ASSIGNMENT 1

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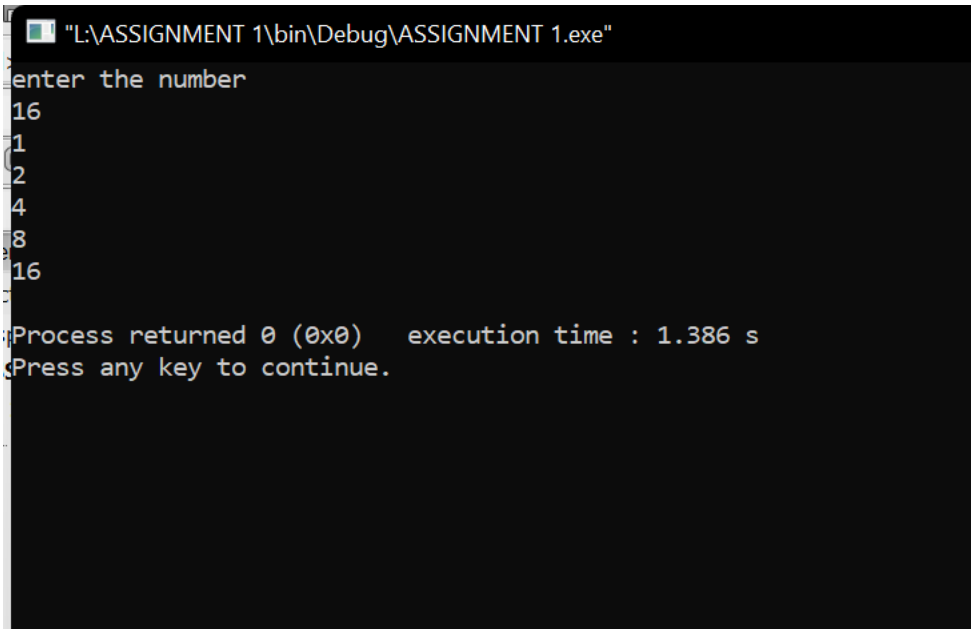
ME-15-B

QUESTION 1:

Write a C++ program to display factors of a number using for loops.

ANSWER:

```
#include <iostream>
using namespace std;
int main(){
 //TASK 1
 int n;
 cout<<"enter the number"<<endl ;
 cin>>n;
 for(int i=1;i<=n;++i)
 {
    if(n%i==0){
       cout<<i<<endl;
    }
 }
```



QUESTION 2:

Write output to the following code.

```
#include <iostream>
int main() {
int x = 5;
int y = 10;
if (x == 5)
if (y == 10)
std::cout << "x is 5 and y is 10" << std::endl;
else
std::cout << "x is not 5" << std::endl;
return 0;
}
```

ANSWER:

```
#include<iostream>
Using namespace std;
int x = 5;
 int y = 10;
 if (x == 5)
 if (y == 10)
 cout << "x is 5 and y is 10" << endl;
 else
 cout << "x is not 5" << endl;
 return 0;
}
```

```
x is 5 and y is 10

Process returned 0 (0x0)   execution time : 2.715 s
Press any key to continue.
```

Question 3:

Write a C++ program, take an integer value from user and check if it's greater than 10 and less thanequal to 20. Print 1 if yes and print 0 if no. Use appropriate datatype for output.

ANSWER:

```
int a;
 cout<<"enter the number"<<endl;
 cin>>a;
 if(a>10){
       if (a<=20){
    cout<<"1"<<endl;
       }
       else{
          cout<<0;
       }
 }
   return 0;
}
```

```
enter the number
18
1

Process returned 0 (0x0)   execution time : 7.692 s
Press any key to continue.
```

QUESTION 4:

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.
ANSWER:

```
int n;
   cout << "Enter a positive integer: ";
   cin >> n;

   int m = n - 1;
   while (m > 1) {
      bool is_prime = true;
      for (int j = 2; j < m; j++) {
         if (m % j == 0) {
            is_prime = false;
            break;
         }
      }
      if (is_prime) {
         cout << "The largest prime number less than or equal to " << n << " is " << m << endl;
         break;
      }
      m--;
   }
   if (m == 1) {
      cout << "There is no prime number less than or equal to " << n << endl;
   }

   return 0;
}
```

```
Enter a positive integer: 78
The largest prime number less than or equal to 78 is 73

Process returned 0 (0x0)   execution time : 7.452 s
Press any key to continue.
```

QUESTION 5:

Write a C++ program, take two string 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.

