## Sheet1

```
#include <iostream>
using namespace std;
int main(int argc, char *argv[])
{
    int age;
    age=10;
    cout<<" You are "<<age<<" years old.\n";
    cout<<" You are too young to play the game.\n";
    system("PAUSE");
    return 0;
}
//2
#include <iostream>
using namespace std;

int main(int argc, char *argv[])
{
    cout<<"*****\n";
    cout<<"*****\n";
    cout<<"*****\n";
    cout<<"*****\n";
    cout<<"*****\n";
    system("PAUSE");
    return 0;
}
//3
Exercise 3: Write a C++ program to declare two integer , one float variables
and assign 10, 15, and 12.6 to them respectively. It then prints these values
on the screen.

Solution:


#include <iostream>

using namespace std;

int main(int argc, char *argv[])
{
    int x;
    int y;
    float z;
    x=10;
    y=15;
    z=12.6;
    cout<<"x="<<x<<"\t"<<"y="<<y<<"\t"<<"z="<<z;
    cout<<"\n";

    system("PAUSE");
    return 0;
}
//4
Exercise 4: Write a C++ program to prompt the user to input
```

**her/his name and print this name on the screen, as shown below. The text from keyboard can be read by using cin>> and to display the text on the screen you can use cout<<.**

Hello Sok! .

Solution:

```
#include <iostream>

using namespace std;

int main(int argc, char *argv[])
{
    char name[20];
    cout<<"Enter your name:";
    cin>>name;
    cout<<"Hello "<<name<<"! \n";

    system("PAUSE");
    return 0;
}
```

**//5**

**Exercise 5: Write a C++ program to prompt the user to input 3 integer values and print these values in forward and reversed order, as shown below.**

**Please enter your 3 numbers: 12 45 78**
**Your numbers forward:**
**12**
**45**
**78**

**Your numbers reversed:**
**78**
**45**
**12**

**Solution:**

```
#include <iostream>

using namespace std;

int main(int argc, char *argv[])
{
    int val1;
    int val2;
    int val3;
    cout<<"Please enter your 3 numbers:";
```

```
    cin>>val1>>val2>>val3;

    cout<<"\nYour numbers forward:\n";
    cout<<val1<<"\n"<<val2<<"\n"<<val3<<"\n";
    cout<<"Your numbers reversed:\n";
    cout<<val3<<"\n"<<val2<<"\n"<<val1<<"\n";
    system("PAUSE");
    return 0;
}
```

# //sheet 2

**EXERCISE 1**

**Write a program that asks the user to type an integer and writes "YOU WIN" if the value is between 56 and 78 (both included). In the other case it writes "YOU LOSE".**

**Solution**

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

int main()
{
   int a;
   cout << "Type an integer : ";
   cin >> a;
   if ( (a >= 56) && (a <= 78) )
      cout << "YOU WIN" << endl;
   else
      cout << "YOU LOSE" << endl;
   return 0;
}
```

**EXERCISE 2**

**Write a program that asks the user to type all the integers between 8 and 23 (both included) using a for loop.**

**Solution**

**A solution that uses input from users could be**

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

int main()
{
  int a = 8;
  int number;
  cout << "Enter all the numbers from 8 - 23.\n";
  for(; a < 24;)
  {
    cin >> number;
    if(number == a)
    {
      a++;
      cout << "Next number:\n";
    }
```

```
    else
      cout << "?";
  }
   return 0;
}
```

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

int main()
{
    int typedInt = 0;
    cout << "Type all numbers between 8 and 23: " << endl;
    for(int i = 8; i <= 23; i++)
    {
            cin >> typedInt;
            if (typedInt != i)
            {
               cout << "You Missed the sequence the next number was " << i <<
endl;
            }
    }
return 0;
}
```

**EXERCISE 3**

**Same exercise but you must use a while.**

**Solution**

A solution that uses input from the user could be

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

int main()
{
  int a = 8, number;
  cout << "Enter numbers from 8 to 23\n";
  while(a < 24)
  {
    cin >> number;
    if(a == number)
    {
      cout << "Next number: ";
      a++;
    }
    else
      cout << "?";
  }
  return 0;
}
```

