

# PROGRAMMING FUNDAMENTALS ASSIGNMENT

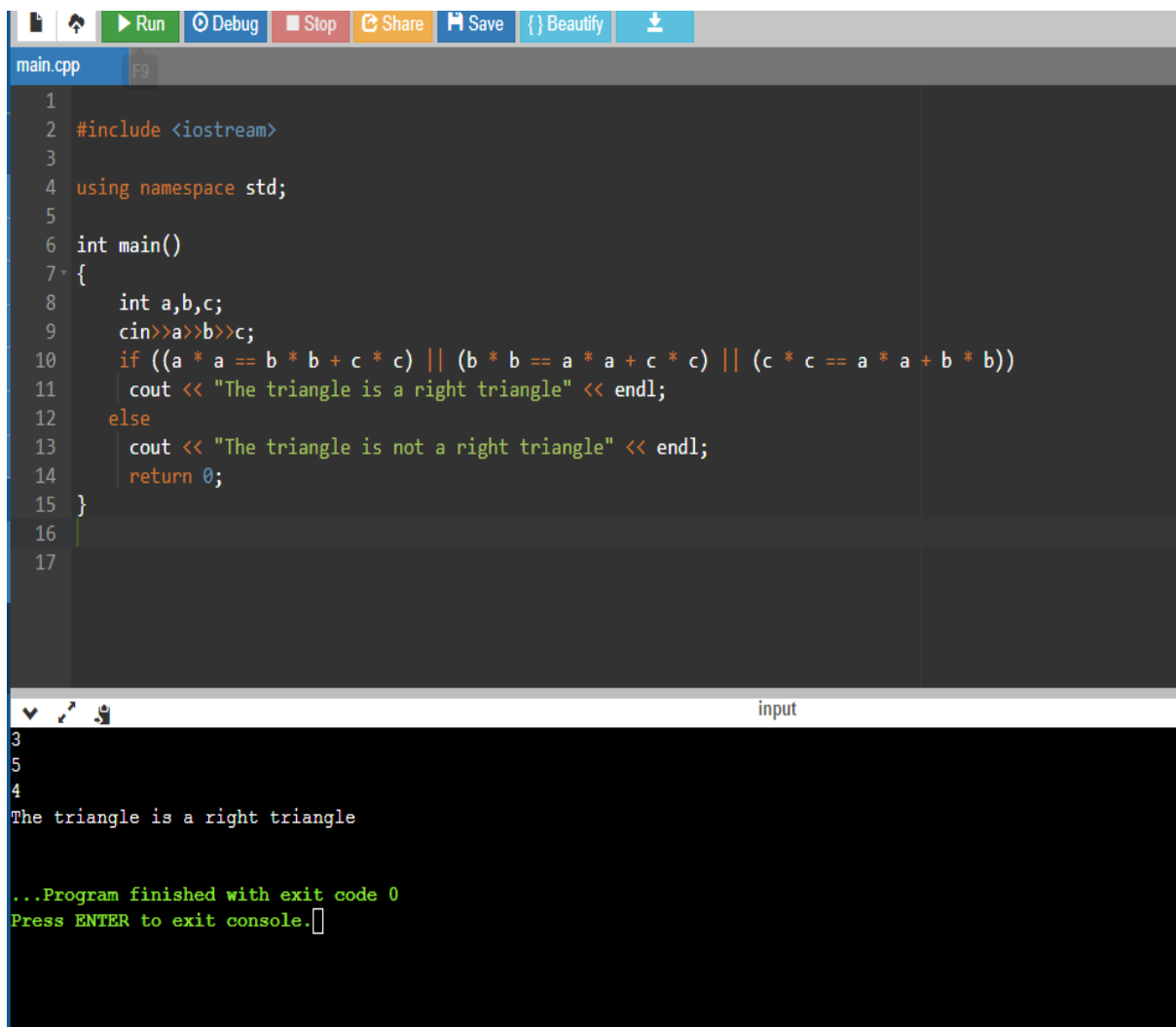
NAME: DUAA DARA

ROLL NO: 232481

BSCS-B-MORNING

QUESTION # 1:

CODE AND OUTPUT:



```
1
2 #include <iostream>
3
4 using namespace std;
5
6 int main()
7 {
8     int a,b,c;
9     cin>>a>>b>>c;
10    if ((a * a == b * b + c * c) || (b * b == a * a + c * c) || (c * c == a * a + b * b))
11        cout << "The triangle is a right triangle" << endl;
12    else
13        cout << "The triangle is not a right triangle" << endl;
14    return 0;
15 }
16
17
```

input

```
3
5
4
The triangle is a right triangle

...Program finished with exit code 0
Press ENTER to exit console.
```

