



The University of Azad Jammu and Kashmir, Muzaffarabad

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Course Name	Data Structure & Algorithm
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Question:

Write a program that reads 5 numbers using array, finds sum and maximum as well.

Answer:

Code

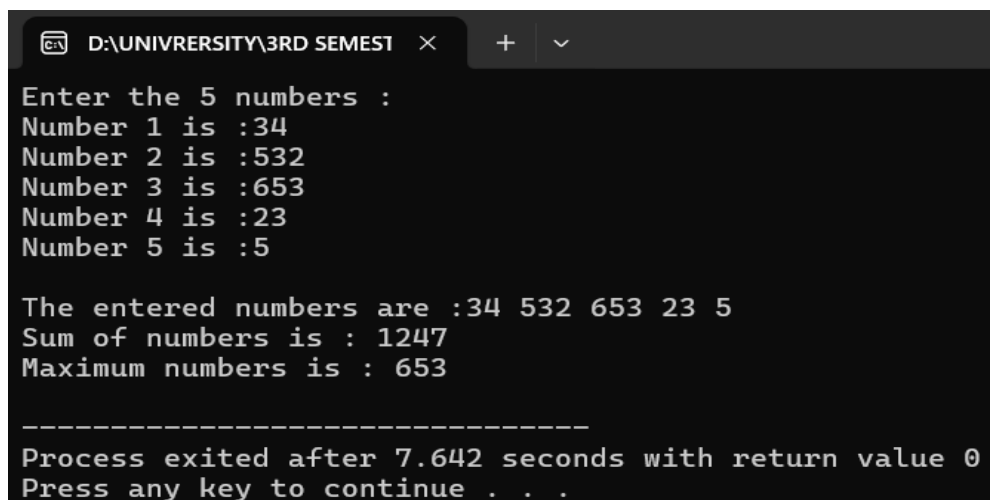
```
#include<iostream>
#include<string.h>
using namespace std;
int main(){
    int arr[5];
    int sum=0,max;
    cout<<"Enter the 5 numbers : "<<endl;

    for(int i=0;i<5;i++){
        cout<<"Number "<<i+1<<" is :";
        cin>>arr[i];
    }
    max=arr[0];

    for(int i=0;i<5;i++){
        sum=sum+arr[i];
        if (arr[i]>max){
            max=arr[i];
        }
    }
    cout<<"\nThe entered numbers are :";
    for(int i=0;i<5;i++){
        cout<<arr[i]<<" ";
    }
    cout<<"\nSum of numbers is : "<<sum<<endl;
    cout<<"Maximum numbers is : "<<max<<endl;

    return 0;
}
```

Output



The screenshot shows a terminal window with the following output:

```
D:\UNIVERSITY\3RD SEMEST  X + v
Enter the 5 numbers :
Number 1 is :34
Number 2 is :532
Number 3 is :653
Number 4 is :23
Number 5 is :5

The entered numbers are :34 532 653 23 5
Sum of numbers is : 1247
Maximum numbers is : 653

-----
Process exited after 7.642 seconds with return value 0
Press any key to continue . . .
```

Explanation

1) `#include <iostream>`

- This line tells the compiler to include the input/output library so we can use `cin`, `cout`, and other IO features.

2) Using namespace `std`;

- Lets us use names from the standard library (like `cout`, `cin`) without writing `std::` every time.

3) `int main() { ... }`

- The main function is where program execution starts. The program runs the statements inside this block.

4) `int numbers[5];`

- Declares an array named `numbers` that can hold 5 integers.
- Arrays are zero-indexed, so valid indices are 0 through 4.

5) `int sum = 0, max;`

- Declares two integer variables:
 - `sum` is initialized to 0 and will accumulate the sum of all array elements.
 - `max` is declared but not initialized here — we initialize it later using the first array element.

6) `cout << "Enter 5 numbers: " << endl;`

- Prints a message prompting the user to enter five numbers.

7) Input loop

```
for (int i = 0; i < 5; i++) {
```

```
    cout << "Number " << i + 1 << ": ";
```

```
    cin >> numbers[i];
```

```
}
```

- This for loop runs 5 times (`i = 0,1,2,3,4`).
- For each iteration:
 - It prints `Number 1:`, `Number 2:`, etc.
 - Reads a value from the user into `numbers[i]`.
- After this loop, the array `numbers` contains the five entered values.

8) `max = numbers[0];`

- We set `max` to the first element of the array.
- This is a safe and common approach: start with the first element and compare other elements against it, so `max` will end up as the largest of the set.
- Important: this assumes that the array has at least one element (true here because size is 5).

9) Sum and maximum loop

```
for (int i = 0; i < 5; i++) {
```

```
    sum += numbers[i];
```

```
    if (numbers[i] > max)
```

```
        max = numbers[i];
```

}

- This loop also runs 5 times and does two things for each array element:
 - Adds the current element to sum (sum += numbers[i];).
 - Checks if the current element is greater than max; if yes, updates max.
- After the loop:
 - sum holds the total of all 5 numbers.
 - max is the largest number among them.

10) Displaying the entered numbers

- Prints the array elements in order so the user sees what they entered.

11) Print sum and maximum

- Shows the calculated sum and max values on the screen.

12) return 0;

Ends main and returns 0 to the operating system