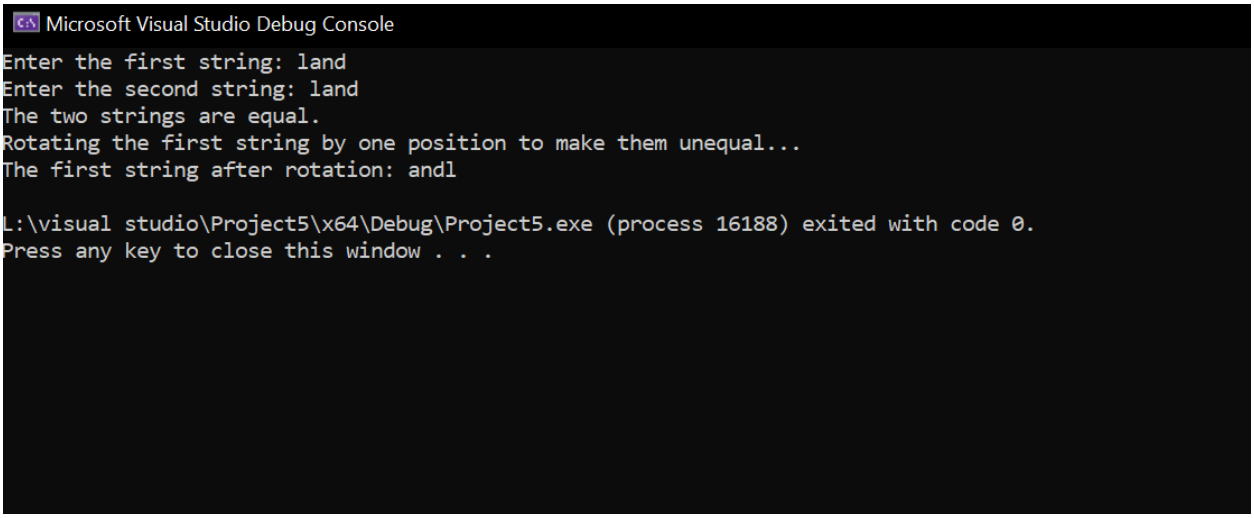
ANSWER:

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

```cpp
int main() {
    string str1, str2;
    cout << "Enter the first string: ";
    cin >> str1;
    cout << "Enter the second string: ";
    cin >> str2;

    if (str1 == str2) {
        cout << "The two strings are equal." << endl;
        cout << "Rotating the first string by one position to make them unequal..."
<< endl;
        char temp = str1[0];
        for (int i = 0; i < str1.length() - 1; i++) {
            str1[i] = str1[i + 1];
        }
        str1[str1.length() - 1] = temp;
        cout << "The first string after rotation: " << str1 << endl;
    }
    else {
        cout << "The two strings are not equal." << endl;
    }

    return 0;
}
```



QUESTION 6:

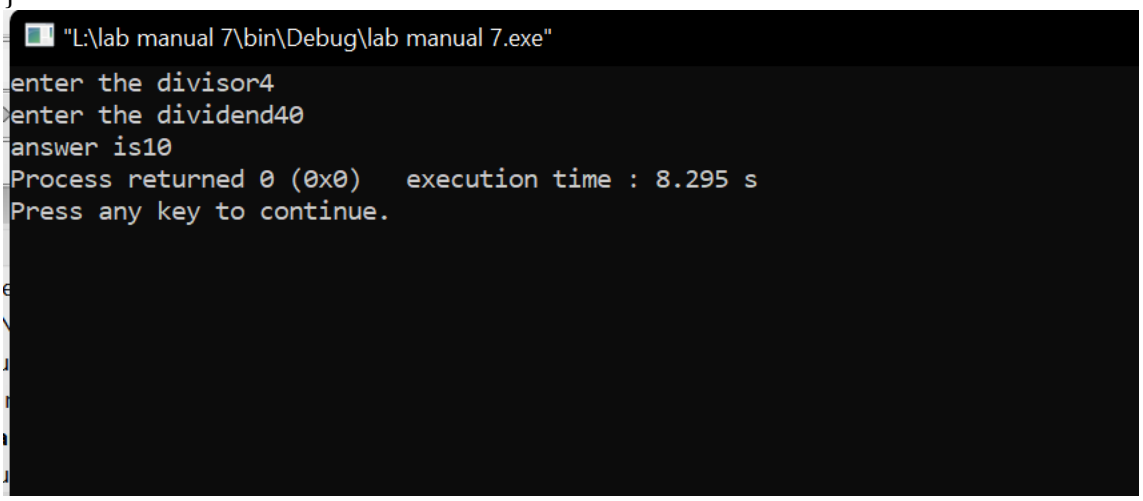
Perform division in C++ **without** / using **for** loops. You can use / only to display the final results. Your dividend must be greater than divisor.

