

## Programming 2

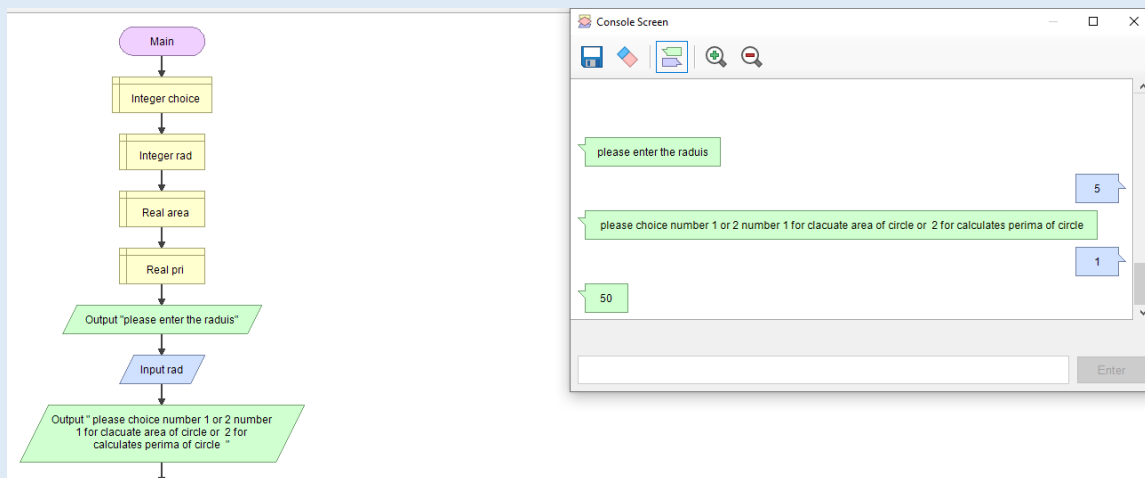
### Assignment 1

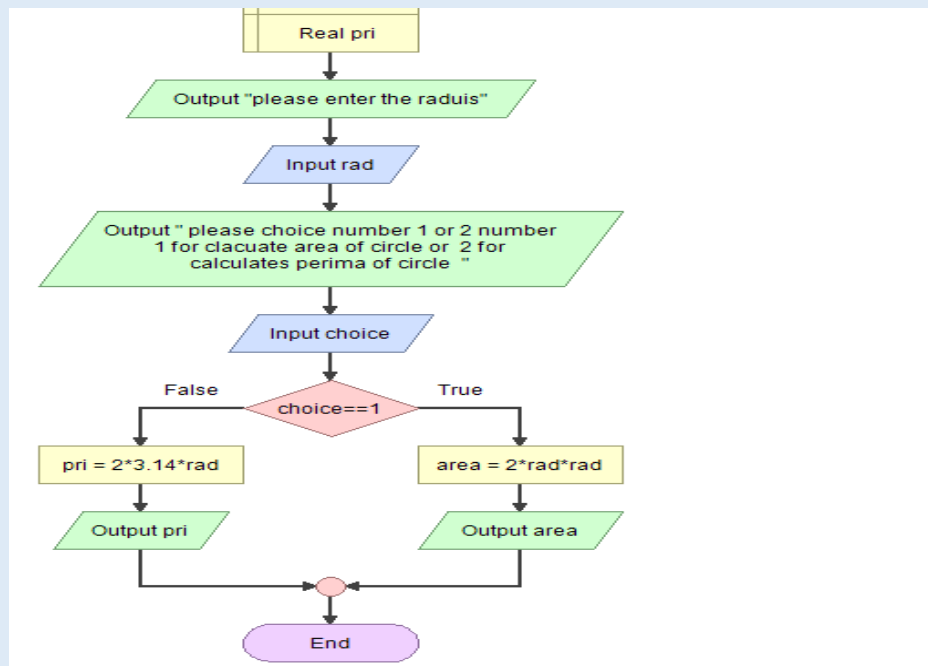
**Q1:** Explain why the solution of Task1, which stated in the lecture 3, may give inaccurate results and how to adapt it.

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**Q2:** Draw a flowchart, and then write a C++ program that asks the user for his choice: 1 or 2. If the user enters 1, then the program calculates the area of a circle. If the user enters 2, then the program calculates the perimeter of a circle. In the end, the program should display the area and the perimeter to the user. (hint:  $\pi=3.14$  and you should use **Switch statement**).

