10.1) Develop a C++ Program illustrating function template.

Program:

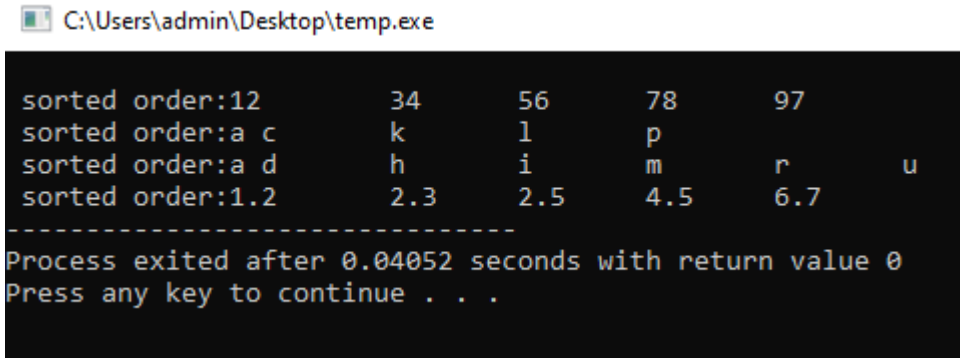
```
#include<iostream>
using namespace std;
template<typename T>
void sort( T a[], int n)
{
        T temp;
        int i,j;
        for(i=0;i<n-1;i++)
        {
                for(j=0;j<n-1-i;j++)
                {
                        if(a[j]>a[j+1])
                        {temp=a[j];
                        a[j]=a[j+1];
                        a[j+1]=temp;
                        }
                }
        }
}
template <typename T>
void print( T a[],int n)
{
        int i;
```

```
        cout<<"\n sorted order:";
        for(i=0;i<n;i++)
        {
                cout<<a[i]<<"\t";

        }
}
int main()
{
        int a[5]={ 12,97,34,56,78};
        char c[5]={ 'l','a','k','p','c'};
        char b[7]={ 'm','a','d','h','u','r','i'};
        float f[5]={ 2.3,4.5,6.7,1.2,2.5};
        sort(a,5);
        print(a,5);
        sort(c,5);
        print(c,5);
        sort(b,7);
        print(b,7);
   sort(f,5);
        print(f,5);
        return 0;

}
```

Output:


C:\Users\admin\Desktop\temp.exe
sorted order:12 34 56 78 97
sorted order:a c k l p
sorted order:a d h i m r u
sorted order:1.2 2.3 2.5 4.5 6.7
Process exited after 0.04052 seconds with return value 0
Press any key to continue . . .

10.3) Develop a C++ program to illustrate class templates with multiple parameters.

Program:

```
#include<iostream>
using namespace std;
template<class T1, class T2>
class sample
{
        private:
                T1 x;
                T2 y;
                public:
                        void get()
                        {
                                cout<<" enter x,y values:";
                                cin>>x>>y;
                        }
                        void display()
                        {
                                cout<<"x="<<x<<endl;
                                cout<<"y= "<<y<<endl;

                        }
};
int main()
}
```

```
        sample<int,int> s1;
        cout<<" both are integers"<<endl;
        s1.get();
        s1.display();
        sample<float,float>s2;
        cout<<" both are floating values"<<endl;
        s2.get();
        s2.display();
        sample< int,float>s3;
        cout<<" integer and float values"<<endl;
        s3.get();
        s3.display();
        return 0;
}
```

output:

```
C:\Users\admin\Desktop\tempclass.exe
 both are integers
 enter x,y values:34 56
x=34
y= 56
 both are floating values
 enter x,y values:23.234 465.45
x=23.234
y= 465.45
 integer and float values
 enter x,y values:23 45.545
x=23
y= 45.545

--------------------------------
Process exited after 39.02 seconds with return value 0
Press any key to continue . . .
```

10.2) Develop a C++ Program illustrating template class.

Program:

```
#include<iostream>
using namespace std;
template <class T>
class sample
{
        private:
                T x;
                T y;
                public:
                 void get()
                 {
                 cout<<" enter x,y values:";
                 cin>>x>>y;
                 }
                 void add()
                 {
                 cout<<"addition is"<<x+y<<endl;
                 }
};
int main()
{
        sample<int> s1;
        s1.get();
```

```
        s1.add();

        sample<float> s2;

        s2.get();

        s2.add();

        return 0;

}
```

Output: