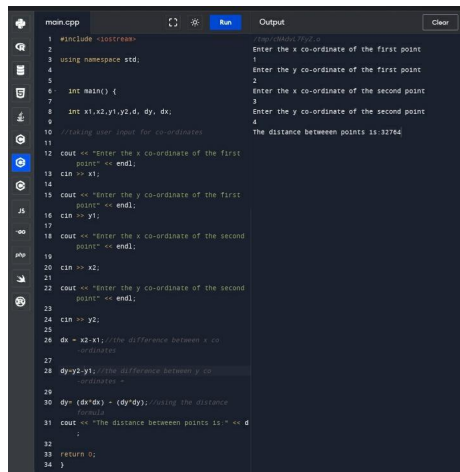


Name: Hamdan Hafeez Malik
Roll: 480469

Lab Manual 1 (HOME TASK)

Q1:

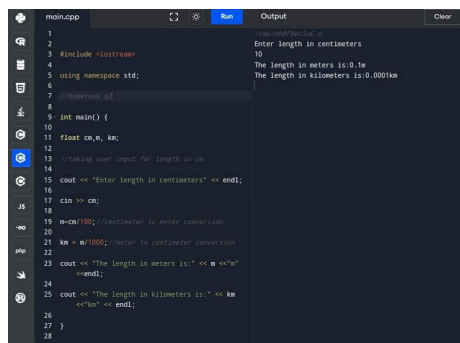


```
main.cpp
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int x1,x2,y1,y2,dx, dy, dx;
6
7     //taking user input for co-ordinates
8
9     cout << "Enter the x co-ordinate of the first point" << endl;
10    cin >> x1;
11
12    cout << "Enter the y co-ordinate of the first point" << endl;
13    cin >> y1;
14
15    cout << "Enter the x co-ordinate of the second point" << endl;
16    cin >> x2;
17
18    cout << "Enter the y co-ordinate of the second point" << endl;
19    cin >> y2;
20
21    dx = x2-x1; //the difference between x co-ordinates
22    dy = y2-y1; //the difference between y co-ordinates
23
24    d= (dx*dx) + (dy*dy); //taking the distance
25
26    cout << "The distance between points is:" << d << endl;
27
28    return 0;
29 }
```

Output

```
Enter the x co-ordinate of the first point
1
Enter the y co-ordinate of the first point
2
Enter the x co-ordinate of the second point
3
Enter the y co-ordinate of the second point
4
The distance between points is:32764
```

Q2:



```
main.cpp
1 //problem 2
2 #include <iostream>
3 using namespace std;
4
5 //problem 2
6
7 int main() {
8     float cm,m, km;
9
10    //taking user input for length in cm
11
12    cout << "Enter length in centimeters" << endl;
13    cin >> cm;
14
15    m=cm/100; //centimeter to meter conversion
16    km = m/1000; //meter to kilometer conversion
17
18    cout << "The length in meters is:" << m << endl;
19
20    cout << "The length in kilometers is:" << km << endl;
21
22    return 0;
23 }
```

Output

```
Enter length in centimeters
10
The length in meters is:0.1m
The length in kilometers is:0.0001km
```

Q3:

```
main.cpp Run Output Clear
1 //homework 4
2 #include <iostream>
3 using namespace std;
4 //homework 4
5
6 int main() {
7
8     int a,b,p;
9     //taking user input for a and b
10
11     cout << "Enter the value for 'a':<";
12     cin >> a;
13     cout << "Enter the value for 'b':<";
14     cin >> b;
15
16     p = (a*a) + 2*a*b + (b*b); // polynomial equation
17     cout << "The result of polynomial is:" << p;
18 }
19
20
21
22
23
24
25
26
27
```

Output

```
1 //homework 4
2 Enter the value for 'a':
3 Enter the value for 'b':
4
5 The result of polynomial is:64
```