ANSWER:

#include <iostream>
using namespace std;
int main()

```
{
   int divisor,dividend;
cout<<"enter the divisor";
cin>>divisor;
cout<<"enter the dividend";
cin>>dividend;

if(dividend<divisor){
   cout<<"division not possible";}
   else{
     cout<<"answer is"<<dividend/divisor;
   }
   return 0;
}
```



QUESTION 7:

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.

ANSWER:

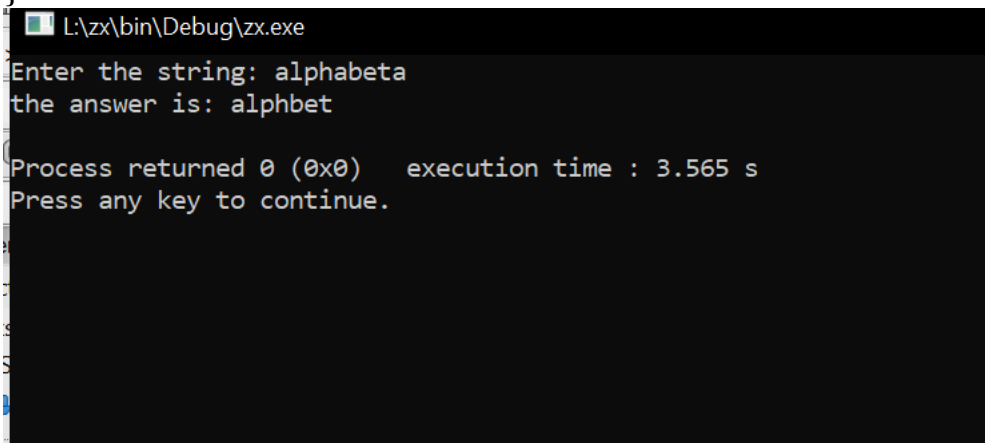
```
#include <iostream>
using namespace std;
const int CHAR_COUNT = 1000;
string removeDuplicates(const string& str) {
    bool seen[CHAR_COUNT] = {false};
    string result;
    for (char ch : str) {
        if (!seen[ch]) {
            result.push_back(ch);
            seen[ch] = true;
```

```
        }
    }

    return result;
}
int main() {
    string input;
    cout << "Enter the string: ";
    getline(cin, input);


    string result = removeDuplicates(input);
    cout << "the answer is: " << result << endl;

    return 0;
}
```



QUESTION 8:

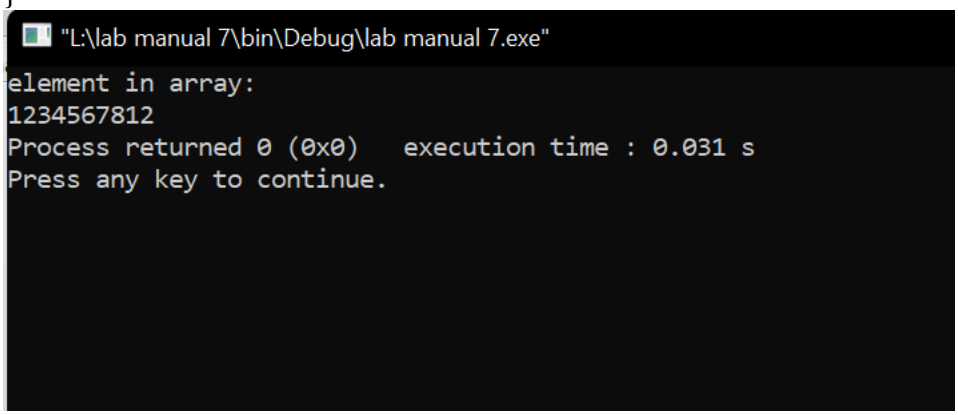
. Suppose an integer array a[5] = {1,2,3,4,5}. Add more elements to it and display them in C++

ANSWER:

```
#include <iostream>
using namespace std;
int main() {
    int arr[5]={1,2,3,4,5};
    int newsize=10;
```

```
    int newarr[8];
    for(int i=0;i<5;++i){
        newarr[i]=arr[i];
    }
newarr[5]=6;
newarr[6]=7;
newarr[7]=8;

cout<<"element in array:"<<endl;
for(int i=0;i<newsize; ++i){
    cout<<newarr[i];
}
    return 0;
}
```

