```python
data = [
    [2015, 50000, 1.2, 7000],
    [2017, 30000, 1.5, 12000],
    [2012, 80000, 1.4, 5000],
    [2019, 20000, 2.0, 18000],
    [2016, 60000, 1.6, 9000]
]
X = [row[:3] for row in data]
y = [row[3] for row in data]
X_intercept = [[1]+row for row in X]
def transpose(M):
    return [[M[j][i] for j in range(len(M))] for i in range(len(M[0]))]


def mat_mult(A,B):
    result = [[sum(A[i][k]*B[k][j] for k in range(len(B))) for j in range(len(B[0]))] for i in range(len(A))]
    return result


def inverse_2x2(M):
    det = M[0][0]*M[1][1] - M[0][1]*M[1][0]
    return [[M[1][1]/det, -M[0][1]/det], [-M[1][0]/det, M[0][0]/det]]
X_simple = [[1, row[0]] for row in data]
y_vector = [[val] for val in y]


X_T = transpose(X_simple)
X_T_X = mat_mult(X_T, X_simple)
X_T_X_inv = inverse_2x2(X_T_X)
theta = mat_mult(X_T_X_inv, mat_mult(X_T, y_vector))


print("Model parameters (Intercept, Coefficient):", theta)
def predict(year):
    return theta[0][0] + theta[1][0]*year
```
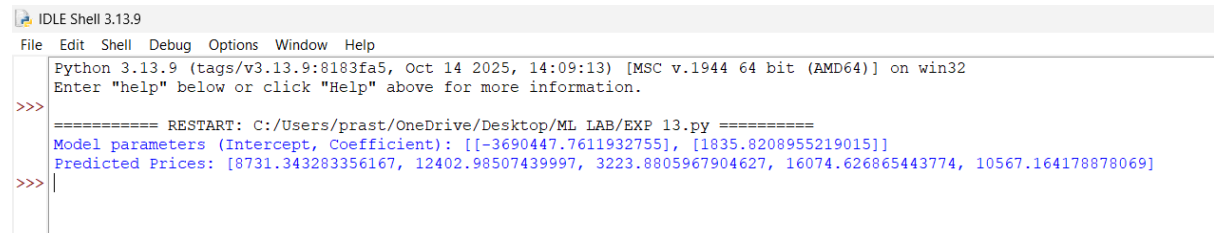
predictions = [predict(row[0]) for row in data]

print("Predicted Prices:", predictions)

OUTPUT:

```
IDLE Shell 3.13.9
File  Edit  Shell  Debug  Options  Window  Help
    Python 3.13.9 (tags/v3.13.9:8183fa5, Oct 14 2025, 14:09:13) [MSC v.1944 64 bit (AMD64)] on win32
    Enter "help" below or click "Help" above for more information.
>>>
    =========== RESTART: C:/Users/prast/OneDrive/Desktop/ML LAB/EXP 13.py ==========
    Model parameters (Intercept, Coefficient): [[-3690447.7611932755], [1835.8208955219015]]
    Predicted Prices: [8731.343283356167, 12402.98507439997, 3223.8805967904627, 16074.626865443774, 10567.164178878069]
>>>
```