PD LAB
ASSIGNMENT - 1

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Branch: Computer Engineering
Batch: 3

Aim:-

To Handle Different Versions of Python and their Virtual Environments

Theory:-

To install Python on a Linux Operating System we have to:

1. Update Package Lists:
   First we have to update package lists to ensure we are getting the latest version of Python available. We do this with the command:
   ```
   sudo apt update
   ```

2. Install Python:
   To Install Python on Linux we use the command given below next:
   ```
   sudo apt install python3
   ```

3. Verify the Installation:
   To verify that Python is installed, we use the command:
   ```
   python3 --version
   ```

To install multiple versions of python on the same device we can use the same commands but instead of typing:

sudo apt install 3.* where * is a number such as 9 or 12 where 3.9 or 3.12 is a version of python.

Now to use python we need to create a virtual environment of the correct python version which can be done using VSCode:

1. Open VSCode
2. Click View and then Command Palette
3. Then type in Python and select Create Environment
4. Then click Venv

5. Then Click Delete and Recreate
6. Then we select the version of python we want to create the virtual environment for
7. This should install the virtual environment file

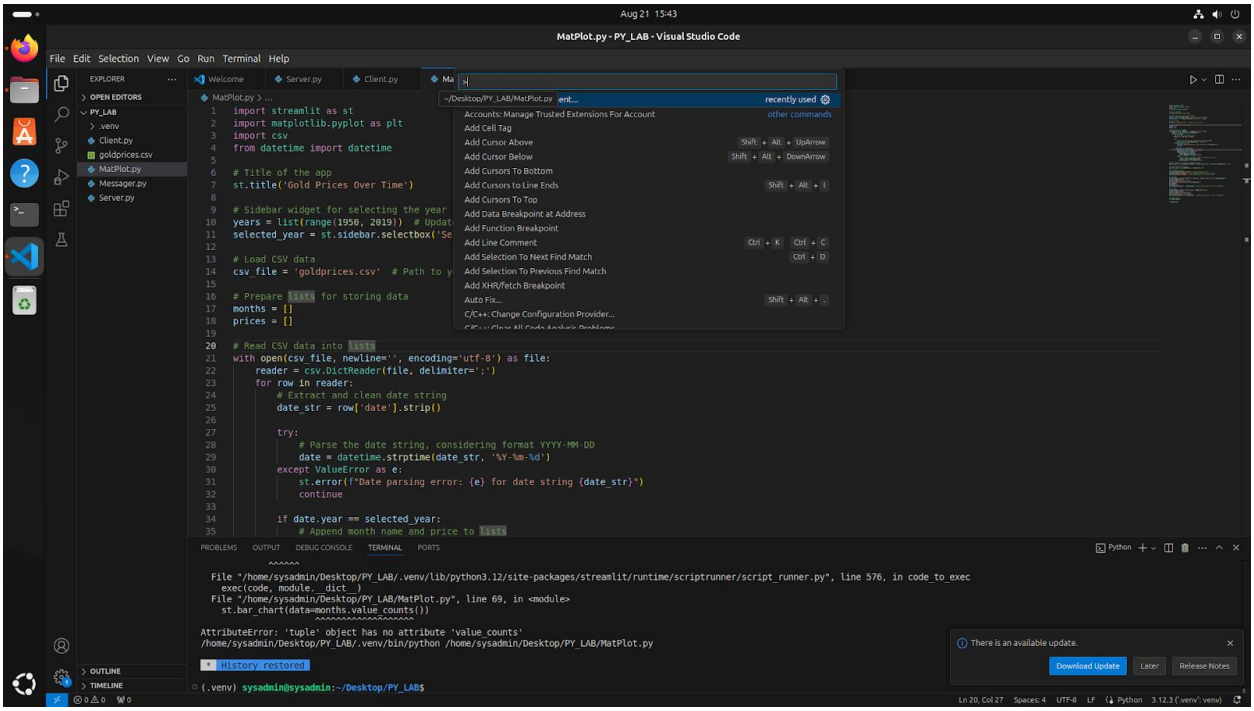
Code and Output:

```
for i in range(1,11):
    for j in range(1,11):
        print(f"{i*j:<3}", end="")
    print()
```

```
1  2  3  4  5  6  7  8  9  10
2  4  6  8  10 12 14 16 18 20
3  6  9  12 15 18 21 24 27 30
4  8  12 16 20 24 28 32 36 40
5  10 15 20 25 30 35 40 45 50
6  12 18 24 30 36 42 48 54 60
7  14 21 28 35 42 49 56 63 70
8  16 24 32 40 48 56 64 72 80
9  18 27 36 45 54 63 72 81 90
10 20 30 40 50 60 70 80 90 100
```

