```
1. (i)
#include <iostream>
using namespace std;
int main(){
  int first, last, sum=0;
  cout<<"Enter first number: ";
  cin>>first;
  cout<<"Enter last number: ";
  cin>>last;
  for(int i=first;i<=last;i++){
    sum=sum+i;
  }
  cout<<"Sum of all the numbers between "<<first<<" & "<<last<<" is "<<sum<<endl;
}</pre>
```

```
C·· ques1a.cpp X
        #include <iostream>
      using namespace std;
    4 int main(){
             int first, last, sum=0;
            cout<<"Enter first number: ";</pre>
           cin>>first;
              cout<<"Enter last number: ";</pre>
             cin>>last;
              for(int i=first;i<=last;i++){</pre>
                   sum=sum+i;
              cout<<"Sum of all the numbers between "<<first<<" & "<<last<<" is "<<sum<<endl;</pre>
                                                                                                                  1: Code
Microsoft Windows [Version 10.0.19042.867]
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C:\Users\Dell\Desktop\Codes>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ quesla.cpp -o quesla && "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\"quesla
Enter first number: 1
Enter last number: 4
Sum of all the numbers between 1 & 4 is 10
 c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1>
```

1. (ii)

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

int main(){
   int goal, n=0, sum=0;
   cout<<"Enter goal: ";
   cin>>goal;
   for(int i=1;sum<goal;i++){
      sum=sum+i; n++;
   }
   cout<<"The value of n is "<<n<<endl;
}</pre>
```

1 (iii)

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

int gcd(int a, int b) {
    return (b==0)?a:gcd(b,a%b);
}

int main() {
    int a, b;
    cout<<"Enter a: ";
    cin>>a;
    cout<<"Enter b: ";
    cin>>b;
    cout<<gcd(a, b)<<endl;
}</pre>
```

```
•• ques1a.cpp C•• ques1b.cpp C•• ques1c.cpp X
       #include <iostream>
       using namespace std;
        int gcd(int a, int b){
             return (b==0)?a:gcd(b,a%b);
        int main(){
           int a, b;
           cout<<"Enter a: ";
             cin>>a;
             cout<<"Enter b: ";
            cin>>b;
             cout<<gcd(a, b)<<endl;</pre>
                                                                                                           1: Code
C:\Users\Dell\Desktop\Codes>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ ques1c.cpp -o ques1c && "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\"ques1c Enter a: 105 Enter b: 30
(c) 2020 Microsoft Corporation. All rights reserved.
c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ ques1c.cpp -o ques1c && "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\"ques1c
Enter a: 6
Enter b: 20
c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1>
```

Name: Tanya Sood Roll No. 101915140 Batch: 2NC6

1 (iv)

```
#include <iostream>
using namespace std;
int main(){
  int n, count = 0;
  cout << "Enter number: ";</pre>
  cin >> n;
  if (n == 0 || n == 1){
     cout << "It is not a prime number." << endl;</pre>
  else{
     for (int i = 2; i < n; i++){
        if (n \% i == 0)
           count++;
     if (count > 1)
        cout << "It is not a prime number." << endl;</pre>
        cout << "It is a prime number." << endl;
  return 0;
```

```
c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\cd "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" && g++ quesld.cpp -o quesld && "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesld Enter number: 3

It is a prime number.

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\cd "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" && g++ quesld.cpp -o quesld && "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesld Enter number: 6

It is not a prime number.

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\cd "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" && g++ quesld.cpp -o quesld && "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesld Enter number: 8

It is not a prime number.

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\cd "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" && g++ quesld.cpp -o quesld && "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" quesld Enter number: 101

It is a prime number.

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesld Enter number: 101

It is a prime number.

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesld Enter number: 01

C:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesld Enter number: 02

C:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesld Enter number: 03

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```

1 (v)

```
#include <iostream>
#include <string>
using namespace std;
int main(){
    string s[10] = {"Zero", "One", "Two", "Three", "Four", "Five", "Six", "Seven", "Eight", "Nine
"};
    int n;
    cout<<"Enter any number b/w 1 and 9: ";
    cin>>n;
    cout<<s[n]<<endl;
}</pre>
```