Q4:

```
main.cpp Run Output Clear
1 //homework 4
2 #include <iostream>
3 using namespace std;
4 //homework 4
5
6 int main() {
7
8     float c1,c2,f;
9     //taking user input for temperature in
10     //Fahrenheit
11
12     cout << "Enter temperature in degree Fahrenheit<";
13     cin >> f;
14
15     c1 = (f - 32)*5/9; //assigning the conversion
16     //formula without the division
17     c2 = c1/9;
18     cout << "The temperature in Degree Celsius is:"<
19     << c2 << "c";
20 }
21
22
23
24
25
26
27
```

Output

```
1 //homework 4
2 Enter temperature in degree Fahrenheit:
3 90
4 The temperature in Degree Celsius is:32.2222c
```

Lab Manual 2 (HOME TASK)

Q1:

```
main.cpp Run Output Clear
1 //homework1-manual2
2 #include <iostream>
3 using namespace std;
4 int main()
5 {
6     int score;
7     cout<<"Enter your exam score:<";
8     cin>> score;
9
10     if (score == 90){ //maximum score is 100 hence
11         //we need for upper
12         cout<<"Your grade is: A";
13     }
14     else if (score > 75 && score < 90){ cout <<
15         "Your grade is: B";
16     }
17     else if (score > 60 && score < 75){ cout <<
18         "Your grade is: C";
19     }
20     else if (score > 40 && score < 60){ cout <<
21         "Your grade is: D";
22     }
23     else if (score < 40){ // minimum score is 0 hence
24         //we need for lower limit
25         cout << "Your grade is: E";
26     }
27     return 0;
28 }
```

Output

```
1 //homework1-manual2
2 Enter your exam score:
3 90
4 Your grade is: A
```

Q2:

```
main.cpp Run Output Clear
1 #include <iostream>
2 using namespace std;
3
4
5 int main() {
6     // declare a variable to store user input
7     int num;
8
9     // get input from the user
10    cout << "Enter an integer: ";
11    cin >> num;
12
13    // Check if the number is even and
14    // divisible by 5
15    if (num % 2 == 0 && num % 5 == 0) {
16        cout << num << " is both even and
17        divisible by 5." << endl;
18    } else {
19        cout << num << " is not both even and
20        divisible by 5." << endl;
21    }
22    return 0;
23 }
```

Output: Enter an integer: 9
9 is not both even and divisible by 5.

Q3:

```
main.cpp Run Output Clear
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int year;
6     cout << "Enter a year: ";
7     cin >> year;
8
9     if ((year % 4 == 0 && year % 100 != 0) ||
10         (year % 400 == 0)) {
11         cout << year << " is a leap year." <<
12         endl;
13     } else {
14         cout << year << " is not a leap year."
15         << endl;
16     }
17    return 0;
18 }
```

Output: Enter a year: 5
5 is not a leap year.

Q4:

```
main.cpp Run Output Clear
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     float gpa;
6     int attendancePercentage;
7
8     cout << "Enter GPA: ";
9     cin >> gpa;
10    cout << "Enter attendance percentage: ";
11    cin >> attendancePercentage;
12
13    if (gpa >= 3.5 && attendancePercentage >=
14        80) {
15        cout << "Congratulations! You are
16        eligible for the scholarship." <<
17        endl;
18    } else {
19        cout << "Sorry, you are not eligible
20        for the scholarship." << endl;
21    }
22    return 0;
23 }
```

Output: Enter GPA: 5
Enter attendance percentage: 5
Sorry, you are not eligible for the scholarship.

Q5:

```
main.cpp Run Output Clear
1 #include <iostream>
2
3 using namespace std;
4
5 //using namespace std;
6
7 int main()
8 {
9     char letter;
10
11     //taking user input
12     cout << "Enter a letter:\n";
13
14     cin >> letter;
15
16     if((letter=='a' || letter=='e' || letter=='i' ||
17         letter=='o' || letter=='u')){
18
19         //using OR logical operator
20
21         cout << "The letter is a vowel";
22     }
23     else cout << "The letter is a consonant";
24
25     return 0;
26 }
```