Installation of Python and Virtual Environment:

```
sysadmin@sysadmin:~$ sudo apt install python3.9
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
python3.9 is already the newest version (3.9.19-1+noble2).
0 upgraded, 0 newly installed, 0 to remove and 31 not upgraded.
```


Aug 21 15:43
MatPlot.py - PY_LAB - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
OPEN EDITORS
PY_LAB
.venv
Client.py
goldprices.csv
MatPlot.py
Messager.py
Server.py
Welcome
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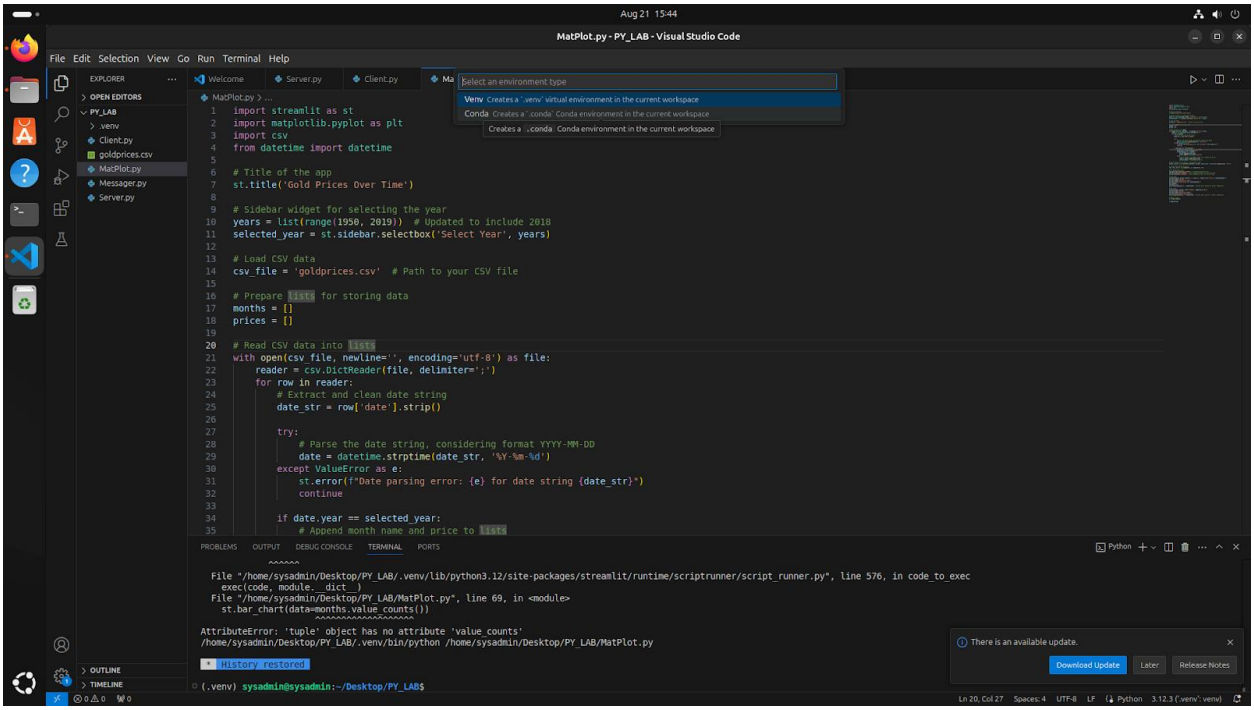
MatPlot.py > ...
recently used
other commands
Accounts: Manage Trusted Extensions For Account
Add Cell Tag
Add Cursor Above
Add Cursor Below
Add Cursors To Bottom
Add Cursors to Line Ends
Add Cursors To Top
Add Data Breakpoint at Address
Add Function Breakpoint
Add Line Comment
Add Selection To Next Find Match
Add Selection To Previous Find Match
Add XHR/fetch Breakpoint
Auto Fix...
C/C++: Change Configuration Provider...
import streamlit as st
import matplotlib.pyplot as plt
import csv
from datetime import datetime
# Title of the app
st.title('Gold Prices Over Time')
# Sidebar widget for selecting the year
years = list(range(1950, 2019))
selected_year = st.sidebar.selectbox('Se
# Load CSV data
csv_file = 'goldprices.csv'
# Prepare lists for storing data
months = []
prices = []
# Read CSV data into lists
with open(csv_file, newline='', encoding='utf-8') as file:
reader = csv.DictReader(file, delimiter=';')
for row in reader:
# Extract and clean date string
date_str = row['date'].strip()
try:
# Parse the date string, considering format YYYY-MM-DD
date = datetime.strptime(date_str, '%Y-%m-%d')
except ValueError as e:
st.error(f"Date parsing error: {e} for date string {date_str}")
continue
if date.year == selected_year:
# Append month name and price to lists
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
^^^^^
File "/home/sysadmin/Desktop/PY_LAB/.venv/lib/python3.12/site-packages/streamlit/runtime/scriptrunner/script_runner.py", line 576, in code_to_exec
exec(code, module.__dict__)
File "/home/sysadmin/Desktop/PY_LAB/MatPlot.py", line 69, in <module>
st.bar_chart(data=months.value_counts())
^^^^^^^^^^^^^^^^^^^^^^^^
AttributeError: 'tuple' object has no attribute 'value_counts'
/home/sysadmin/Desktop/PY_LAB/.venv/bin/python /home/sysadmin/Desktop/PY_LAB/MatPlot.py
There is an available update.
Download Update
Later
Release Notes
History restored
(.venv) sysadmin@sysadmin:~/Desktop/PY_LAB$
OUTLINE
TIMELINE
Ln 20, Col 27 Spaces: 4 UTF-8 LF Python 3.12.3 ('.venv': venv)


