School of Mechanical & Manufacturing Engineering (SMME),

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Sector H-12, Islamabad

Program: BE-Aerospace Section: AE-01

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Course Title: Fundamentals of Programming (CS-109)

“ Fop assignment ”

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Q. **Suppose an integer array a[5] = {1,2,3,4,5}. Add more elements to it and display them in C++.**

```
#include<iostream>
using namespace std;
int main()
{
   int array[5] = {1,2,3,4,5};
   int i ;
   cout << "please enter the number of elements you want to add in given array \n";
   int n;
   cin >> n;
   cout << "please enter the elements \n";
   for ( i=0 ; i<n ; i++)
   {
      cin >> array[i+5];
   }
   for (int i=0;i<n+5;i++)
   cout << array[i] << endl;;
   return 0;
}
```

```
pleaase enter the number of elements you want to add in given array
2
please enter the elements
12
34
1
2
3
4
5
12
34
```

/*Write a C++ program, take two strings as input from user and check if both strings are equal or not. If they are equal make them unequal by rotating string. e.g., Hello is turned into olleH etc. */

```
#include <iostream>
using namespace std;
int main()
{int n = 0, m = 0, i, j, k;
   char a[100];
   char b[100];
   cout << "enter string 1. Enter 0 to end input";
   for (i = 0;; i++)
   {cin >> a[i];
      if (a[i] == '0') {
         break;}
      m++;}
   cout << "enter string 2. Enter 0 to end input";
   for (j = 0;; j++)
   {cin >> b[j];
      if (b[j] == '0')
         break;
      n++;}
if (m != n) {
      cout << "not equal";}
   else {for (k = 0; k < m; k++) {
         if (a[k] != b[k])
            break;}
      if (k == m) {for (int c = 0, d = m - 1; c < d; c++, d--) {
            char temp = a[c];
            a[c] = a[d];
            a[d] = temp;}
```

```
    for (k = 0; k < m; k++)
        cout << a[k];}
else {
    cout << "not equal";
}}}
```

```
enter string 1. Enter 0 to end input
1
2
3
0
enter string 2. Enter 0 to end input
AB01
not equal
```

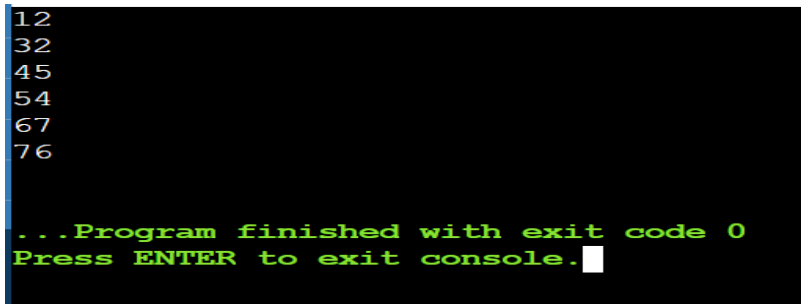
/*implement bubble sort on 6 integers */

```
#include <iostream>

using namespace std;

int main()
{
   int i;
   int a[6]={32,67,54,45,12,76};
   int temp;
   for(int i=0;i<=5;i++)
      for (int j=0; j<=5-i;j++){
      if (a[j]>a[j+1]){
        temp=a[j];
        a[j]=a[j+1];
        a[j+1]=temp;}
   }

   for(int k=0; k<6; k++){
      cout<<a[k]<<endl;}
   return 0;
```




```
}
```

q.6// Solves simultaneous equations with 2 variables

```
 #include <iostream>
using namespace std;
int main() {
   // Solves simultaneous equations with 2 variables
int a1, b1, c1;
   cout << "For equation 1 ax + by + c = 0, input coefficient of x: ";
   cin >> a1;
   cout << "Coefficient of y: ";
   cin >> b1;
   cout << "Value of constant: ";
   cin >> c1;
 cout << "\n";
 int a2, b2, c2;
   cout << "For equation 2 ax + by + c = 0, input coefficient of x: ";
   cin >> a2;
   cout << "Coefficient of y: ";
   cin >> b2;
   cout << "Value of constant: ";
   cin >> c2;
double multiplier = (double)a1 / a2;
a2 *= multiplier;
   b2 *= multiplier;
   c2 *= multiplier;
 int b3 = b1 - b2;
   int c3 = c1 - c2;
 double y = (double)(-c3) / b3;
double x = ((-c1) + (-b1 * y)) / a1;
cout << "\n";
   cout << "The Answers are \n";
```

```
    cout << "x : " << x << "\n"
cout << "y : " << y << "\n";
    return 0;}
```

```
For equation 1 ax + by + c = 0, input coefficient of x: 3
Coefficient of y: 6
Value of constant: 8

For equation 2 ax + by + c = 0, input coefficient of x: 2
Coefficient of y: 5
Value of constant: 6

The Answers are
x : -0.666667
y : -1
```

/*Write a C++ program that uses a while loop to find the largest prime number less than a given positive integer N. Your program should take the value of N as input

from the user and then find the largest prime number less than or equal to N. You

are not allowed to use any library or pre-existing functions to check for prime

numbers.*/

```
#include<iostream>
using namespace std;
int main()
{
    int m,count;
    int n,i;
    cout<<"enter integer for which largest prime number needs to be found";
    cin>>n;
   for(i=1; i<=n; i++){
    count = 0;
    for(int j=1;j<=i;j++){
        if (i%j==0){
        count++;}}
        if (count==2){
        m=i;}}
    cout<< m;
```

```
enter integer for which largest prime number needs to be found
12
11
}
```

Write a C++program for a string which may contain lowercase and uppercase characters. The task is to remove all duplicate characters from the string and find the resultant string.

```
#include <iostream>

#include <string>

using namespace std;

int main()

{string str;

cout << "Enter a string: ";

cin >> str;

for (int i = 0; i < str.length(); ++i)

{char x = str[i];

for (int j = i + 1; j < str.length();){

if (str[j] == x)

{  str.erase(j, 1); }

else

{ ++j; } } }

cout << "Resultant string after removing duplicates: " << str << endl;

return 0; }
```

```
Enter a string: shahumer
Resultant string after removing duplicates: shaumer
```