```
C•• ques1d.cpp C•• ques1e.cpp X
                      #include <iostream>
                  #include <string>
                   using namespace std;
         4 int main(){
                                     string s[10] = {"Zero", "One", "Two", "Three", "Four", "Five", "Six", "Seven", "Eight", "Nine"};
                                      cout<<"Enter any number b/w 1 and 9: ";</pre>
                                       cin>>n;
                                        cout<<s[n]<<endl;</pre>
TERMINAL DEBUG CONSOLE PROBLEMS OUTPUT
                                                                                                                                                                                                                                                                                                                                                                                                                                       1: Code
 C:\Users\Dell\Desktop\Codes\cd "c:\Users\Dell\Desktop\Codes\dsa\_assignments\ass1\" \& g++ ques1e.cpp -o ques1e \&\& "c:\Users\Dell\Desktop\Codes\cd" c:\Users\Dell\Desktop\Codes\cd" c:\Users\Desktop\Codes\cd" c:\Users\Deskto
ass1\"ques1e
Enter any number b/w 1 and 9: 8
c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ quesle.cpp -o codes\dsa_assignments\ass1\" quesle
odes\dsa_assignments\ass1\"quesle
Enter any number b/w 1 and 9: 9
c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ quesle.cpp \neg o codes\dsa_assignments\ass1\"quesle Enter any number b/w 1 and 9: 1
c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1>
```

1 (vi)

```
#include <iostream>
#include <string>
using namespace std;
void reverse(int *&arr, int n){
  int s=0; int e=n-1;
  while(s \le e)
    int r = arr[s];
    arr[s] = arr[e];
    arr[e] = r;
     s++; e--;
  return;
int main(){
  cout<<"Enter the size of array: ";</pre>
  int n; cin >> n; // n = size of array
  int *arr = new int(n);
  cout<<"\nEnter the elements of array: ";</pre>
  for(int i=0; i<n; i++)
  cin>>arr[i];
  reverse(arr, n);
  for(int i=0; i<n; i++)
  cout<<arr[i]<<" ";
  cout<<endl;
```

1 (vii)

```
#include <bits/stdc++.h>
using namespace std;

int main(){
    cout<<"Enter the size of array: ";
    int n; cin>>n; // n = size of array
    int arr[n];
    cout<<"Enter the elements of array: ";
    for(int i=0; i<n; i++)
        cin>>arr[i];

int m = INT_MIN; int ans = -1;
    for(int i=0; i<n; i++){
        if(arr[i]>m){
            ans=i;
            m = arr[i];
        }
    }
    cout<<"Index of max element is: "<<ans<<endl;
}</pre>
```

```
TERMINAL DEBUG CONSOLE PROBLEMS OUTPUT

1:Code

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C:\Users\Del\\Desktop\Codes\cd "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" && g++ queslg.cpp -o queslg && "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" queslg
Enter the size of array: 5
Enter the elements of array: 4 2 7 9 10
Index of max element is: 4

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\cd "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" queslg
Enter the size of array: 8
Enter the size of array: 8
Enter the elements of array: 10 76 192 10 4 1 78 92
Index of max element is: 2

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\*

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Go to Settings to activate Windows.
```

```
#include <bits/stdc++.h>
using namespace std;
int main(){
  cout<<"Enter the size of array: ";</pre>
  int n; cin>>n; // n = size of array
  int arr[n];
  cout<<"Enter the elements of array: ";</pre>
  for(int i=0; i<n; i++)
     cin>>arr[i];
  int temp = arr[n-1];
  for(int i=n-1; i>0; i--){
     arr[i] = arr[i-1];
  arr[0] = temp;
  cout<<"Shifted Array: ";</pre>
  for(int i=0; i<n; i++)
     cout<<arr[i]<<" ";
  cout<<endl;
```

```
#include <bits/stdc++.h>
using namespace std;
int main(){
  cout<<"Enter the size of array: ";</pre>
  int n; cin>>n; // n = size of array
  int arr[n];
  cout<<"Enter the elements of array: ";</pre>
  for(int i=0; i<n; i++)
     cin>>arr[i];
  int k=0;
  for (int i=0; i<n; ++i) {
     int flag=1;
     for (int j=0; j< i; ++j) {
        if (arr[j] == arr[i]) {
           flag=0;
          break;
     if (flag)
        swap(arr[k++], arr[i]);
   } n=k;
  cout<<"Array after removing duplicates: ";</pre>
  for(int i=0; i<n; i++)
     cout<<arr[i]<<" ";
  cout<<endl;
```