Aug 21 15:44
MatPlot.py - PY_LAB - Visual Studio Code
File Edit Selection View Go Run Terminal Help
Select an environment type
Venv Creates a '.venv' virtual environment in the current workspace
Conda Creates a '.conda' Conda environment in the current workspace
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selected_year = st.sidebar.selectbox('Select Year', years)
# Load CSV data
csv_file = 'goldprices.csv' # Path to your CSV file
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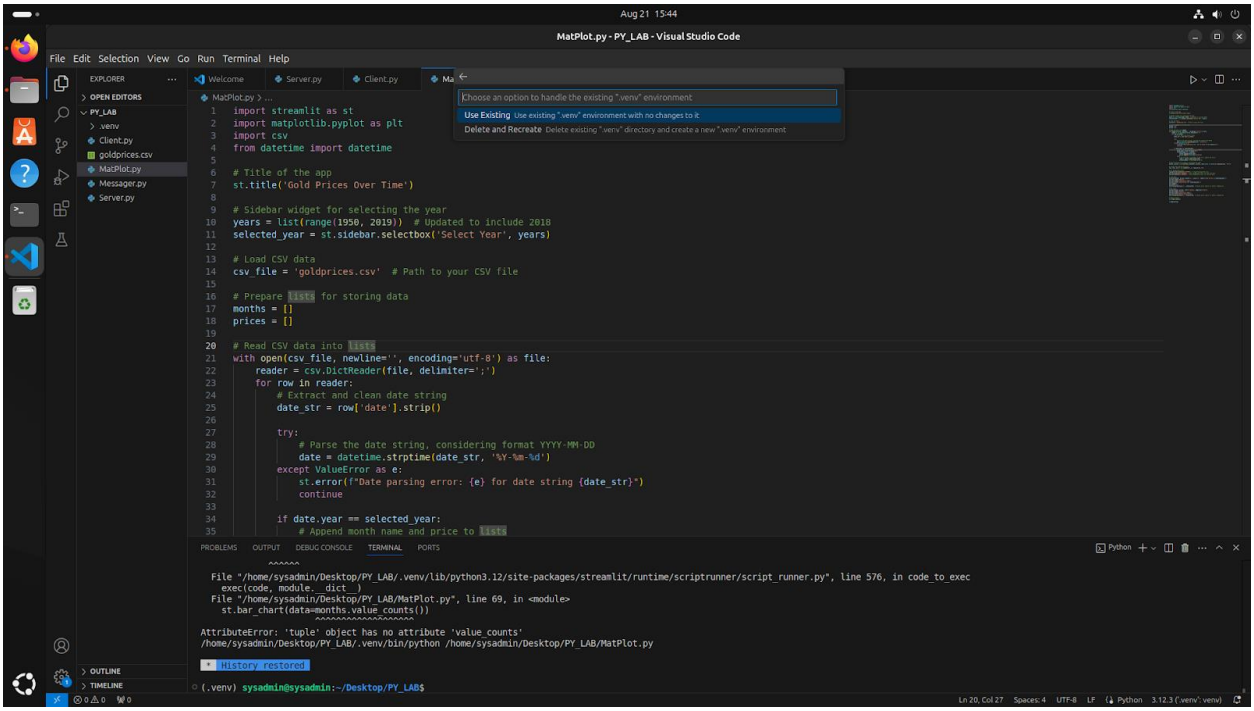
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MatPlot.py - PY_LAB - Visual Studio Code
File Edit Selection View Go Run Terminal Help
Choose an option to handle the existing ".venv" environment
Use Existing Use existing ".venv" environment with no changes to it
