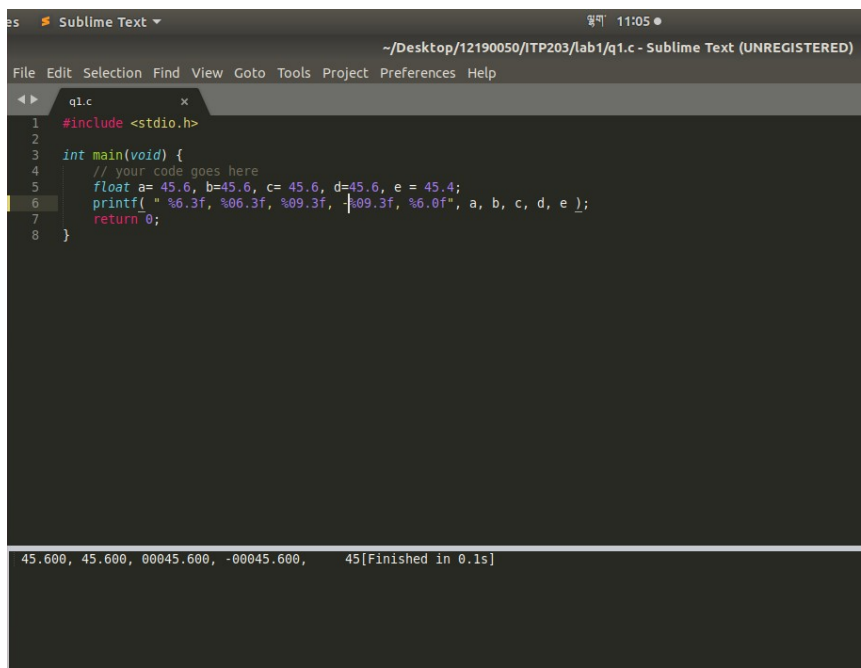


Lab Assignment 1

1) Complete the Code below. Trace and understand the Output given by the Printf(“ ”) Function from the Code below: -

```
..... float a= 45.6, b=45.6, c= 45.6, d=45.6, e = 45.4;  
printf( " %6.3f, %06.3f, %09.3f, %-09.3f, %6.0f", a, b, c, d, e ); .....
```

Solution



The screenshot shows a Sublime Text editor window titled "q1.c". The code is as follows:

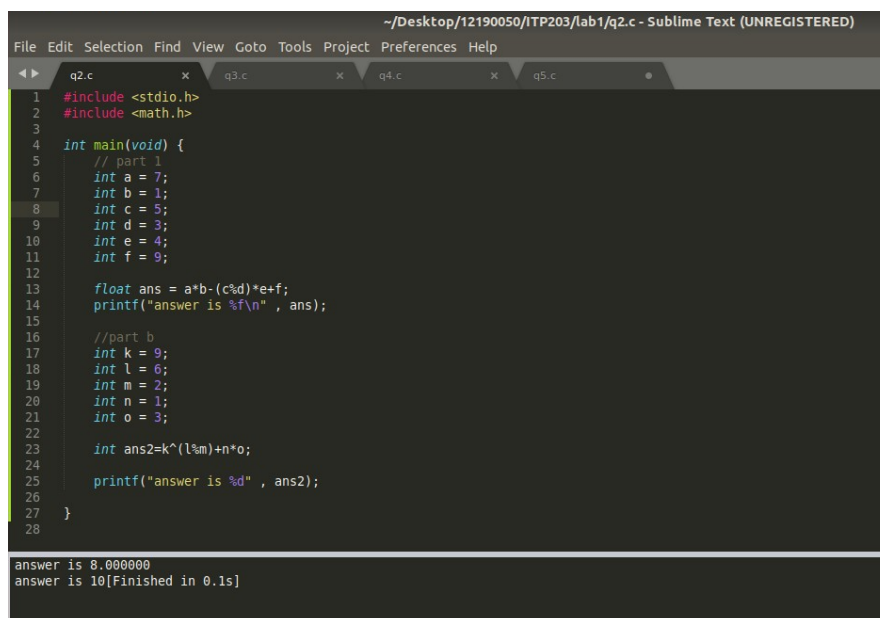
```
1 #include <stdio.h>
2
3 int main(void) {
4     // your code goes here
5     float a= 45.6, b=45.6, c= 45.6, d=45.6, e = 45.4;
6     printf( " %6.3f, %06.3f, %09.3f, %-09.3f, %6.0f", a, b, c, d, e );
7     return 0;
8 }
```

The output at the bottom of the window is: 45.600, 45.600, 00045.600, -00045.600, 45[Finished in 0.1s]

2) WAP to evaluate the Expressions below by using the C operator precedence and associativity rules.

- a) $7 * 1 - (5 \% 3) * 4 + 9$
- b) $9 ** (6 \% 2) + 1 * 3$

solution



The screenshot shows a Sublime Text editor window titled "q2.c". The code is as follows:

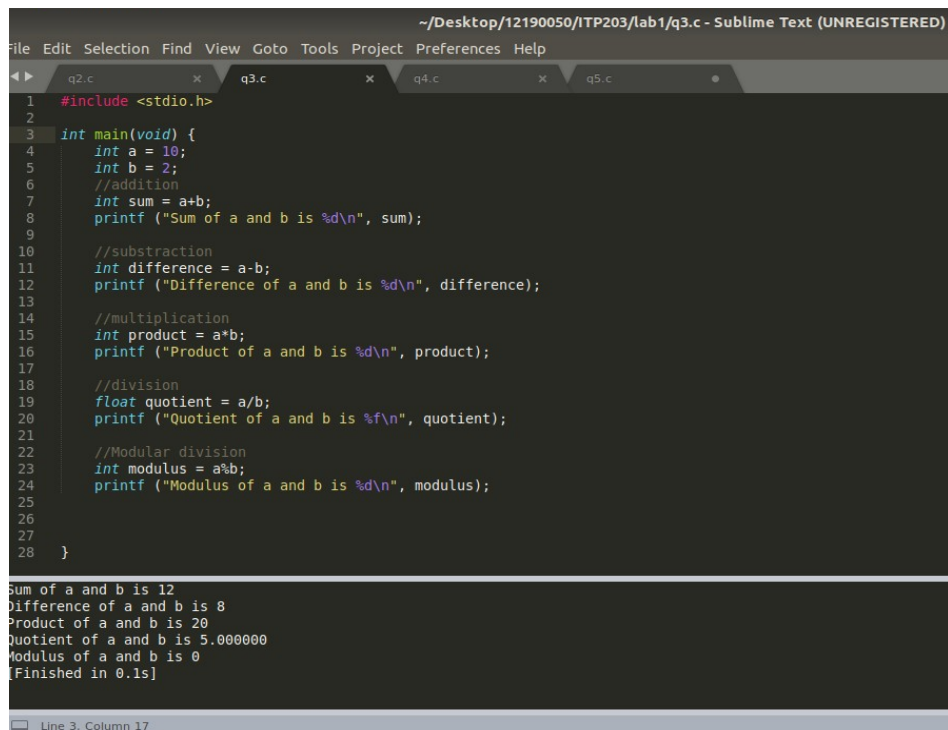
```
1 #include <stdio.h>
2 #include <math.h>
3
4 int main(void) {
5     // part 1
6     int a = 7;
7     int b = 1;
8     int c = 5;
9     int d = 3;
10    int e = 4;
11    int f = 9;
12
13    float ans = a*b-(c*d)*e+f;
14    printf("answer is %f\n", ans);
15
16    //part b
17    int k = 9;
18    int l = 6;
19    int m = 2;
20    int n = 1;
21    int o = 3;
22
23    int ans2=k^(l*m)+n*o;
24
25    printf("answer is %d", ans2);
26
27 }
28
```

The output at the bottom of the window is: answer is 8.000000
answer is 10[Finished in 0.1s]

3) WAP to perform following operation on two user input numbers:-

- (a) Addition
- (b) Subtraction
- (c) Multiplication
- (d) Division
- (e) Modular division

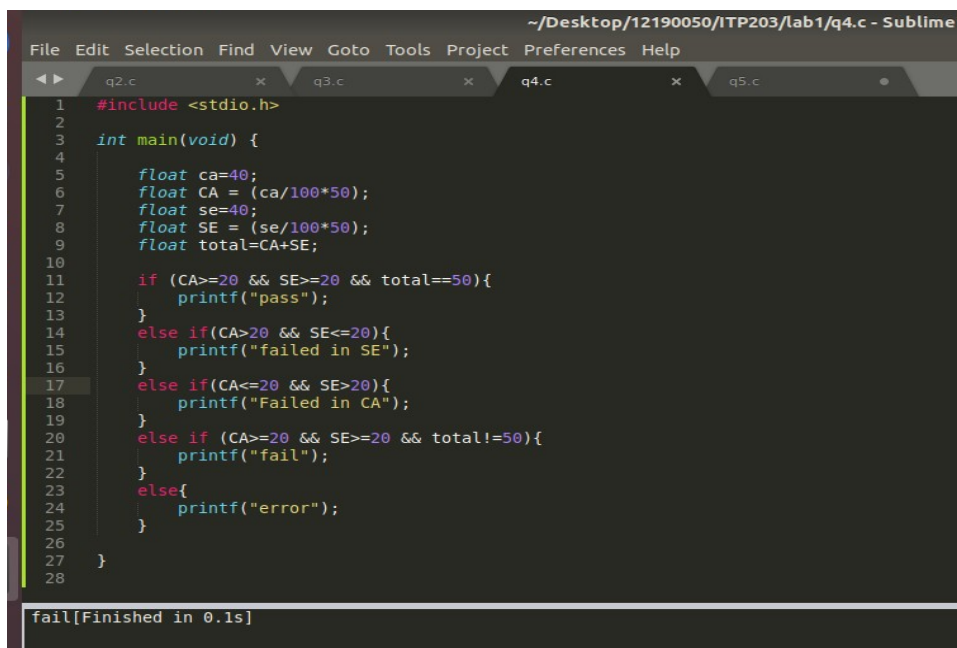
Solution:



```
~/Desktop/12190050/ITP203/lab1/q3.c - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help
q2.c x q3.c x q4.c x q5.c
1 #include <stdio.h>
2
3 int main(void) {
4     int a = 10;
5     int b = 2;
6     //addition
7     int sum = a+b;
8     printf ("Sum of a and b is %d\n", sum);
9
10    //subtraction
11    int difference = a-b;
12    printf ("Difference of a and b is %d\n", difference);
13
14    //multiplication
15    int product = a*b;
16    printf ("Product of a and b is %d\n", product);
17
18    //division
19    float quotient = a/b;
20    printf ("Quotient of a and b is %f\n", quotient);
21
22    //Modular division
23    int modulus = a%b;
24    printf ("Modulus of a and b is %d\n", modulus);
25
26
27 }
28
Sum of a and b is 12
Difference of a and b is 8
Product of a and b is 20
Quotient of a and b is 5.000000
Modulus of a and b is 0
[Finished in 0.1s]
```

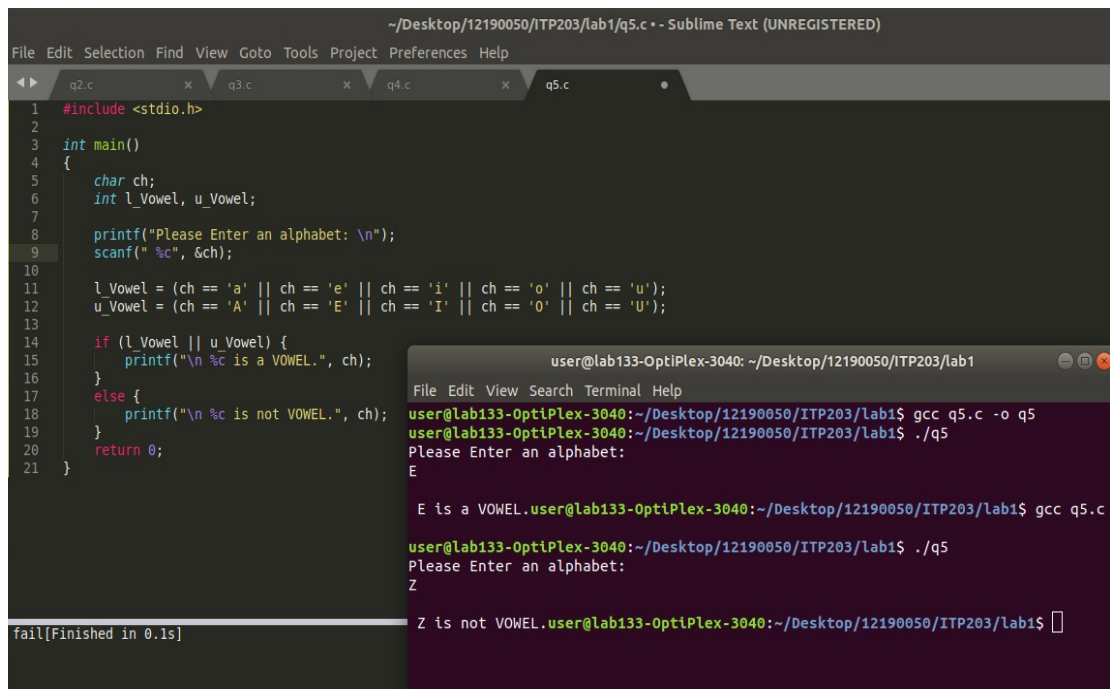
4) WAP in C to find if the student has passed in Mathematics in the Last Semester. The student has to secure 40% each in CA and SE (CA=50% AND SE=50%), meanwhile the total securing 50% at least at the end total.

Solution



```
~/Desktop/12190050/ITP203/lab1/q4.c - Sublime
File Edit Selection Find View Goto Tools Project Preferences Help
q2.c x q3.c x q4.c x q5.c
1 #include <stdio.h>
2
3 int main(void) {
4     float ca=40;
5     float CA = (ca/100*50);
6     float se=40;
7     float SE = (se/100*50);
8     float total=CA+SE;
9
10
11     if (CA>=20 && SE>=20 && total==50){
12         printf("pass");
13     }
14     else if(CA>20 && SE<=20){
15         printf("failed in SE");
16     }
17     else if(CA<=20 && SE>20){
18         printf("Failed in CA");
19     }
20     else if (CA>=20 && SE>=20 && total!=50){
21         printf("fail");
22     }
23     else{
24         printf("error");
25     }
26
27 }
28
fail[Finished in 0.1s]
```

5) WAP to check whether input alphabet is a vowel or not.



The image shows a Sublime Text editor window with a C program and a terminal window running the program. The C program is as follows:

```
1 #include <stdio.h>
2
3 int main()
4 {
5     char ch;
6     int l_Vowel, u_Vowel;
7
8     printf("Please Enter an alphabet: \n");
9     scanf(" %c", &ch);
10
11     l_Vowel = (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u');
12     u_Vowel = (ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U');
13
14     if (l_Vowel || u_Vowel) {
15         printf("\n %c is a VOWEL.", ch);
16     }
17     else {
18         printf("\n %c is not VOWEL.", ch);
19     }
20     return 0;
21 }
```

The terminal window shows the execution of the program:

```
user@lab133-OptiPlex-3040: ~/Desktop/12190050/ITP203/lab1
user@lab133-OptiPlex-3040:~/Desktop/12190050/ITP203/lab1$ gcc q5.c -o q5
user@lab133-OptiPlex-3040:~/Desktop/12190050/ITP203/lab1$ ./q5
Please Enter an alphabet:
E
E is a VOWEL.user@lab133-OptiPlex-3040:~/Desktop/12190050/ITP203/lab1$ gcc q5.c
user@lab133-OptiPlex-3040:~/Desktop/12190050/ITP203/lab1$ ./q5
Please Enter an alphabet:
Z
Z is not VOWEL.user@lab133-OptiPlex-3040:~/Desktop/12190050/ITP203/lab1$
```

fail[Finished in 0.1s]