C++ Array Programs with Output (1D & 2D Arrays)

1. Input and Display 1D Array

```
#include<iostream>
using namespace std;
int main(){
    int arr[5];
    cout<<"Enter 5 numbers:\n";
    for(int i=0;i<5;i++){
        cin>>arr[i];
    }
    cout<<"Array elements are:\n";
    for(int i=0;i<5;i++){
        cout<<arr[i]<<" ";
    }
    return 0;
}
```

```
Output:
Enter 5 numbers:
10 20 30 40 50
Array elements are:
10 20 30 40 50
```

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2. Sum of 1D Array Elements

```
#include<iostream>
using namespace std;
int main(){
    int arr[5], sum=0;
    cout<<"Enter 5 numbers:\n";
    for(int i=0;i<5;i++){
        cin>>arr[i];
        sum = sum + arr[i];
    }
    cout<<"Sum of array = "<<sum;
    return 0;
}
```

```
Output:
Enter 5 numbers:
5 5 5 5 5
Sum of array = 25
```

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3. Maximum Number in Array

```
#include<iostream>
using namespace std;
int main(){
    int arr[5];
    cout<<"Enter 5 numbers:\n";
    for(int i=0;i<5;i++){
        cin>>arr[i];
    }
    int max = arr[0];
    for(int i=1;i<5;i++){
        if(arr[i] > max){
            max = arr[i];
        }
    }
    cout<<"Maximum number = "<<max;
    return 0;
}
```

```
Output:
Enter 5 numbers:
12 45 7 89 34
Maximum number = 89
```

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4. Reverse Array

```
#include<iostream>
using namespace std;
int main(){
    int arr[5];
    cout<<"Enter 5 numbers:\n";
    for(int i=0;i<5;i++){
        cin>>arr[i];
    }
    cout<<"Array in reverse order:\n";
    for(int i=4;i>=0;i--){
        cout<<arr[i]<<" ";
    }
    return 0;
}
```

```
Output:
Enter 5 numbers:
1 2 3 4 5
Array in reverse order:
5 4 3 2 1
```

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5. Matrix Display (2D Array)

```
#include<iostream>
using namespace std;
int main(){
    int a[2][2];
    cout<<"Enter 4 elements:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cin>>a[i][j];
        }
    }
    cout<<"Matrix is:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cout<<a[i][j]<<" ";
        }
        cout<<endl;
    }
    return 0;
}
```

```
Output:
Enter 4 elements:
1 2 3 4
Matrix is:
1 2
3 4
```

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6. Addition of Two Matrices

```
#include<iostream>
using namespace std;
int main(){
    int a[2][2], b[2][2], sum[2][2];
    cout<<"Enter first matrix:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cin>>a[i][j];
        }
    }
    cout<<"Enter second matrix:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cin>>b[i][j];
        }
    }
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            sum[i][j] = a[i][j] + b[i][j];
```

```
        }
    }
    cout<<"Sum of matrices:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cout<<sum[i][j]<<" ";
        }
        cout<<endl;
    }
    return 0;
}
```

```
Output:
Enter first matrix:
1 2 3 4
Enter second matrix:
5 6 7 8
Sum of matrices:
6 8
10 12
```

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7. Matrix Multiplication

```
#include<iostream>
using namespace std;
int main(){
    int a[2][2], b[2][2], mul[2][2];
    cout<<"Enter first matrix:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cin>>a[i][j];
        }
    }
    cout<<"Enter second matrix:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cin>>b[i][j];
        }
    }
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            mul[i][j] = 0;
            for(int k=0;k<2;k++){
                mul[i][j] += a[i][k] * b[k][j];
            }
        }
    }
    cout<<"Multiplication result:\n";
    for(int i=0;i<2;i++){
        for(int j=0;j<2;j++){
            cout<<mul[i][j]<<" ";
        }
        cout<<endl;
    }
    return 0;
}
```

```
Output:
Enter first matrix:
1 2 3 4
Enter second matrix:
5 6 7 8
Multiplication result:
19 22
43 50
```