```
TERMINAL DEBUG CONSOLE PROBLEMS OUTPUT

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C:\Users\Del\\Desktop\Codes\cd "c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\" && g++ quesli.cpp -o quesli && "c:\Users\Del\\Desktop\Codes\dsa_assignments of array: 6
Enter the size of array: 1 2 1 5 2 1
Array after removing duplicates: 1 2 5

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesli
Enter the size of array: 8
C:\Users\Del\\Desktop\Codes\dsa_assignments\ass1\"quesli
Enter the size of array: 8
Enter the elements of array: 8
Enter the elements of array: 4 1 1 3 3 4 9 10
Array after removing duplicates: 4 1 3 9 10

c:\Users\Del\\Desktop\Codes\dsa_assignments\ass1>

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```

```
#include <bits/stdc++.h>
using namespace std;
int main(){
  cout<<"Enter the size of array 1: ";</pre>
  int n1; cin >> n1; // n1 = size of array 1
  int arr1[n1];
  cout<<"Enter the elements of array 1: ";</pre>
  for(int i=0; i<n1; i++)
     cin>>arr1[i];
  cout<<"Enter the size of array 2: ";</pre>
  int n2; cin>>n2; // n2 = size of array 2
  int arr2[n2];
  cout<<"Enter the elements of array 2: ";</pre>
  for(int i=0; i<n2; i++)
     cin>>arr2[i];
  int n = n1+n2; // n = size of array
  int arr[n]; int i=0, j;
  for(i=0; i<n1; i++)
     arr[i] = arr1[i];
  for(i, j=0; j<n2; i++, j++)
     arr[i] = arr2[j];
  cout<<"Array after merging: ";</pre>
  for(int i=0; i<n; i++)
     cout <<arr[i] << " ";
  cout<<endl;
```

```
TERMINAL DEBUG CONSOLE PROBLEMS OUTPUT

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C:\Users\Dell\Desktop\Codes>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ queslj.cpp -o queslj && "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" enter the size of array 1: 5
Enter the elements of array 1: 1 2 3 4 5
Enter the size of array 2: 5
Enter the elements of array 2: 6 7 8 9 10
Array after merging: 1 2 3 4 5 6 7 8 9 10
```

```
#include <bits/stdc++.h>
using namespace std;
int sum(int *arr, int n){
  int s = 0;
  for(int i=0; i< n; i++){
     s+=arr[i];
  return s;
int maximum(int *arr, int n){
  int m=INT_MIN;
  for(int i=0; i< n; i++){
     m=max(arr[i],m);
  return m;
int linear_search(int *arr, int n, int x){
  for(int i=0; i< n; i++){
     if(arr[i] == x)
     return i;
  return -1;
int main(){
  cout<<"Enter the size of array: ";</pre>
  int n; cin>>n; // n = size of array 1
  int arr[n];
  cout<<"Enter the elements of array: ";</pre>
  for(int i=0; i<n; i++)
     cin>>arr[i];
  cout<<"Sum of all the elements of Array is: "<<sum(arr, n)<<endl;
  cout<<"Maximum of all the elements of Array is: "<<maximum(arr, n)<<endl;</pre>
  cout<<"Enter the element to search for: ";</pre>
  int x; cin >> x;
```

```
cout<<"The element "<<x<<" is present at index "<<li>linear_search(arr, n, x)<<endl;</pre>
```

```
#include <iostream>
using namespace std;
int main()
{
    int a[5][5], b[5][5], c[5][5], d[5][5], i, j, m, n;
```

```
cout << "Enter the order of matrix: ";</pre>
cin >> m >> n;
cout << "Enter elements of matrix A: "<<endl;</pre>
for (i = 0; i < m; i++)
  for (j = 0; j < n; j++)
     cin >> a[i][j];
cout << "Enter elements of matrix B: "<<endl;
for (i = 0; i < m; i++)
  for (j = 0; j < n; j++)
     cin >> b[i][j];
c[i][j] = 0;
cout \ll "A + B: " \ll endl;
for (i = 0; i < m; i++) {
  for (j = 0; j < n; j++) {
     c[i][j] = a[i][j] + b[i][j];
     cout << c[i][j] << " ";
  cout << endl;
cout << "B - A: " << endl;
for (i = 0; i < m; i++)
  for (j = 0; j < n; j++){
     d[i][j] = b[i][j] - a[i][j];
     cout << d[i][j] << " ";
