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section	SE_3-2

Task 1:

The screenshot shows the Visual Studio IDE with a C++ file named 'shujaat task1.cpp'. The code is as follows:

```

1  #include<iostream>
2  using namespace std;
3  int main(){
4      int array[10]={1,2,3,4,5,6,7,8,9,10};
5      for(int i=0;i<=9;i++){
6          cout<<array[i];
7      }
8  }

```

The Snipping Tool window shows the terminal output of the program:

```

PS C:\Users\HP> cd 'c:\Users\HP\Desktop\lab task\output'
PS C:\Users\HP\Desktop\lab task\output> & '.\shujaat task1.exe'
PS C:\Users\HP\Desktop\lab task\output> cd 'c:\Users\HP\Desktop\lab task\output'
PS C:\Users\HP\Desktop\lab task\output> & '.\shujaat task1.exe'
12345678910
PS C:\Users\HP\Desktop\lab task\output>

```

Task 2:

The screenshot shows the Visual Studio IDE with a C++ file named 'shujaat task2.cpp'. The code is as follows:

```

3  int main(){
5      cout<<"Enter search value"<<endl;
6      cin>>searchValue;
7      bool found = false;
8      int numbers[10]={12,14,10,15,17,13,11,16,22,23};
9      for(int i=0;i<10;i++){
10         if(numbers[i]==searchValue){
11             cout<<"search found="<<searchValue<<endl;
12             found=true;
13         }
14     }
15     if(found==false)
16     {
17         cout<<"search not found="<<searchValue<<endl;
18     }
19     return 0;
20 }

```

The Snipping Tool window shows the terminal output of the program:

```

PS C:\Users\HP> cd 'c:\Users\HP\Desktop\lab task\output'
PS C:\Users\HP\Desktop\lab task\output> & '.\shujaat task2.exe'
Enter search value
11
search found=11
PS C:\Users\HP\Desktop\lab task\output>

```

Task 3:

```
1 #include<iostream>
2 using namespace std;
3
4 int main() {
5     int n = 5;
6     int numbers[6] = {10, 20, 30, 40, 50};
7     int Element, posi;
8     cout << "Enter the new element:";
9     cin >> Element;
10    cout << "Enter the position(0 to 4)";
11    cin >> posi;
12    for (int i=n; i>posi; i--) {
13        numbers[i] = numbers[i-1];
14    }
15    numbers[posi] = Element;
16    n++;
17    cout << "Array after insertion: ";
18    for (int i = 0; i < n; i++) {
19        cout << numbers[i] << " ";
20    }
21    cout << endl;
22    return 0;
23 }
24
```

Snipping Tool

```
PS C:\Users\HP> cd 'c:\Users\HP\Desktop\lab task\output'
PS C:\Users\HP\Desktop\lab task\output> & .\shujaat task2.exe
Enter the new element:35
Enter the position(0 to 4):3
Array after insertion: 10 20 30 35 40 50
PS C:\Users\HP\Desktop\lab task\output>
```

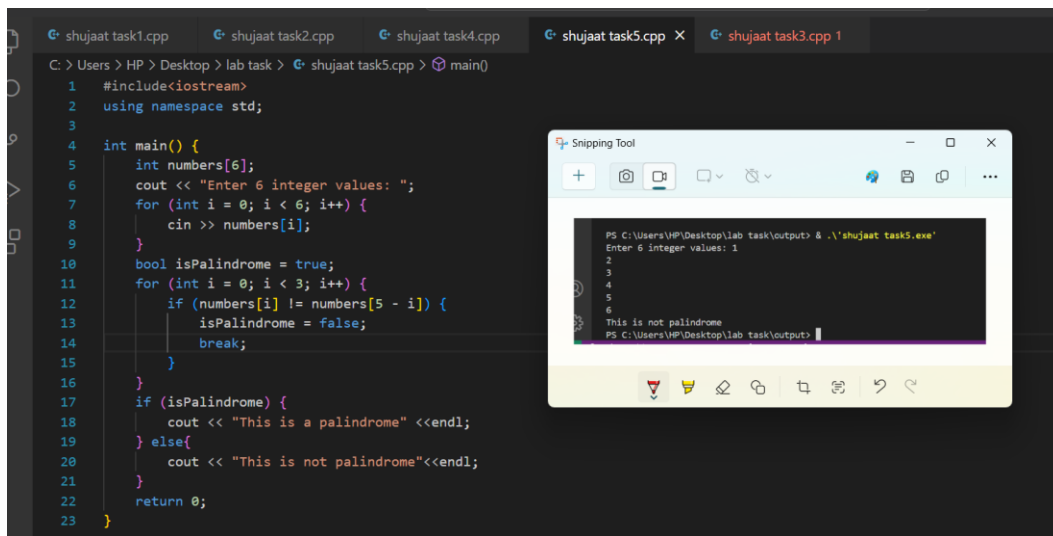
Task 4:

```
1 #include<iostream>
2 using namespace std;
3 int main()
4 {
5     int n = 5;
6     int numbers[5] = {10, 20, 30, 40, 50};
7     int position;
8     cout << "Enter the position (0 to 4): ";
9     cin >> position;
10    for (int i = position; i < n-1; i++) {
11        numbers[i] = numbers[i+1];
12    }
13    n--;
14    cout << "Array after deletion: ";
15    for (int i = 0; i < n; i++) {
16        cout << numbers[i] << " ";
17    }
18    cout << endl;
19    return 0;
20 }
21
```

Snipping Tool

```
PS C:\Users\HP> cd 'c:\Users\HP\Desktop\lab task\output'
PS C:\Users\HP\Desktop\lab task\output> & .\shujaat task4.exe
Enter the position (0 to 4): 1
Array after deletion: 10 30 40 50
PS C:\Users\HP\Desktop\lab task\output>
```

Task 5:

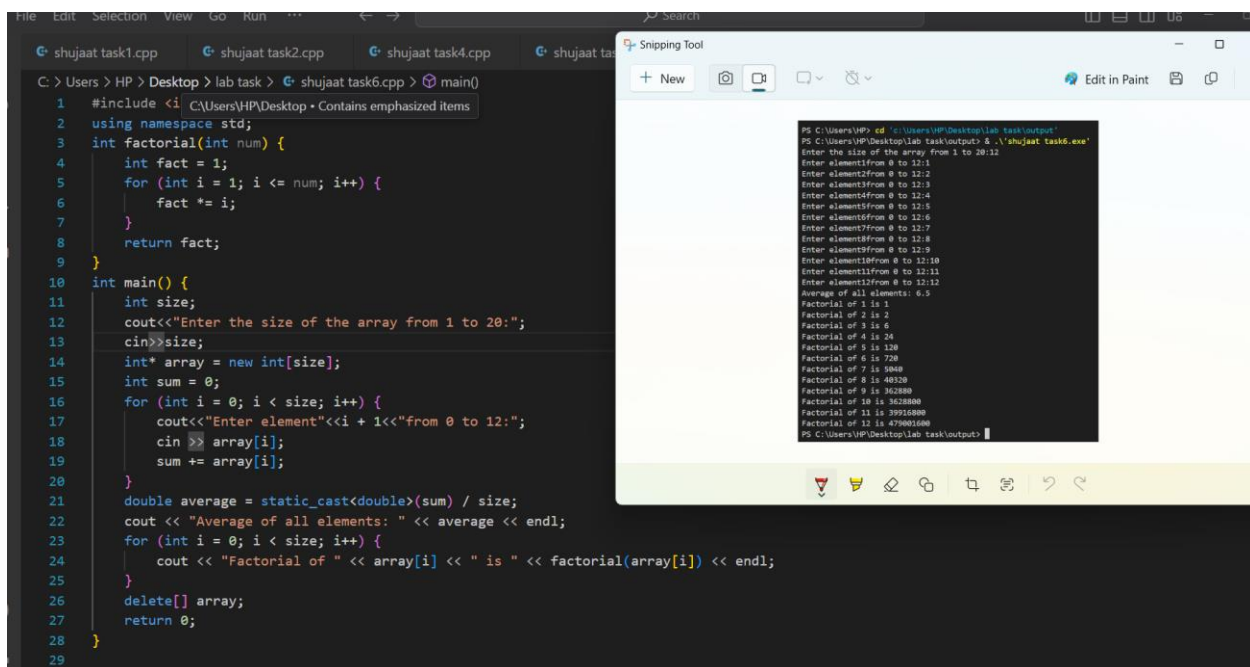


```
C:\Users\HP\Desktop> lab task > C:\shujaat task5.cpp > main()
1  #include<iostream>
2  using namespace std;
3
4  int main() {
5      int numbers[6];
6      cout << "Enter 6 integer values: ";
7      for (int i = 0; i < 6; i++) {
8          cin >> numbers[i];
9      }
10     bool isPalindrome = true;
11     for (int i = 0; i < 3; i++) {
12         if (numbers[i] != numbers[5 - i]) {
13             isPalindrome = false;
14             break;
15         }
16     }
17     if (isPalindrome) {
18         cout << "This is a palindrome" << endl;
19     } else {
20         cout << "This is not palindrome" << endl;
21     }
22     return 0;
23 }
```

