Strings

For these experiments, you will write code for string variables.

Strings in C++ are represented using the `string` class. Unlike integers, real numbers, and characters, strings are not built into C++. They're added to the language through a library. A class defines what strings are. The name of the class is also the data type we need for our variables.

Since the `string` type is defined by a class, we must load a library to use the `string` data type. The library is conveniently named `string`, so we have add

```
#include <string> or #include<cstring>  according to the compiler
```

Example #1

Show the output of the following programs:

a)

```
// the following program get the values of alphabet characters #include <string>
 #include<stdio>
using namespace std;

int main()
{  char a='a'; int x,y;  char b='A';
for(int i=0; i<50;i++)
{x=a; y=b;
cout<<"    "<<a<<"   "<<x<<"   "<<b<<"   "<<y<<endl;
 a++;b++;}         return 0;       }
```

Output:

b) // strings as array of characters s1[ ]
// strings declared by class string st1, ss

```
#include <iostream>

# include <cstring>
using namespace std;

 int main( )
 {char s1[ ]=" s1, s2, s3,&s4,";
   cout<<sizeof(s1)<<"    "<<strlen(s1)<<endl;
   int i,k ;  cout<<" start"<<endl;
      cout<<" s1 "<<s1<<endl;
       k=0;   i=0;
  i++;}    while(s1[i]){ if(s1[i]=='s') k++; cout<<s1[i]<<endl;
cout<<" number of char "<<k<<endl;

 string st1, ss;
   st1="lec1, lec2, and lec3 are new lecs";
   ss="lec";
     k=st1.find(ss); cout<<k<<endl;
    while(k>=0){ st1[k]='s';  k= st1.find(ss,k+1);
cout<<"  new string  "<<st1;    cout<<k<<endl;  }
 return 0;}
```

Output:

Example #2

The following program uses the function large ( ) to find the maximum value in array of 100 integers. The main program calls the function to get the maximum value and the number of occurrence of the maximum value in the array and prints their locations.

<u>Complete the missing parts of the program.</u>

```
            #.................................................................
 .......  large(..............................) ;
  main( )
   {int ................................................;
       ..........................................................
      for (...............................................)
     cin>>.......................;
      max=large(..........);
     ..............................................................
     ...................................................................
      ..................................................................
      ....................................................................
      ...................................................................}

........ large(................... ) {
    .............................................
  .........................................
..................................................
.....................................................
.................................................................
    return ...................... }
```

Example #3

(Students are to code the following programs in the lab and show the output to instructor/course co-ordinator)

Instructions

• Write comment to make your programs readable.

• Use descriptive variables in your programs(Name of the variables should show their purposes)

Programs List

Write code for the following string manipulation functions:

a) **int strlen(char s1[ ])as described in lecture**
b) **int strcmp(char s1[ ], char s2[ ]) as described in lecture**
c) **void strcat(char s1[ ], char s2[ ]) as described in lecture**