  cout << endl;
return 0;
```

```
C:\Users\Dell\Desktop\Codes>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ ques3.cpp -o ques3 && "c:\Users\Dell\Deskt op\Codes\dsa_assignments\ass1\"ques3
Enter the order of matrix 2 3
Enter elements of matrix A:
1 2 3
4 5 6
Enter elements of matrix B:
4 5 6
1 2 3
A + B:
5 7 9
5 7 9
B - A:
3 3 3
-3 -3 -3

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```
#include <iostream>
using namespace std;
int main() {
  int r1, c1, r2, c2, i, j, k;
```

```
cout << "Enter the order of Matrix A: ";
 cin >> r1 >> c1; int a[r1][c1];
 cout << "Enter the order of Matrix B: ";</pre>
 cin >> r2 >> c2; int b[r2][c2];
 cout << "Enter the elements of Matrix A: " << endl;
 for (i = 0; i < r1; i++)
    for (j = 0; j < c1; j++)
       cin >> a[i][j];
 cout << "Enter the elements of Matrix B: " << endl;
 for (i = 0; i < r2; i++)
    for (j = 0; j < c2; j++)
       cin >> b[i][j];
 int mul[c2][(c2*r1)];
 cout << "A X B: " << endl;
 for (i = 0; i < r1; i++)
    for (j = 0; j < c2; j++)
       for (k = 0; k < c1; k++)
         mul[i][j] = a[i][k] * b[k][j];
         cout << mul[i][j] << " ";
    } cout << endl;
Enter the order of Matrix A: 3 3
Enter the order of Matrix B: 3 3
Enter the elements of Matrix A:
1 2 3
4 5 6
7 8 9
Enter the elements of Matrix B:
7 8 9
A X B
  X B:
1 8 21 2 10 24 3 12 27
4 20 42 8 25 48 12 30 54
7 32 63 14 40 72 21 48 81
```

```
#include <bits/stdc++.h>
using namespace std;
int linear_search(int *arr, int n, int x){
```

```
for(int i=0; i<n; i++){
    if(arr[i] == x)
    return i;
}
return -1;
}

int main(){
    cout<<"Enter the size of array: ";
    int n; cin>>n; // n = size of array 1
    int arr[n];
    cout<<"Enter the elements of array: ";
    for(int i=0; i<n; i++)
        cin>>arr[i];

cout<<"Enter the element to search for: ";
    int x; cin>>x;
    cout<<"The element "<<x<" is present at index "<<li>linear_search(arr, n, x)<</li>
```

```
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C:\Users\Dell\Desktop\Codes>cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ ques5.cpp -o ques5 && "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" element to search for: 23
The element 23 is present at index -1

c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ ques5.cpp -o ques5 && "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" element to search for: 23
The element 23 is present at index -1

c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\cd "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" && g++ ques5.cpp -o ques5 && "c:\Users\Dell\Desktop\Codes\dsa_assignments\ass1\" element of array: 7
Enter the elements of array: 1 3 21 43 65 12 0
Enter the element to search for: 0
The element 0 is present at index 6

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```
#include <bits/stdc++.h>
using namespace std;

class Rectangle{
private:
   int len, breadth;
```

```
public:
  Rectangle(){
  Rectangle(int l, int b){
     len = 1;
     breadth = b;
  int area(){
     return len*breadth;
  int perimeter(){
     return 2*(len+breadth);
int main(){
  int l, b;
  cout<<"Enter length and breadth of the Rectangle: ";</pre>
  cin>>l>>b;
  Rectangle r(l, b);
  cout<<"Area of Rectangle is: "<<r.area()<<endl;</pre>
  cout<<"Perimeter of Rectangle is: "<<r.perimeter()<<endl;</pre>
```

```
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C:\Users\Del\Desktop\Codes\cds_assignments\ass1\" && g++ ques6.cpp -o ques6 && "c:\Users\Del\Desktop\Codes\dsa_assignments\ass1\" && g++ ques6.cpp -o ques6 && "c:\Users\Del\Desktop\Codes\ds
```