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Section = BS SE 3-2

Subject = Data Structures and Algorithms

Lab Task 03:
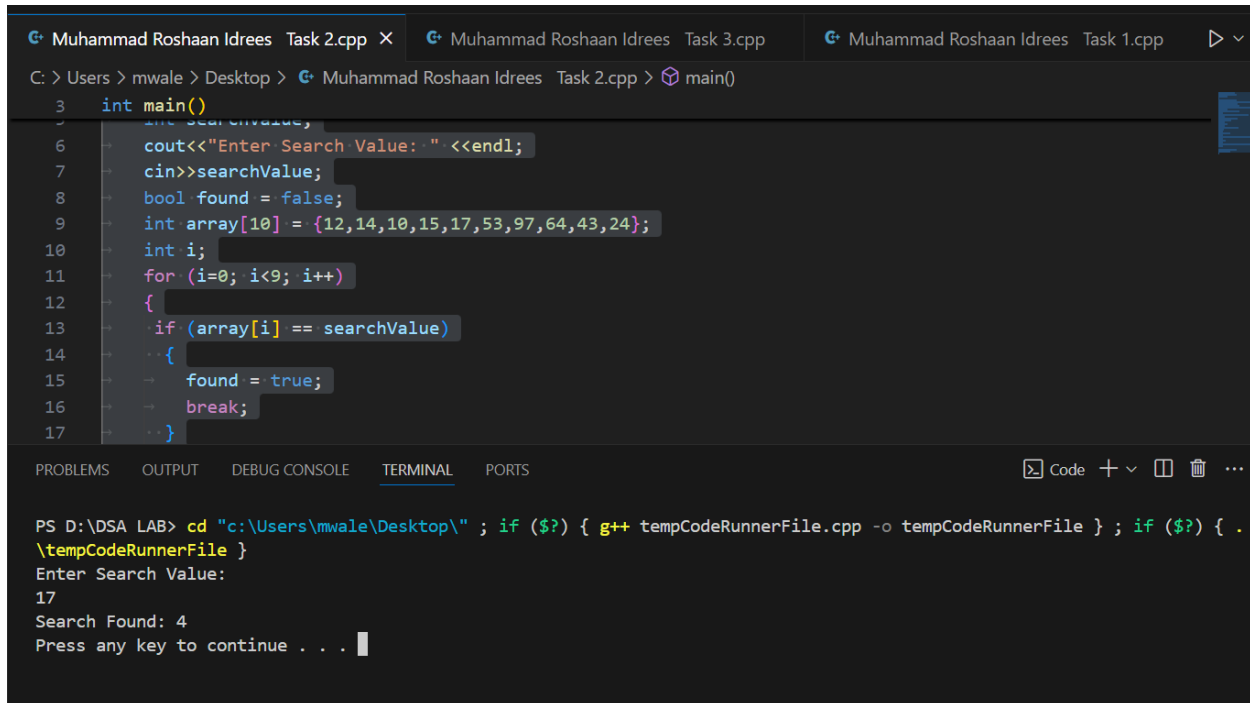
Question 1:

Code & Output:

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

    return 0;
}
```

```
PS D:\DSA LAB> cd "c:\Users\mwale\Desktop\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile } ; if ($?) { .
\tempCodeRunnerFile }
1 2 3 4 5 6 7 8 9
PS C:\Users\mwale\Desktop>
```

Question 2:

Code & Output:

```
int main()

6    cout<<"Enter Search Value: " <<endl;
7    cin>>searchValue;
8    bool found = false;
9    int array[10] = {12,14,10,15,17,53,97,64,43,24};
10   int i;
11   for (i=0; i<9; i++)
12   {
13     if (array[i] == searchValue)
14     {
15       found = true;
16       break;
17     }
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
PS D:\DSA LAB> cd "c:\Users\mwale\Desktop\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile } ; if ($?) { .
\tempCodeRunnerFile }
Enter Search Value:
17
Search Found: 4
Press any key to continue . . .
```

Question 03:

Code & Output:

```cpp
#include<iostream>
using namespace std;

int main()
{
    int arr[10],n,pos,val;
    cout<<"Enter size of array: ";
    cin>>n;
    cout<<"Enter array elements: ";
    for(int i=0; i<n; i++){
        cin>>arr[i];
    }
    cout<<"Enter the position of element: ";
    cin>>pos;
    cout<<"Enter the value to insert: ";
    cin>>val;
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   ≥ Code + ∨ ⊡ 🗑

```
PS D:\DSA LAB> cd "c:\Users\mwale\Desktop\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile } ; if ($?)
\tempCodeRunnerFile }
Enter size of array: 5
Enter array elements: 1
2
3
4
5
Enter the position of element: 2
Enter the value to insert: 45
1 45 2 3 4 5
PS C:\Users\mwale\Desktop> ▯
```

Ln 9, Col 36   Spaces: 4   UTF-8   CRLF   {} C++   ◉ Go Live

Question 04:

Code &Output:

