{sys.executable} -m pip install scikit-learn
!{sys.executable} -m pip install ipywidgets

Requirement already satisfied: tornado==6.1 in /usr/local/lib/python3.11/dist-packages (from ipykernel==4.5.1->ipywidgets) (6.4.2)
Requirement already satisfied: setuptools==18.5 in /usr/local/lib/python3.11/dist-packages (from ipython==4.0.0->ipywidgets) (75.2.0)
Collecting jedi==0.16 (from ipython==4.0.0->ipywidgets)
  Downloading jedi-0.19.2-py2.py3-none-any.whl.metadata (22 kB)
Requirement already satisfied: decorator in /usr/local/lib/python3.11/dist-packages (from ipython==4.0.0->ipywidgets) (4.4.2)
Requirement already satisfied: pickleshare in /usr/local/lib/python3.11/dist-packages (from ipython==4.0.0->ipywidgets) (0.7.5)
Requirement already satisfied: prompt-toolkit==3.0.0,!=3.0.1,<3.1.0,>=2.0.0 in /usr/local/lib/python3.11/dist-packages (from ipython==4.0.0->ipywidgets) (3.0.51)
Requirement already satisfied: pygments in /usr/local/lib/python3.11/dist-packages (from ipython==4.0.0->ipywidgets) (2.19.2)
Requirement already satisfied: backcall in /usr/local/lib/python3.11/dist-packages (from ipython==4.0.0->ipywidgets) (0.2.0)
Requirement already satisfied: pexpect==4.3 in /usr/local/lib/python3.11/dist-packages (from ipython==4.0.0->ipywidgets) (4.9.0)
Requirement already satisfied: notebook==4.4.1 in /usr/local/lib/python3.11/dist-packages (from widgetsnbextension==3.6.0->ipywidgets) (6.5.7)
Requirement already satisfied: parso==0.9.0,>=0.8.4 in /usr/local/lib/python3.11/dist-packages (from jedi==0.16->ipython==4.0.0->ipywidgets) (0.8.4)
Requirement already satisfied: jupyter-core==4.6.0 in /usr/local/lib/python3.11/dist-packages (from jupyter-client==6.1.12->ipykernel==4.5.1->ipywidgets) (5.8.1)
Requirement already satisfied: python-dateutil==2.1 in /usr/local/lib/python3.11/dist-packages (from jupyter-client==6.1.12->ipykernel==4.5.1->ipywidgets) (2.9.0.post0)
Requirement already satisfied: Jinja2 in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (3.1.6)
Requirement already satisfied: argon2-cffi in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (25.1.0)
Requirement already satisfied: nbformat in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (5.10.4)
Requirement already satisfied: nbconvert==5 in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (7.16.6)
Requirement already satisfied: Send2Trash==1.8.0 in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (1.8.3)
Requirement already satisfied: terminado==0.8.3 in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (0.18.1)
Requirement already satisfied: prometheus-client in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (0.22.1)
Requirement already satisfied: nbclassic==0.4.7 in /usr/local/lib/python3.11/dist-packages (from notebook==4.4.1->widgetsnbextension==3.6.0->ipywidgets) (1.3.1)
```

2. Scroll to the second code cell, click on the cell, click on “Runtime” and “Run cell and below”.



3. Scroll down to analyze the dataset and view data visualizations. Once the checkmark appears at the bottom right, the program has finished execution.



4. Scroll to the bottom. Click “Forecast” to forecast the product demand with the sample data provided.

Product_Demand_Forecaster.ipynb

File Edit View Insert Runtime Tools Help

Q Commands + Code + Text ▶ Run all

```
discount = [int(discount_widget.value)],
"Holiday/Promotion": [int(holidayPromotion_widget.value)],
"Competitor Pricing": [float(compPricing_widget.value))]

# Create DataFrame from dictionary of data
df = pd.DataFrame(data)
forecast = rf_model.predict(df)
with output:
    output.clear_output()
    print("Forecast = " + str(int(forecast[0])) + " Units Sold")

forecast_button.on_click(on_click_forecast)
```

Enter inventory details to create a forecast

Inventory Level (Integer)	42
Units Ordered (Integer)	24
Price (Float)	19.99
Discount (Integer Percentage)	0
Holiday/Promotion (0 or 1)	0
Competitor Pricing (Float)	20.99

Enter values and press the "Forecast" button.

Forecast

Forecast = 13 Units Sold

[44] Start coding or generate with AI.

Variables Terminal 12:55 PM Python 3

5. Adjust the sample data as desired to create a new forecast. Click "Forecast" to forecast the demand with the new data.

Product_Demand_Forecaster.ipynb

File Edit View Insert Runtime Tools Help

Q Commands + Code + Text ▶ Run all

```
discount = [int(discount_widget.value)],
"Holiday/Promotion": [int(holidayPromotion_widget.value)],
"Competitor Pricing": [float(compPricing_widget.value))]

# Create DataFrame from dictionary of data
df = pd.DataFrame(data)
forecast = rf_model.predict(df)
with output:
    output.clear_output()
    print("Forecast = " + str(int(forecast[0])) + " Units Sold")

forecast_button.on_click(on_click_forecast)
```

Enter inventory details to create a forecast

Inventory Level (Integer)	42
Units Ordered (Integer)	24
Price (Float)	19.99
Discount (Integer Percentage)	0
Holiday/Promotion (0 or 1)	0
Competitor Pricing (Float)	22.99

Enter values and press the "Forecast" button.

Forecast

Forecast = 16 Units Sold

[44] Start coding or generate with AI.

Variables Terminal 12:55 PM Python 3