#### Flowchart:





### Code :

```

#include <iostream>
using namespace std;
main() {
double pi=3.14,rad;
int choice;
double area,pre;
cout<<"please enter the raduis"<<endl ;
cin>>rad;
cout<<"please choice number 1 or 2 : "<<endl<<endl;
cout<<"1 - calculates the area of a circle"<<endl;
cout<<"2 - calculates the perimeter of a circle"<<endl;
cin>>choice;
switch (choice){
    case 1:
        area=2*rad*rad;
        cout<<"the result of area is "<<area<<endl;
        break;
    case 2:
        pre=2*pi*rad;
        cout<<"the result of is "<<pre<<endl;

        break;}}
  
```

## Output :

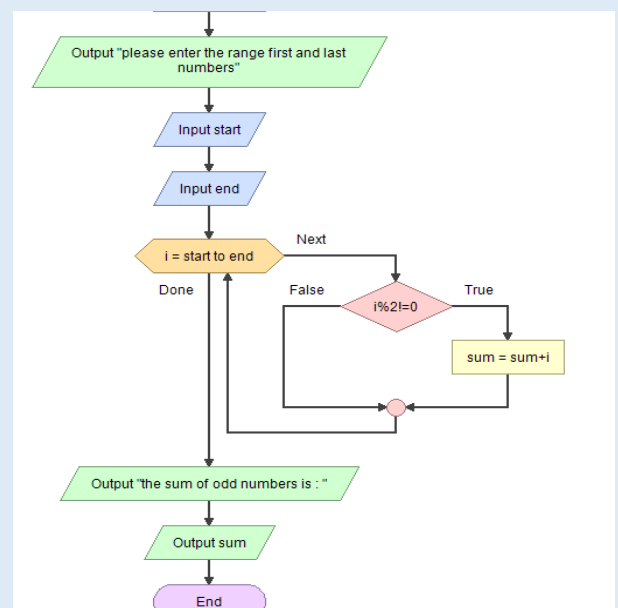
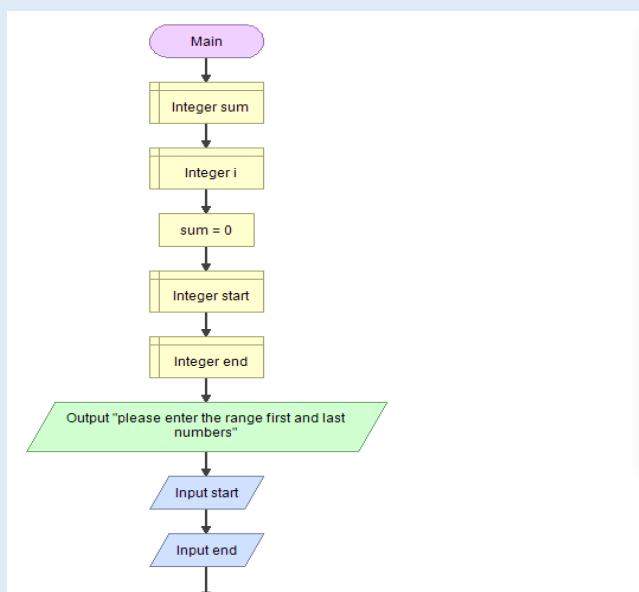
```
1 #include <iostream>
2
3 using namespace std;
4
5
6 main() {
7
8     double pi=3.14,rad;
9     int choice;
10    double area,pre;
11    cout<<"please enter the raduis"<<endl ;
12    cin>>rad;
13    cout<<"please choice number 1 or 2 : "<<endl<<endl;
14    cout<<"1 - calculates the area of a circle"<<endl;
15    cout<<"2 - calculates the perimeter of a circle"<<endl;
16
17    cin>>choice;
18
19    switch (choice){
20    case 1:
21        area=2*rad*rad;
22        cout<<"the result of area is "<<area<<endl;
23        break;
24    case 2:
25        pre=2*pi*rad;
26        cout<<"the result of is "<<pre<<endl;
27        break;
28    }
29
30 }
31
32
33 }
```