## QUESTION# 2

### CODE:

```
main.cpp cookies.txt :
1  #include<iostream>
2  #include<fstream>
3  using namespace std;
4  int main()
5  {
6  const int cookies = 24;
7  const int container = 75;
8  int totalcookies, boxcookies, containerboxes, totalboxes, totalcontainers;
9  double extraboxes, extracookies;
10 cout << "\nEnter the total number of cookies: ";
11 cin >> totalcookies;
12 cout << "\nEnter the number of cookies in a box: ";
13 cin >> boxcookies;
14 cout << "\nEnter the number of boxes in the container: ";
15 cin >> containerboxes;
16
17 totalboxes = totalcookies / boxcookies;
18 extracookies = totalcookies % boxcookies;
19 totalcontainers = totalboxes / containerboxes;
20 extraboxes = totalboxes % containerboxes;
21 ofstream outfile("cookies.txt");
22 outfile << "Number of boxes needed: "<< totalboxes << endl;
23 outfile << "Number of containers needed: "<< totalcontainers << endl;
24 outfile << "Number of leftover boxes needed: "<< extraboxes << endl;
25 outfile << "Number of leftover cookies needed: "<< extracookies << endl;
26 outfile.close();
27 return 0;
28 }
```

### OUTPUT FILE:

```
main.cpp cookies.txt :
1  Number of boxes needed: 6
2  Number of containers needed: 0
3  Number of leftover boxes needed: 6
4  Number of leftover cookies needed: 158
5
```

### OUTPUT:

```
Enter the total number of cookies: 2222

Enter the number of cookies in a box: 344

Enter the number of boxes in the container: 55

...Program finished with exit code 0
Press ENTER to exit console.
```

### QUESTION # 3:

#### CODE:

```
1  #include <iostream>
2  #include <fstream>
3  using namespace std;
4  int main() {
5      int seconds;
6
7      ifstream inputFile("input.txt");
8      while (inputFile >> seconds) {
9          int minutes = seconds / 60;
10         int hours = minutes / 60;
11         int days = hours / 24;
12         int years = days / 365;
13         int months = (days % 365) / 30;
14         days = (days % 365) % 30;
15         hours = hours % 24;
16         minutes = minutes % 60;
17         seconds = seconds % 60;
18
19         cout << "Years: " << years << endl;
20         cout << "Months: " << months << endl;
21         cout << "Days: " << days << endl;
22         cout << "Hours: " << hours << endl;
23         cout << "Minutes: " << minutes << endl;
24         cout << "Seconds: " << seconds << endl;
25         int year;
26         cout << "Enter a year: ";
27         cin >> year;
28
29         if (year % 4 == 0) {
30             if (year % 100 == 0) {
31                 if (year % 400 == 0)
32                     cout << year << " is a leap year.";
33                 else
34                     cout << year << " is not a leap year.";
35             }
36             else
```

### CODE FOR FILE:

```
main.cpp  input.txt  ddd
1 #include <iostream>
2 #include <fstream>
3 using namespace std;
4 int main() {
5     int seconds;
6     ofstream fout;
7     fout.open("input.txt");
8     fout<<seconds;
9     fout.close();
```

### OUTPUT:

```
Years: 0
Months: 2
Days: 2
Hours: 2
Minutes: 27
Seconds: 10
Enter a year: 3444
3444 is a leap year.

...Program finished with exit code 0
Press ENTER to exit console.
```

### FILE INPUT:

```
main.cpp  input.txt  ddd
1 5365630
```

### CODE# 4:

```

main.cpp cookies.txt
4 int main() {
5     try{
6         int a,b,c,discriminant,r1,r2;
7         //r1 and r2 is root1 and root2 respectively
8         cout<<"\n enter three coefficient a,b,c respectively :";
9         cin>>a>>b>>c;
10        discriminant=b*b-4*a*c;
11        r1 = (-b + sqrt(discriminant)) / (2*a);
12        r2 = (-b - sqrt(discriminant)) / (2*a);
13        if(a==0){
14            throw 505;
15        }
16        if(discriminant<0){
17            cout<<"\n the equation has two complex roots";
18        }
19        else if(discriminant==0){
20            cout<<"\n The equation has a single (repeated) root"<<r1;
21        }
22        }
23        else {
24            cout<<"\n The quation has two real roots "<<r1<<"and"<<r2;
25        }
26        catch(int num)
27        {
28            cout<<"\n invalid code "<< num;
29            if(num==505)
30            {
31                cout<<"\n value must be smaller or greater than 0";
32            }
33            return 0;
34        }

```

## OUTPUT:

```

✓ ↗ 🐞
enter three coefficient a,b,c respectively :69
8
99

the equation has two complex roots

...Program finished with exit code 0
Press ENTER to exit console.

```