***EXERCISE 4***

***Write a program that asks the user to type 10 integers and writes the sum of these integers.***

***Solution***

```
/* A program to sum 10 integers
using a loop*/

#include <iostream>
using namespace std;

int main()
{
    //Define variables
    int i = 1;              //Counter
    int n = 0;              //Sum
    int temp;               //Input store

    cout << "This program sums ten user entered integers\n\n";

    for (i = 1 ; i <= 10 ; i++) {
        cout << "Type integer " << i << ": ";
        cin >> temp;
        n = n + temp;
    }

    cout << "\nThe sum of the integers is: " << n << endl;

    return 0;
}
```

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

int main()
{
int i,s=0,x;

for(i=0;i<10;i++)
      {
      cout<<"Type an integer: ";cin>>x;
      s=s+x;
      }

cout<<"The sum is : "<<s<<endl;

return 0;
}
```

**EXERCISE 5**

**Write a program that asks the user to type 10 integers and writes the smallest value.**

**Solution**

```
#include<iostream>

using namespace std;
```

```
int main(){

    int value = 0, min = 0;

    cout<<"Enter 10 values and I will tell you which one is the
smallest"<<endl;
    cout<<"Enter number: "<<endl;

    cin >> value;

    min = value;

    for(int i =0; i < 9; i++){
        cout<<"Enter number: "<<endl;
        cin>>value;
        if(value < min){
            min = value;
        }

    }

    cout<<"Smallest value is: "<<min<<endl;

    return 0;
}
```

**EXERCISE 6**

**Write a program that asks the user to type an integer N and computes the sum of the cubes from 53 to N3.**

**SOLUTION:**

```
//Calling the appropriate libraries
#include<iostream>

using namespace std;


int main(){

//Declare variables. Iniatial value for p is 125 (53)
int i, n, p=125;


//Ask the user to enter a number then save to variable n
cout<<"Enter a number: \n";
cin>>n;


//This will compute the sum of the cubes if the value of variable n is greater
than 5
for(i=n;i>5;i--){p+=i*i*i;}
```

```
//This will compute the sum of the cubes if the value of variable n is less
than 5
for(i=n;i<5;i++){p+=i*i*i;}


//Displays the sum of the cube
cout<<"The sum of cube of 5 up to cube of "<<n<<" is "<<p;
system("pause");
return 0;
}
```

**EXERCISE 7**

**Write a program that asks the user to type an integer N and compute u(N) defined with :**
**u(0)=3**
**u(n+1)=3*u(n)+4**
**Solution :**

```
#include<iostream>

using namespace std;

int main(){

    int n;
    int func = 0;
    cout<<"Enter a value: "<<endl;

    cin>>n;

    for(int i = 0; i < n; i++){
        if(i == 0){
            func += 3;
        }
        func = 3*func +4;
    }

    cout<<"The result of the computed function is: "<< func <<endl;

    return 0;
}
```

**EXERCISE 8**

**Write a program that asks the user to type an integer N and compute u(N) defined with :**
**u(0)=1**
**u(1)=1**
**u(n+1)=u(n)+u(n-1)**

**Solution**

```
#include <iostream>
#include <cmath>
using namespace std;
int u(int n) {
	if (n<=1) return n;
	else return u(n-1)+u(n-2);
}

int main() {
	int a;
	cout<<"Enter an integer: ";
	cin>>a;
	cout<<"u("<<a<<")="<<u(a);
	return 0;
}
```

**EXERCISE 9**

**Write a program that asks the user to type an integer between 0 and 20 (both included) and writes N+17. If someone types a wrong value, the program writes ERROR and he must type another value.**

**Solution**

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

int main()
{
int N;
bool ok;

do
    {
    cout<<"Type the value of N between 0 et 20 :";cin>>N;
    ok= N<=20 && N>=0;
    if(!ok)cout<<"ERROR"<<endl;
    }while(!ok);

N=N+17;
cout<<"The final value is : "<<N<<endl;

return 0;
}
```