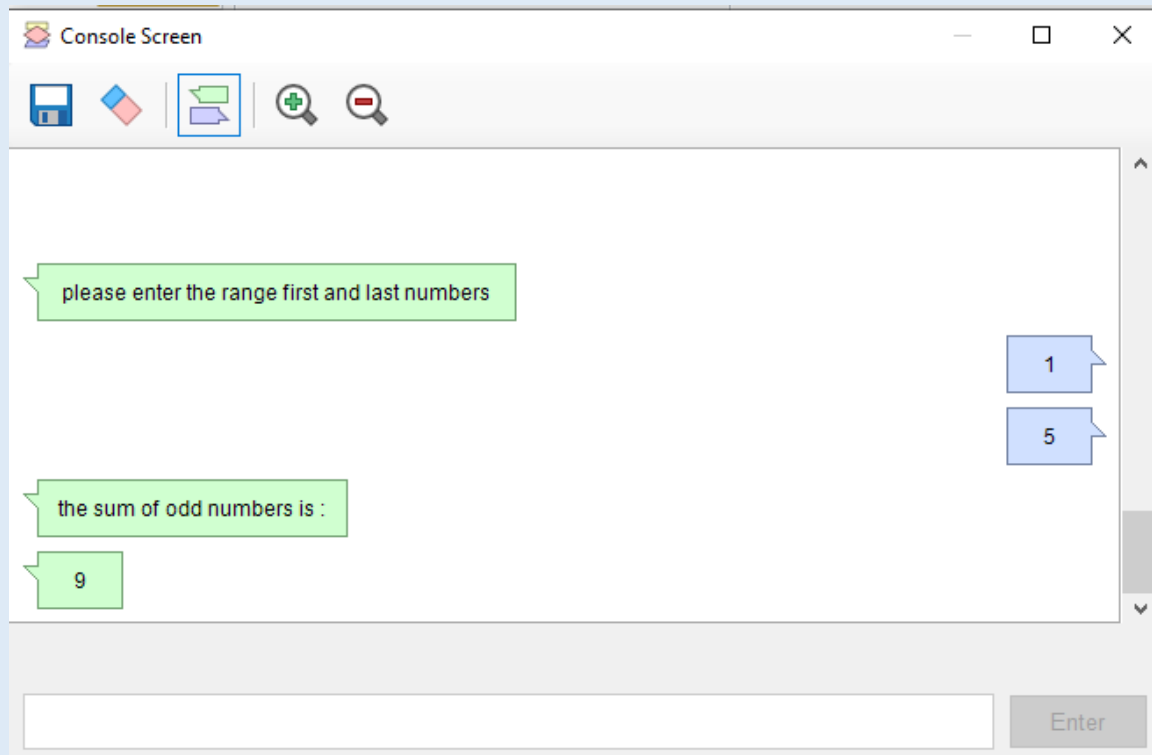
```
please enter the raduis
5
please choice number 1 or 2 :
1 - calculates the area of a circle
2 - calculates the perimeter of a circle
1
the result of area is 50
-----
Process exited after 29.71 seconds with return value 0
Press any key to continue . . .
```

**Q3:** Design a C++ program to get sum of all odd numbers in a given range: minimum range & maximum range.

- Draw the corresponding flowchart
- Write the C++ code
- Show a sample-run given that the minimum range is 25 and the maximum range is 30

## Flowchart:





### Code :

```
#include <iostream>

using namespace std;
main() {
    int start,end,i,sum=0;
    cout<<"please enter the range"<<endl;
    cin>>start>>end;
    for(i=start;i<=end;i++)
    {
        if(i%2!=0)
        {
            sum = sum+i;
        }
    }
    cout<<"the sum of odd number is : "<<sum<<endl;}
```

## output :

```
1 #include <iostream>
2
3 using namespace std;
4
5
6 main() {
7
8     int start,end,i,sum=0;
9     cout<<"please enter the range"<<endl;
10    cin>>start>>end;
11
12    for(i=start;i<=end;i++)
13    {
14        if(i%2!=0)
15        {
16            sum = sum+i;
17        }
18    }
19
20    cout<<"the sum of odd number is : "<<sum<<endl;
21
22
23 }
```

```
please enter the range
1
5
the sum of odd number is : 9
.....
Process exited after 1.431 seconds with return value 0
Press any key to continue . . .
```

---

**Q4:** Write a program to find the largest element in a list (array of elements). Your program should ask the user for the numbers, find largest element, and then print it on the screen.

- Write the C++ code
- Show a sample-run using your own input data

## Code :

```
#include <iostream>
using namespace std;
int main() {
    int n;
    double arr[100];
    cout<<"Enter the number of elements (1 to 100): "<<endl;
    cin>>n;
    cout<<endl;

    for (int i = 0; i < n; ++i) {
        cout<<"Enter number : "<< i + 1<<endl;
        cin>>arr[i];
        cout<<endl;
    } // storing the largest number to arr[0]
```

```

    for (int i = 1; i < n; ++i) {
        if (arr[0] < arr[i]) {
            arr[0] = arr[i];
        }
    }
    cout<<"Largest element = "<< arr[0];

    return 0;
}

```

## Output:

```

1  #include <iostream>
2
3  using namespace std;
4
5  int main() {
6      int n;
7      double arr[100];
8      cout<<"Enter the number of elements (1 to 100): "<<endl;
9      cin>>n;
10     cout<<endl;
11
12     for (int i = 0; i < n; ++i) {
13         cout<<"Enter number : "<< i + 1<<endl;
14         cin>>arr[i];
15         cout<<endl;
16     }
17
18     // storing the largest number to arr[0]
19     for (int i = 1; i < n; ++i) {
20         if (arr[0] < arr[i]) {
21             arr[0] = arr[i];
22         }
23     }
24
25     cout<<"Largest element = "<< arr[0];
26
27     return 0;
28 }

```

```

Enter the number of elements (1 to 100):
5
Enter number : 1
1
Enter number : 2
2
Enter number : 3
3
Enter number : 4
4
Enter number : 5
5
Largest element = 7
-----
Process exited after 4.465 seconds with return value 0
Press any key to continue . . .

```