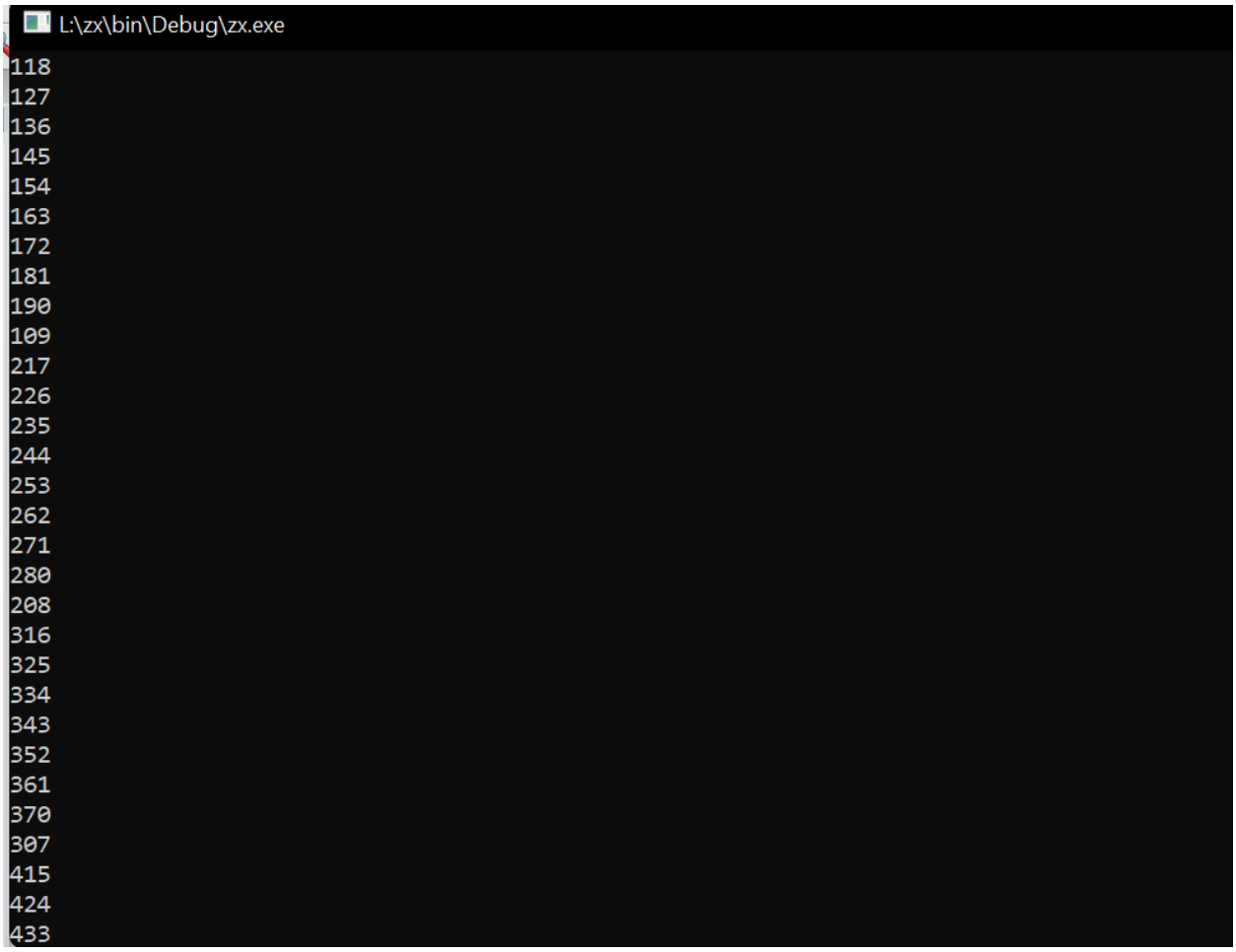


QUESTION 9:

Given an integer array and an integer **X**. Find if there's a triplet in the array which sums up to the given integer **X**.

ANSWER:

```
#include <iostream>
using namespace std;
int main() {
  int arr[10]={1,2,3,4,5,6,7,8,9};
  for(int i=0;i<=10;i++){
    for(int j=0;j<=10;j++){
        for(int k=0;k<=10;k++)
        if(arr[i]+arr[j]+arr[k]==10)
            cout<<arr[i]<<arr[j]<<arr[k]<<endl;
    }
  }
    return 0;
}
```



QUESTION 10:

. Implement Bubble Sort on an array of 6 integers

ANSWER:

```
#include <iostream>
using namespace std;
int main() {
int n;
cin>>n;
int arr[n];
for(int i=0;i<n; i++){
   cin>>arr[i];
}
int counter=1;
while(counter<n-1){
for(int i=0;i<n-counter;i++){
   if(arr[i]>arr[i+1]){
      int temp=arr[i];
      arr[i]=arr[i+1];
      arr[i+1]=temp;
   }
```

```
}
counter++;
}
for(int i=0;i<n;i++){
   cout<<arr[i]<<" ";
}
cout<<endl;
}
```

FILE: