DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 1

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Subject Name: DAA (23CSH-301)

Aim: Write a program to insert or delete an element in an array at beginning , at given index, at end, and then display the updated array.

Write a program to perform multiplication of two matrices entered by the user and display the resulting matrix.

C++ CODE:

- **Inserting an element at the given position**

```
#include <iostream>
using namespace std;
int main() {
int arr[10] = {1, 2, 3, 5};
int n = 4;
int pos, val;
cout << "Enter position (0 to " << n << "): ";
cin >> pos;
cout << "Enter value to insert: ";
cin >> val;
for (int i = n; i > pos; i--) {
arr[i] = arr[i - 1];
}
arr[pos] = val;
n++;
cout << "Array after insertion: ";
for (int i = 0; i < n; i++) {
cout << arr[i] << " ";
}
return 0;}
```

Output:

```
Enter position (0 to 4): 3
Enter value to insert: 4
Array after insertion: 1 2 3 4 5
PS C:\Users\YOGESH\Desktop\New folder (2)>
```

- **Inserting an element at the beginning of the array.**

```
#include <iostream>  using
namespace std;  int main()
{  int arr[10] = {1, 2, 3, 4,
5};  int n = 5;  int val = 10;
for (int i = n; i > 0; i--) {
arr[i] = arr[i - 1];
}  arr[0] = val;  n++;  for
(int i = 0; i < n; i++) {
cout << arr[i] << " ";
}  return
0;
}
```

Output:

```
10 1 2 3 4 5
PS C:\Users\YOGESH\Desktop\New folder (2)>
```

- **Inserting element at the end of the array.**

```
#include <iostream>
using namespace std;  int main() {  int arr[10] = {1, 2, 3, 4};  int n
= 4;  int val = 5;  arr[n] = val;  n++;  for (int i = 0; i < n; i++) {
cout << arr[i] << " ";
}  return
0;
}
```

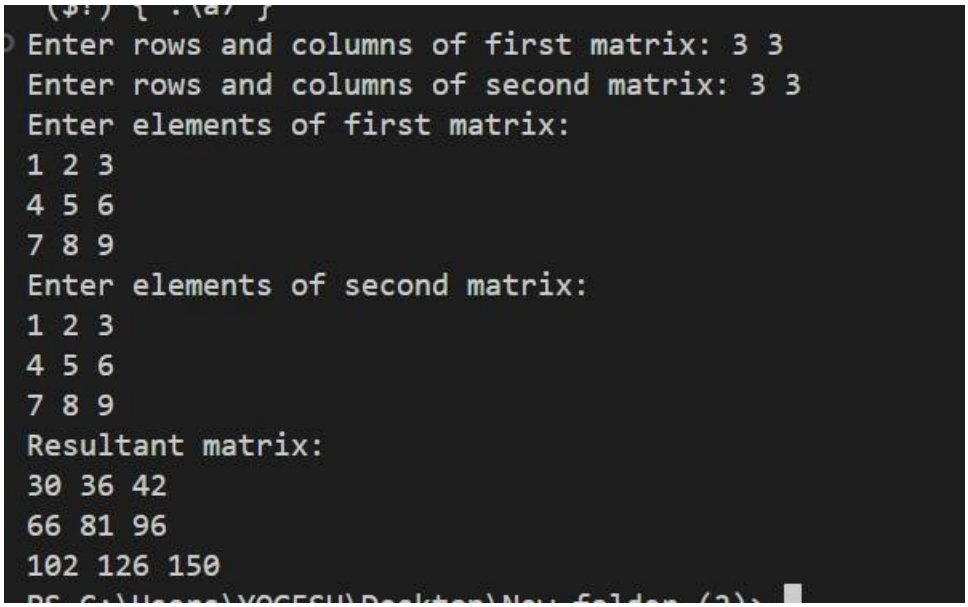
Output:

```
1 2 3 4 5
PS C:\Users\YOGESH
```

- **Matrix Multiplication**

```
#include <iostream>  using namespace std;  int
main() {  int a[10][10], b[10][10], c[10][10] = {0};
int r1, c1, r2, c2;  cout << "Enter rows and columns
of first matrix: ";  cin >> r1 >> c1;  cout << "Enter
rows and columns of second matrix: ";  cin >> r2 >>
c2;  if (c1 != r2) {  cout << "Matrix multiplication not
possible.";  return 0;  }  cout << "Enter elements of
first matrix:\n";  for (int i = 0; i < r1; i++) { for (int j
= 0; j < c1; j++) { cin >> a[i][j]; }} cout << "Enter
elements of second matrix:\n";  for (int i = 0; i < r2;
i++) { for (int j = 0; j < c2; j++) {
cin >> b[i][j]; }} for (int i = 0;
i < r1; i++) { for (int j = 0; j <
c2; j++) { for (int k = 0; k <
c1; k++) { c[i][j] += a[i][k] *
b[k][j]; }}} cout <<
"Resultant matrix:\n";  for (int
i = 0; i < r1; i++) {  for (int j
= 0; j < c2; j++)  cout <<
c[i][j] << " ";  cout << endl;
}
}
```

Output:


Enter rows and columns of first matrix: 3 3
Enter rows and columns of second matrix: 3 3
Enter elements of first matrix:
1 2 3
4 5 6
7 8 9
Enter elements of second matrix:
1 2 3
4 5 6
7 8 9
Resultant matrix:
30 36 42
66 81 96
102 126 150