Snipping Tool

```
PS C:\Users\HP\Desktop\lab task\output> & .\shujaat task5.exe
Enter 6 integer values: 1
2
3
4
5
6
This is not palindrome
PS C:\Users\HP\Desktop\lab task\output>
```

## Task 6:

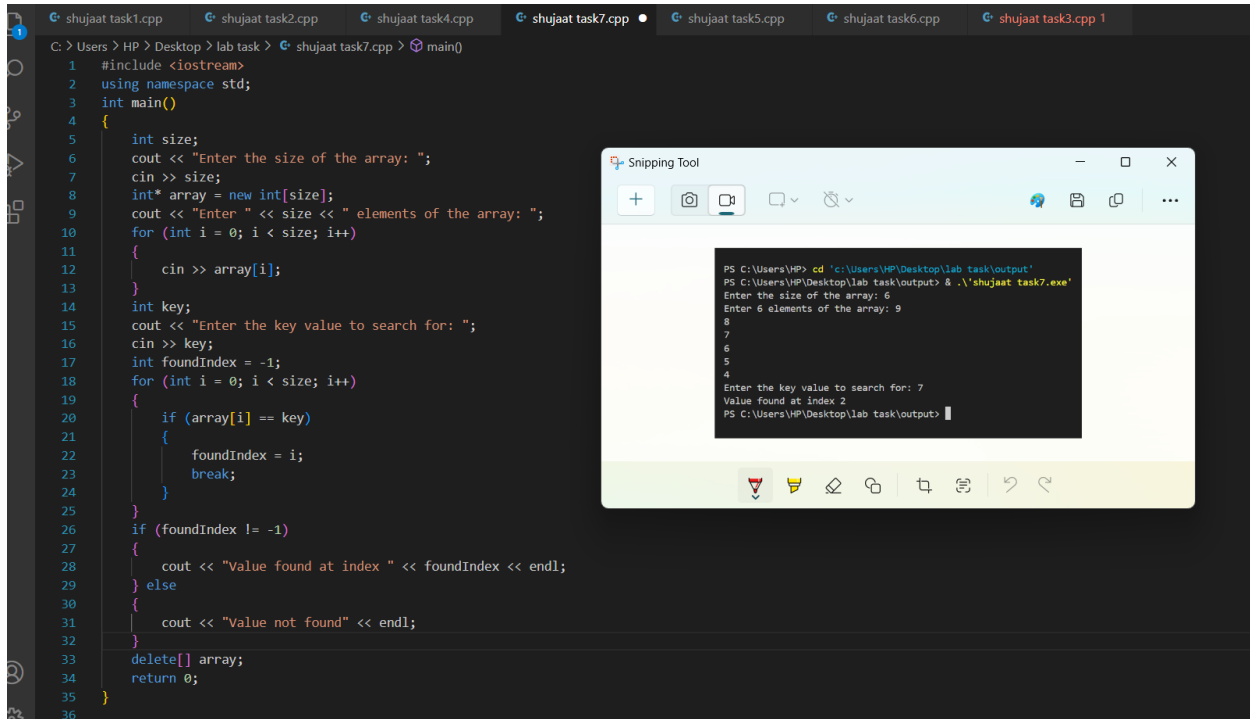


```
File Edit Selection View Go Run ...
C:\Users\HP\Desktop> lab task > C:\shujaat task6.cpp > main()
1  #include <i C:\Users\HP\Desktop> Contains emphasized items
2  using namespace std;
3  int factorial(int num) {
4      int fact = 1;
5      for (int i = 1; i <= num; i++) {
6          fact *= i;
7      }
8      return fact;
9  }
10 int main() {
11     int size;
12     cout << "Enter the size of the array from 1 to 20:";
13     cin >> size;
14     int* array = new int[size];
15     int sum = 0;
16     for (int i = 0; i < size; i++) {
17         cout << "Enter element" << i + 1 << "from 0 to 12:";
18         cin >> array[i];
19         sum += array[i];
20     }
21     double average = static_cast<double>(sum) / size;
22     cout << "Average of all elements: " << average << endl;
23     for (int i = 0; i < size; i++) {
24         cout << "Factorial of " << array[i] << " is " << factorial(array[i]) << endl;
25     }
26     delete[] array;
27     return 0;
28 }
29
```

