

## Experiment -17

```
# Dataset: [RAM (GB), Storage (GB), Camera (MP)], Price
X = [
    [4, 64, 12],
    [6, 128, 48],
    [8, 256, 64],
    [3, 32, 8],
    [12, 256, 108]
]
Y = [15000, 25000, 35000, 12000, 60000]

# Initialize weights and bias
w1, w2, w3, b = 0.1, 0.1, 0.1, 0
lr = 0.00001

# Training using Gradient Descent
for _ in range(10000):
    for x, y in zip(X, Y):
        pred = w1*x[0] + w2*x[1] + w3*x[2] + b
        error = y - pred
        w1 += lr * error * x[0]
        w2 += lr * error * x[1]
        w3 += lr * error * x[2]
        b += lr * error

# Prediction function
def predict(ram, storage, camera):
    return w1*ram + w2*storage + w3*camera + b

# Test the model
ram = 6
storage = 128
camera = 48

price = predict(ram, storage, camera)

print("Mobile Specs:")
print("RAM:", ram, "GB")
print("Storage:", storage, "GB")
print("Camera:", camera, "MP")
print("Predicted Price:", round(price, 2))
```

## Output:

The screenshot shows a Jupyter Notebook interface with the following details:

- Code Cell:** The code cell contains Python code named `main.py`. It defines a list `X` with three elements: `[4, 64, 12]`, `[6, 128, 48]`, and `[8, 256, 64]`. It also defines a list `Y` with five elements: `[15000, 25000, 35000, 12000, 60000]`. The code initializes weights `w1, w2, w3` and bias `b` to 0.1, 0.1, 0.1, and 0 respectively, and sets learning rate `lr` to 0.00001. A loop iterates 10000 times, updating predictions, errors, and weights using the formula  $\text{pred} = w1*x[0] + w2*x[1] + w3*x[2] + b$ .  
A `predict` function is defined to calculate the total price based on RAM, storage, and camera values.  
Finally, it prints "Mobile Specs:" followed by RAM, Storage, and Camera values, and calculates and prints the Predicted Price.
- Output Cell:** The output cell displays the results of the execution:
  - Mobile Specs:
  - RAM: 6 GB
  - Storage: 128 GB
  - Camera: 48 MP
  - Predicted Price: 28076.26

==== Code Execution Successful ===
- Activation Message:** A message at the bottom right corner says "Activate Windows Go to Settings to activate Windows."