C: > Users > mwale > Desktop > C+ Muhammad Roshaan Idrees > Task 4.cpp > ⬡ main()

```cpp
 4    int main()
 8        cin>>n;
 9        cout<<"Enter array elements: "<<endl;
10        for(int i=0; i<n; i++){
11            cin>>arr[i];
12        }
13        cout<<"Enter the index you want to delete: " <<endl;
14        cin>>index;
15
16        arr[index-1]=0;
17        n++;
18
19        for(int i=0; i<n-1; i++){
20            cout<<arr[i];
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   ⯈ Code + ∨

```
PS D:\DSA LAB> cd "c:\Users\mwale\Desktop\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile } ; if
deRunnerFile }
Enter size of array:
4
Enter array elements:
1
2
3
4
Enter the index you want to delete:
2
1034
PS C:\Users\mwale\Desktop>
```

Question 05:

Code & Output:

C: > Users > mwale > Desktop > G• Muhammad Roshaan Idrees Task 5.cpp > ⬡ main()

```cpp
 3      int main()
23                  palindrome = false;
24              }
25          }
26
27          if (palindrome)
28          {
29           cout << "The array is a palindrome" << endl;
30          }
31          else
32          {
33           cout << "The array is not a palindrome" << endl;
34          }
35
36          return 0;
37      }
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   >_ Code + ∨ ⬚ 🗑 ⋯

```
PS D:\DSA LAB> cd "c:\Users\mwale\Desktop\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile } ; if ($?) {
\tempCodeRunnerFile }
Enter 6 integers:
1
2
3
4
5
6
The array is not a palindrome
PS C:\Users\mwale\Desktop> ▯
```

Question 06:

Code & Output:

```cpp
12    int main() {
18            cout << "Invalid number of elements. Please enter a number between 1 and 20." << endl;
19            return 0;
20        }
21
22    int* a = new int[n];
23        |
24        cout << "Enter " << n << " values (0-12): " << endl;
25        for(int i = 0; i < n; i++) {
26            cin >> a[i];
27            if (a[i] < 0 || a[i] > 12) {
28                cout << "Invalid input. Please enter values between 0 and 12." << endl;
29                delete[] a;
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   Code + ∨ □ 🗑

```
Enter the number of elements (1-20): 5
Enter 5 values (0-12):
1
2
3
4
5
Average: 3
Factorial:
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
PS C:\Users\mwale\Desktop>
```

Question 07:

Code & Output:

C: > Users > mwale > Desktop > Muhammad Roshaan Idrees Task 7.cpp > main()

```cpp
4    int main()
5    {
6        int size, key;
7        cout << "Enter the size of the array: ";
8        cin >> size;
9
10       if (size < 1)
11       {
12           cout << "Invalid size. The array size should be at least 1." << endl;
13           return 1;
14       }
15
16       vector<int> array(size);
17
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   **TERMINAL**   PORTS   ⟫ Code + ∨

```
PS D:\DSA LAB> cd "c:\Users\mwale\Desktop\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCodeRunnerFile } ; if
deRunnerFile }
Enter the size of the array: 4
Enter 4 integers:
1
2
3
4
Enter the key to search for: 3
Key 3 found at position 3.
PS C:\Users\mwale\Desktop>
```

Question 08:

Code & Output:

```cpp
    3      int main()
   15              }
   16          }
   17          cout<<"Enter value to search:";
   18          cin>>val;
   19          for(int i=0 ; i<4 ; i++)
   20          {
   21              for (int j=0 ; j<4 ; j++)
   22              {
   23                  if(arr[i][j] == val)
   24                  {
   25                      cout<<"Value"<<val<<"found at position"<<"("<<i<<","<<j<<"):"<<endl;
   26                      found = true;
   27                      break;
   28                  }
   29              }
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   >_ Code + ∨ ▯

```
22
Enter elements at position (3,0):
23
Enter elements at position (3,1):
24
Enter elements at position (3,2):
25
Enter elements at position (3,3):
26
Enter value to search:21
Value21found at position(2,2):
PS C:\Users\mwale\Desktop> ▯
```

Question 09:

Code & Output:

C: > Users > mwale > Desktop > G Muhammad_Roshaan_Idrees_Task_9.cpp > ⊙ main()

```cpp
1    #include<iostream>
2    using namespace std;
3    int main(){
4        int a[4][4],i,j;
5        cout<<"Enter values for matrices: "<<endl;
6        for(int i=0; i<4; i++)
7        {for(int j=0; j<4; j++)
8        {
9            cin>>a[i][j];
10       }
11       }
12       cout<<"Transpose is:";
13       for(int i=0; i<4; i++)
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   >_ Code + ∨

```
6
7
8
9
10
11
12
13
14
15
Transpose is:1  4  8  12
2  5  9  13
3  6  10  14
4  7  11  15
PS C:\Users\mwale\Desktop> |
```

Ln 8, Col 6   Spaces: 4   UTF-8   CRLF   {} C++