Snipping Tool

```
PS C:\Users\HP> cd "C:\Users\HP\Desktop\lab task\output"
PS C:\Users\HP\Desktop\lab task\output> & .\shujaat task6.exe
Enter the size of the array from 1 to 20:12
Enter element1 from 0 to 12:1
Enter element2 from 0 to 12:2
Enter element3 from 0 to 12:3
Enter element4 from 0 to 12:4
Enter element5 from 0 to 12:5
Enter element6 from 0 to 12:6
Enter element7 from 0 to 12:7
Enter element8 from 0 to 12:8
Enter element9 from 0 to 12:9
Enter element10 from 0 to 12:10
Enter element11 from 0 to 12:11
Enter element12 from 0 to 12:12
Average of all elements: 6.5
Factorial of 1 is 1
Factorial of 2 is 2
Factorial of 3 is 6
Factorial of 4 is 24
Factorial of 5 is 120
Factorial of 6 is 720
Factorial of 7 is 5040
Factorial of 8 is 40320
Factorial of 9 is 362880
Factorial of 10 is 3628800
Factorial of 11 is 39916800
Factorial of 12 is 479001600
PS C:\Users\HP\Desktop\lab task\output>
```

## Task 7:



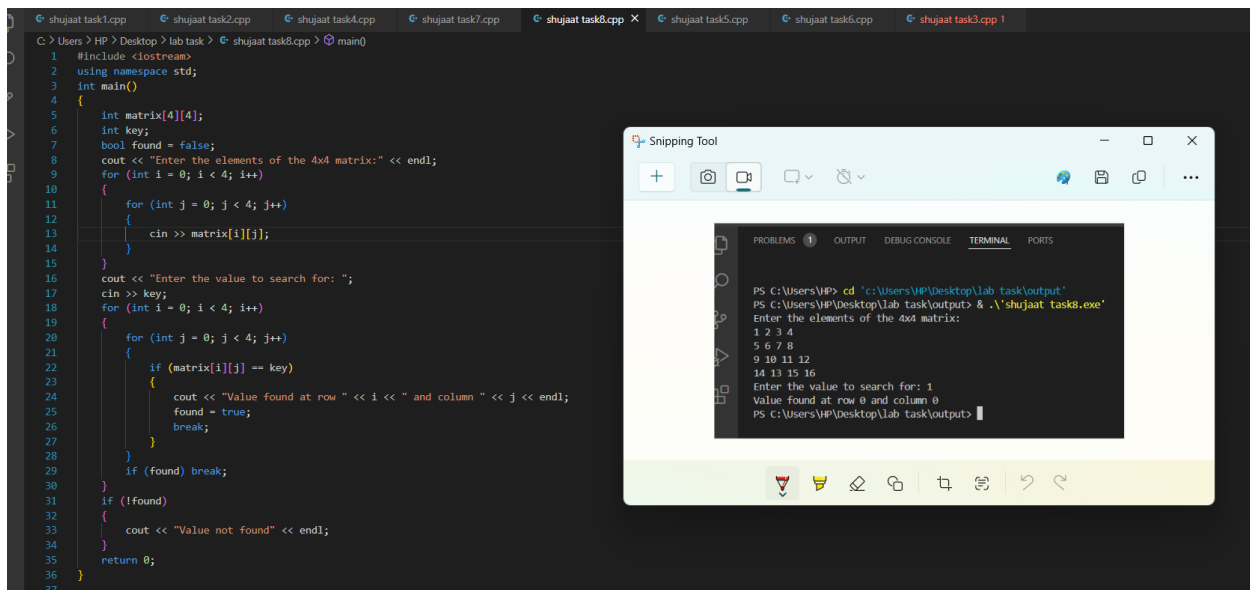
The screenshot shows a C++ IDE with a file explorer on the left and a code editor. The code editor displays the following C++ code for Task 7:

```
1 #include <iostream>
2 using namespace std;
3 int main()
4 {
5     int size;
6     cout << "Enter the size of the array: ";
7     cin >> size;
8     int* array = new int[size];
9     cout << "Enter " << size << " elements of the array: ";
10    for (int i = 0; i < size; i++)
11    {
12        cin >> array[i];
13    }
14    int key;
15    cout << "Enter the key value to search for: ";
16    cin >> key;
17    int foundIndex = -1;
18    for (int i = 0; i < size; i++)
19    {
20        if (array[i] == key)
21        {
22            foundIndex = i;
23            break;
24        }
25    }
26    if (foundIndex != -1)
27    {
28        cout << "Value found at index " << foundIndex << endl;
29    } else
30    {
31        cout << "Value not found" << endl;
