

# MATRIX MULTIPLICATION

## Program with output:

The image shows a Windows desktop environment with two open windows. On the left is a code editor window titled "matrix multiplication.py - C:/Users/2BSCCSB31/matrix multiplication.py (3.14.0)". It contains Python code for matrix multiplication. On the right is an "IDLE Shell 3.14.0" window, which is a Python terminal. The terminal shows the execution of the program, starting with the command "python matrix multiplication.py". It prompts for the dimensions of matrix A (rows and columns) and matrix B (rows and columns). It then prints the elements of matrix A and matrix B. Finally, it asks for the number of rows of matrix B, which is required for the multiplication to proceed.

```
p = int(input("Enter number of rows of matrix A: "))
q = int(input("Enter number of columns of matrix A: "))

A = []
print("Enter elements of matrix A:")
for i in range(p):
    row = []
    for j in range(q):
        row.append(int(input(f"A[{i}][{j}]: ")))
    A.append(row)

t = int(input("\nEnter number of rows of matrix B: "))
r = int(input("Enter number of columns of matrix B: "))

B = []
print("Enter elements of matrix B:")
for i in range(t):
    row = []
    for j in range(r):
        row.append(int(input(f"B[{i}][{j}]: ")))
    B.append(row)

if q != t:
    print("\nError! Matrix sizes are not compatible for multiplication.")
    quit()

C = []
for i in range(p):
    row = []
    for j in range(r):
        row.append(0)
    C.append(row)

for i in range(p):
    for j in range(r):
        for k in range(q):
            C[i][j] += A[i][k] * B[k][j]
print("\nResultant Matrix:")
for row in C:
    print(row)
```

```
"IDLE Shell 3.14.0"
File Edit Shell Debug Options Window Help
Python 3.14.0 (tags/v3.14.0:ebf955d, Oct 7 2025, 10:15:03) [MSC v.1944 64 bit (AMD 64)] on win32
Enter "help" below or click "Help" above for more information.

>>> ===== RESTART: C:/Users/2BSCCSB31/matrix multiplication.py =====
Enter number of rows of matrix A: 2
Enter number of columns of matrix A: 2
Enter elements of matrix A:
A[0][0]: 1
A[0][1]: 0
A[1][0]: 2
A[1][1]: 0
Enter number of rows of matrix B: |
```