Delete and Recreate Delete existing ".venv" directory and create a new ".venv" environment
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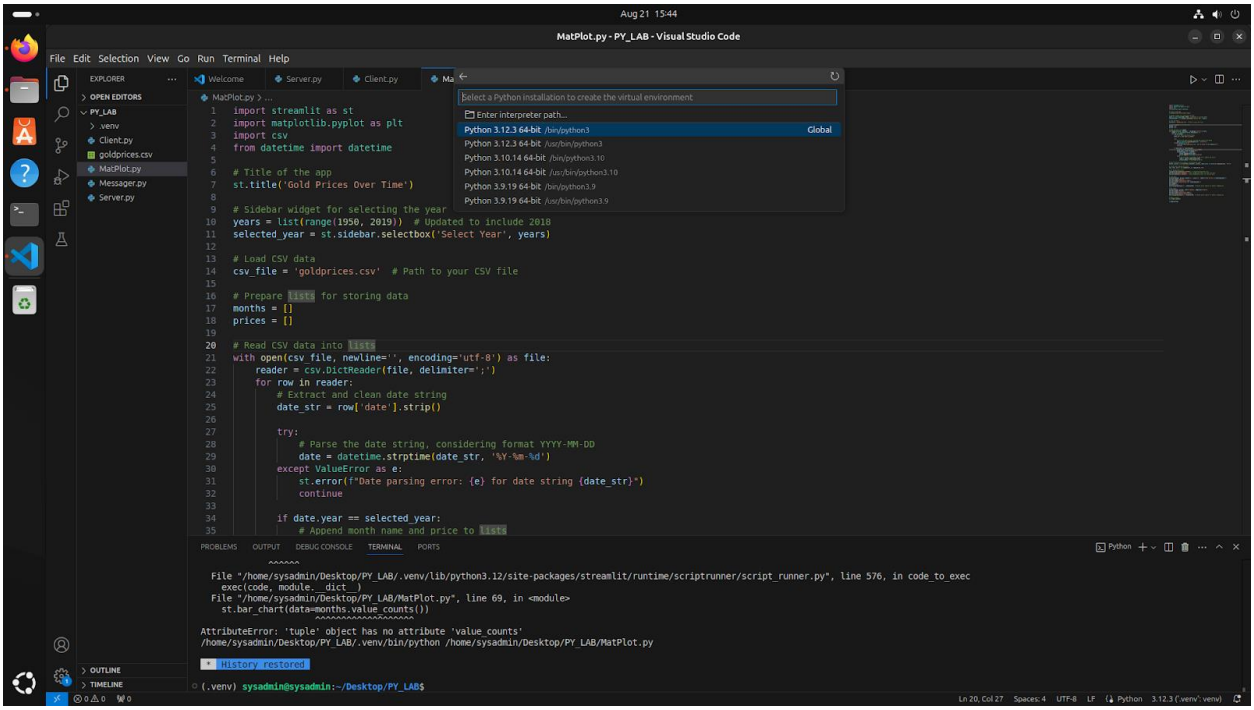
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Select a Python installation to create the virtual environment
Enter interpreter path...
Python 3.12.3 64-bit /bin/python3 Global
Python 3.12.3 64-bit /usr/bin/python3
Python 3.10.14 64-bit /bin/python3.10
Python 3.10.14 64-bit /usr/bin/python3.10
Python 3.9.19 64-bit /bin/python3.9
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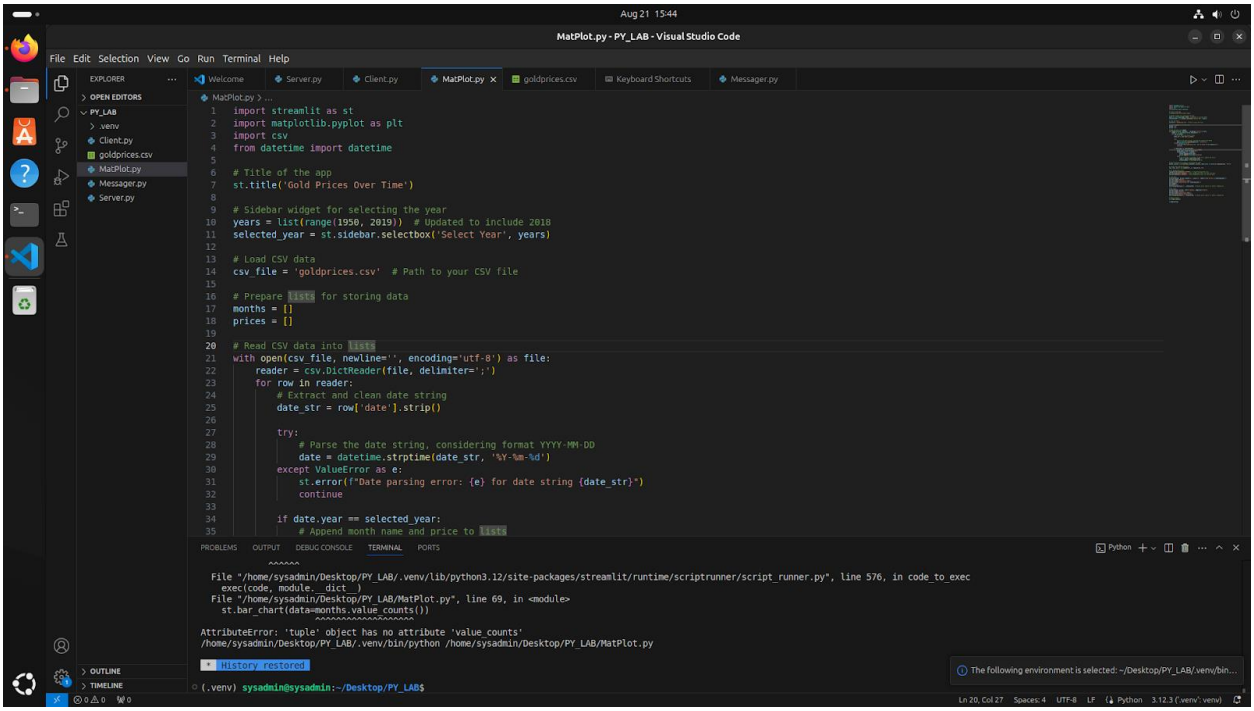
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Keyboard Shortcuts
Messager.py
MatPlot.py > ...
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History restored
The following environment is selected: ~/Desktop/PY_LAB/.venv/bin...