32    }
33    delete[] array;
34    return 0;
35 }
36
```

On the right, a Snipping Tool window shows the execution output:

```
PS C:\Users\VP> cd 'C:\Users\VP\Desktop\lab task\output'
PS C:\Users\VP\Desktop\lab task\output> .\shujaat task7.exe
Enter the size of the array: 6
Enter 6 elements of the array: 9
8
7
6
5
4
Enter the key value to search for: 7
Value found at index 2
PS C:\Users\VP\Desktop\lab task\output>
```

## Task 8:



The screenshot shows a C++ IDE with a file explorer on the left and a code editor. The code editor displays the following C++ code for Task 8:

```
1 #include <iostream>
2 using namespace std;
3 int main()
4 {
5     int matrix[4][4];
6     int key;
7     bool found = false;
8     cout << "Enter the elements of the 4x4 matrix:" << endl;
9     for (int i = 0; i < 4; i++)
10    {
11        for (int j = 0; j < 4; j++)
12        {
13            cin >> matrix[i][j];
14        }
15    }
16    cout << "Enter the value to search for: ";
17    cin >> key;
18    for (int i = 0; i < 4; i++)
19    {
20        for (int j = 0; j < 4; j++)
21        {
22            if (matrix[i][j] == key)
23            {
24                cout << "Value found at row " << i << " and column " << j << endl;
25                found = true;
26                break;
27            }
28        }
29        if (found) break;
30    }
31    if (!found)
32    {
33        cout << "Value not found" << endl;
34    }
35    return 0;
36 }
37
```

On the right, a Snipping Tool window shows the execution output:

```
PS C:\Users\VP> cd 'C:\Users\VP\Desktop\lab task\output'
PS C:\Users\VP\Desktop\lab task\output> .\shujaat task8.exe
Enter the elements of the 4x4 matrix:
1 2 3 4
9 10 11 12
14 13 15 16
Enter the value to search for: 1
Value found at row 0 and column 0
PS C:\Users\VP\Desktop\lab task\output>
```

## Task 9:

