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# Worksheet 5(c)

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**Subject Name:** Python Programming Lab **Subject Code:** 24CAH-606

**AIM:**

Write a Python program to plot the function y = x2 using the matplotlib libraries.

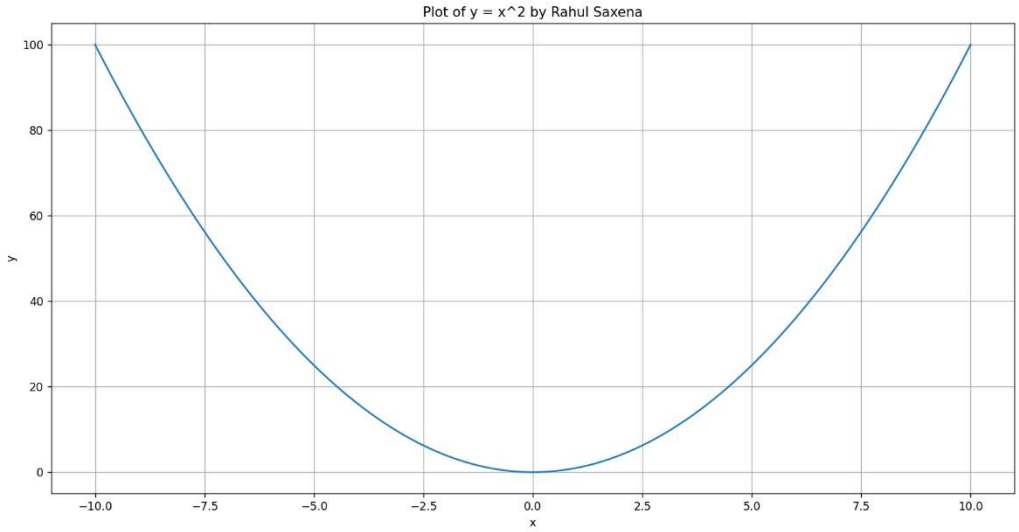
**Task To be Done:**

- **Install Required Libraries:** Install matplotlib and numpy using pip.
- **Define Function and Range:** Define the range of x values and compute the corresponding y values for the function y=x2y = x^2y=x2.
- **Plot the Function**: Use matplotlib to plot the function y=x2y = x^2y=x2.
- **Label the Graph:** Add labels to the X and Y axes, and a title to describe the plot.
- **Display the Graph:** Use plt.show() to visualize the graph with grid lines for clarity.

**Source Code:**

```
import matplotlib.pyplot as plt
import numpy as np

x = np.linspace(-10, 10, 400)

y = x ** 2

plt.plot(x, y)

plt.title("Plot of y = x^2")
plt.xlabel("x")
plt.ylabel("y")

plt.grid(True)
plt.show()
```

## Output:




## Learning Outcome:

- **Understanding Function Plotting:** Learn how to plot mathematical functions in Python using matplotlib.
- **Working with Mathematical Functions:** Gain practical experience in defining and plotting functions such as y=x2y = x^2y=x2.
- **Improving Data Visualization Skills:** Develop skills in labelling and styling plots to make them more informative and visually appealing.
- **Utilizing NumPy for Data Range:** Learn how to generate data points for plotting using numpy for a smooth and accurate graph**.**
- **Grid and Legend Customization:** Understand how to add grids and legends to enhance the readability of graphs.