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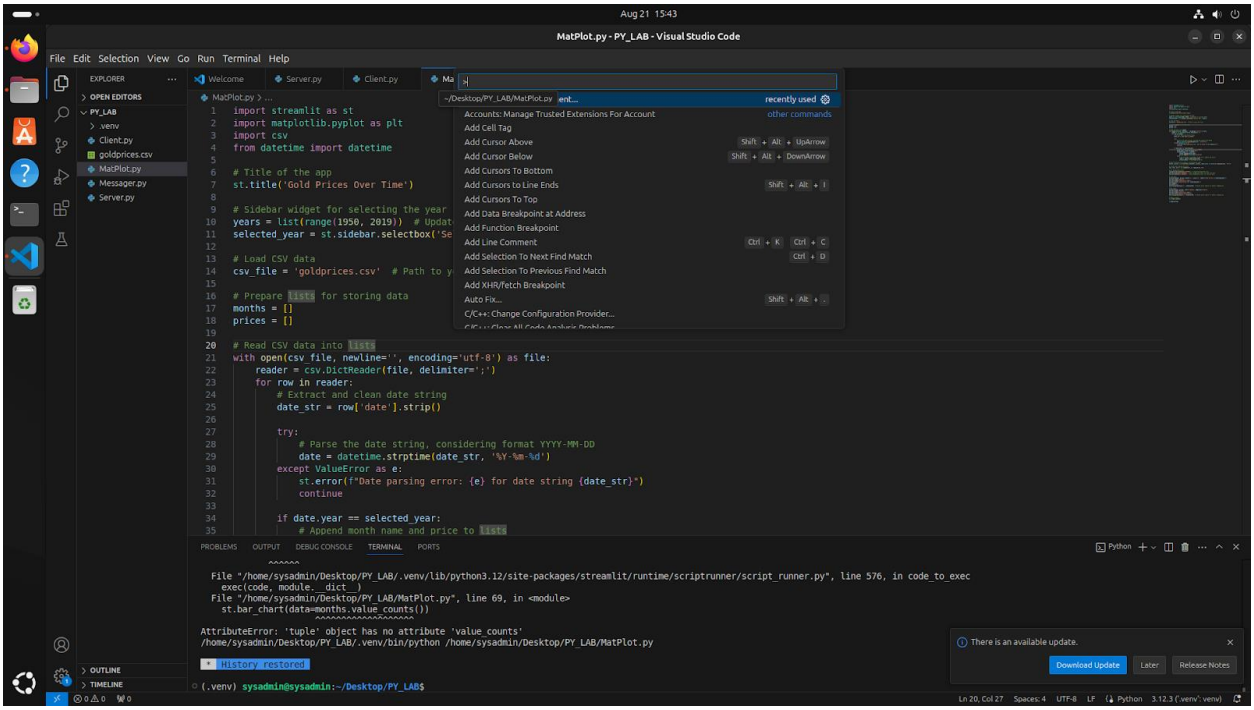
OUTLINE
TIMELINE
Ln 20, Col 27 Spaces: 4 UTF-8 LF Python 3.12.3 ('.venv': venv)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other commands
Accounts: Manage Trusted Extensions For Account
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Add Selection To Next Find Match
Add Selection To Previous Find Match
Add XHR/fetch Breakpoint
Auto Fix...
C/C++: Change Configuration Provider...
There is an available update.
Download Update
Later
Release Notes
(.venv) sysadmin@sysadmin:~/Desktop/PY_LAB$

Conclusion:

Thus we have written a program to write multiplication tables of 1 to 10 and we have also learnt how to install python on linux terminal and then we also learnt how to create a virtual environment for that version of python using VSCode.