EXPT.NO: 1	SETTING UP THE PYTHON ENVIRONMENT AND JUPYTER NOTEBOOK
DATE: 16/072025	

AIM:

To set up a Python environment using Jupyter Notebook and demonstrate code execution, Markdown formatting, and the use of Jupyter Widgets and Jupyter AI.

PROBLEM STATEMENT:

Create a Jupyter Notebook that showcases Python code execution, Markdown documentation, interactive widgets, and AI-assisted features.

ALGORITHM:

1. Install **Jupyter** Notebook using pip install notebook.
2. Launch Jupyter using **jupyter notebook.**
3. Create a new **Python 3** notebook.
4. Add and execute Python code cells.
5. Add Markdown cells for headings, lists, and descriptions.
6. Install and use **ipywidgets** for interactivity.
7. Explore **Jupyter AI**

IPYTHON WIDGETS

It is a Python library that lets you create interactive user interface controls in Jupyter Notebooks, JupyterLab, and JupyterLite.

These controls include:

- Sliders
- Dropdowns
- Buttons
- Text boxes

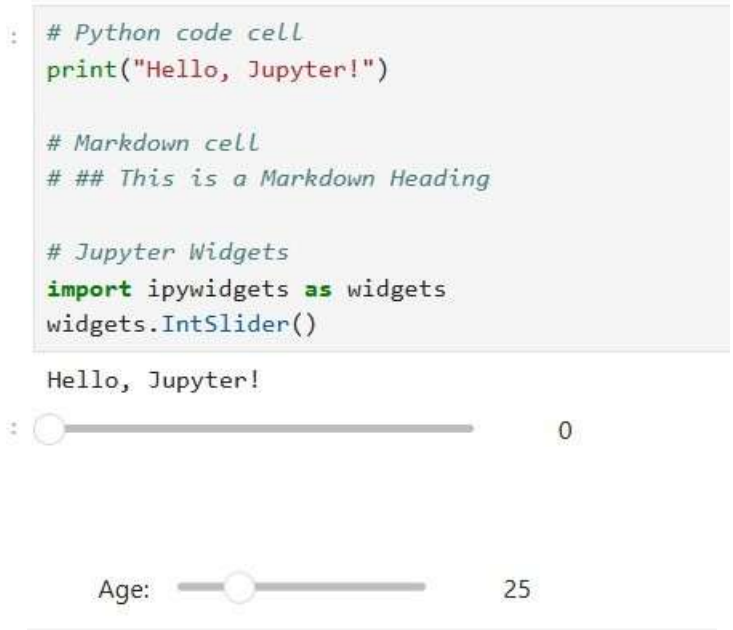
- Date pickers
- File uploads
- Tabs & Layout Containers

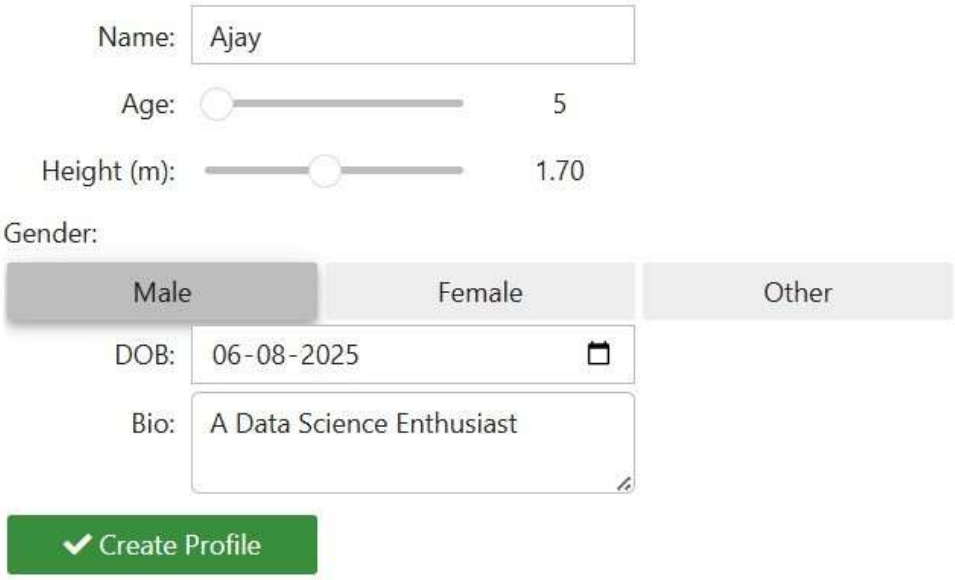
CODE:

```
jupyter --version
pip install ipywidgets
pip install jupyterlab-widgets # Step 1: Basic Python code print("Hello,
  Jupyter!")
# Step 2: Markdown cell (add this in a Markdown cell, not code) # ## Welcome
  to Jupyter Notebook
# This is a Markdown cell. You can write **bold**, *italic*, or `code`. # Step
  3: Jupyter Widgets
import ipywidgets as widgets widgets.IntSlider(description='Slider:', min=0,
  max=100, step=5) Output:


# Jupyter Widgets
import ipywidgets as widgets
from IPython.display import display # Create an IntSlider widget for age age =
  widgets.IntSlider(
description="Age:", min=0,
max=100,

value=25
)
# Display the slider display(age) Output:

Code:
import ipywidgets as widgets
from IPython.display import display, clear_output # Personal Info Widgets
name = widgets.Text( description="Name:", placeholder="Enter your name"
)
age = widgets.IntSlider( description="Age:", min=0, max=100, value=25
)
gender = widgets.ToggleButtons( options=['Male', 'Female', 'Other'],
  description='Gender:'
)
birthdate = widgets.DatePicker( description='DOB:'
)
height = widgets.FloatSlider( description="Height (m):",
min=1.0, max=2.5, step=0.01, value=1.70
)
```

```
bio = widgets.Textarea( description="Bio:",

placeholder="Write something about yourself"
)
# Output display
profile_output = widgets.Output() # Submit button
submit_btn = widgets.Button( description="Create Profile",
   button_style='success', icon='check'
)
# Event handler def on_submit(b):
with profile_output: clear_output()
print(“ Profile Summary \n") print(f"Name: {name.value}") print(f"Age:
   {age.value}") print(f"Height: {height.value} m") print(f"Gender:
   {gender.value}") print(f"Date of Birth: {birthdate.value}") print(f"Bio:
   {bio.value}")
submit_btn.on_click(on_submit) # Layout (No Tabs)
form = widgets.VBox([ name,
age, height,

gender, birthdate, bio, submit_btn,
profile_output
])


# Display the form display(form)
```

OUTPUT:





RESULT :

Thus, the program successfully created a **Jupyter Notebook** showcasing Python code execution, Markdown formatting, and the use of **interactive widgets**.