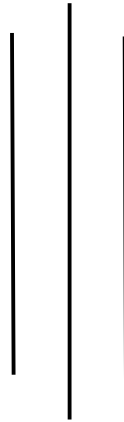


Object Oriented Programming Laboratory

Assignment – 2



Submitted By:

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CSE-34

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Question 1:

```
1 // Using function find the sum of the following expression 1 + (a^2/2!) + (a^3/3!) + (a^4/4!) + ----- + (a^n/n!)
2
3 #include <iostream>
4 using namespace std;
5
6 double pow(double a, double n)
7 {
8     double sum = 1;
9     while(n>0)
10     {
11         sum = sum * a;
12         n--;
13     }
14     return sum;
15 }
16
17 double fact(double n)
18 {
19     double sum = 1;
20     for (double i = 1; i <= n; i++)
21     {
22         sum = sum * i;
23     }
24     return sum;
25 }
26
27 int main(){
28     double n;
29     double a,sum;
30     cout<<"Enter the value of n : ";
31     cin>>n;
32     cout<<"Enter the value of a : ";
33     cin>>a;
34     sum=0;
35     for(double i=2;i<=n;i++)
36     {
37         sum=sum+pow(a,i)/fact(i);
38     }
39     sum=sum+1;
40     cout<<"The sum of the expression is : "<<sum;
41     return 0;
42 }
43
```

Output:

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\KIIT01\Desktop\programming> cd "c:\Users\KIIT01\Desktop\programming\OOP\4 august\" ; if ($?) { g++ q1_expression.cpp -o q1_expr
ession } ; if ($?) { .\q1_expression }
Enter the value of n : 7
Enter the value of a : 4
The sum of the expression is : 47.8063
PS C:\Users\KIIT01\Desktop\programming\OOP\4 august> |
```

Question 2:

```
1  // Find an element in an array using a function.
2  #include<iostream>
3  using namespace std;
4
5  void search(int a[],int n,int x)
6  {
7      int i;
8      for(i=0;i<n;i++)
9      {
10         if(a[i]==x)
11         {
12             cout<<"The element is at a["<<i<<"]"<<endl;
13             break;
14         }
15     }
16     if(i==n)
17     {
18         cout<<"The element is not found in the array."<<endl;
19     }
20 }
21
22 int main(){
23     int n,a[100],i,x;
24     cout<<"Enter the number of elements in the array : ";
25     cin>>n;
26     cout<<"Enter the elements of the array : ";
27     for(i=0;i<n;i++)
28     {
29         cin>>a[i];
30     }
31     cout<<"Enter the element to be searched : ";
32     cin>>x;
33     search(a,n,x);
34     return 0;
35 }
```

Output:

```
Windows PowerShell
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PS C:\Users\KIIT01\Desktop\programming> cd "c:\Users\KIIT01\Desktop\programming\OOP\4 august\" ; if ($?) { g++ q2_find_element.cpp -o q2_find_element } ; if ($?) { .\q2_find_element }
Enter the number of elements in the array : 10
Enter the elements of the array : 1
2
3
4
5
6
7
8
9
10
Enter the element to be searched : 7
The element is at a[6]
PS C:\Users\KIIT01\Desktop\programming\OOP\4 august> |
```

Question 3:

```
1 // Find even and odd numbers in an array using a function.
2
3 #include<iostream>
4 using namespace std;
5
6 void even(int a[],int n)
7 {
8     int i;
9     cout<<"The even numbers are : ";
10    for(i=0;i<n;i++)
11    {
12        if(a[i]%2==0)
13        {
14            cout<<" "<<a[i];
15        }
16    }
17    cout<<endl;
18 }
19
```

```
20 void odd(int a[],int n)
21 {
22     int i;
23     cout<<"The odd numbers are : ";
24     for(i=0;i<n;i++)
25     {
26         if(a[i]%2!=0)
27         {
28             cout<<" "<<a[i];
29         }
30     }
31 }
32
33 int main(){
34     int n,a[100];
35     cout<<"Enter the number of elements in the array : ";
36     cin>>n;
37     cout<<"Enter the elements of the array : ";
38     for(int i=0;i<n;i++)
39     {
40         cin>>a[i];
41     }
42     even(a,n);
43     odd(a,n);
44     return 0;
45 }
```

Output:

```
Windows PowerShell
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PS C:\Users\KIIT01\Desktop\programming> cd "c:\Users\KIIT01\Desktop\programming\OOP\4 august\" ; if ($?) { g++ q3_odd_even.cpp -o q3_odd_ev
en } ; if ($?) { .\q3_odd_even }
Enter the number of elements in the array : 10
Enter the elements of the array : 1 2 3 4 5 6 7 8 9 10
The even numbers are : 2 4 6 8 10
The odd numbers are : 1 3 5 7 9
PS C:\Users\KIIT01\Desktop\programming\OOP\4 august> █
```

Question 4:

```
1 // Write a program to read the detail of student using structure and display the details.
2 #include<iostream>
3 using namespace std;
4 struct student
5 {
6     int rollno;
7     char name[20];
8     float marks;
9 };
10
11 void display(student s)
12 {
13     cout<<"The details of student are:"<<endl;
14     cout<<"Roll no: "<<s.rollno<<endl;
15     cout<<"Name: "<<s.name<<endl;
16     cout<<"Marks: "<<s.marks<<endl;
17 }
18
19 int main(){
20     student s;
21     cout<<"Enter the details of student"<<endl;
22     cout<<"Enter the rollno : ";
23     cin>>s.rollno;
24     cout<<"Enter the name : ";
25     cin>>s.name;
26     cout<<"Enter the marks : ";
27     cin>>s.marks;
28     display(s);
29     return 0;
30 }
```

Output:

```
Windows PowerShell
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PS C:\Users\KIIT01\Desktop\programming> cd "c:\Users\KIIT01\Desktop\programming\OOP\4 august\" ; if ($?) { g++ q4_stu_detail.cpp -o q4_stu_
detail } ; if ($?) { .\q4_stu_detail }
Enter the details of student
Enter the rollno : 21052960
Enter the name : Yishap
Enter the marks : 95
The details of student are:
Roll no: 21052960
Name: Yishap
Marks: 95
PS C:\Users\KIIT01\Desktop\programming\OOP\4 august> █
```