# CODE FOR THE FIRST QUESTION

```c
#include <stdio.h>

int main(){

float a, b, bek, dny, err, totbek = 0, totdny = 0, totper = 0;
int cnt = 0;
char sym;

printf("Enter an operation (Example: 3+2): ");          /* Takes the input from the user */
scanf("%f%c%f", &a, &sym, &b);

if (sym == '+')
{
    bek = a + b;                                        /* Calculates the expected result */
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;                                      /* Adds the expected result to the total expected results */

    dny = a - b;                                        /* Calculates the experimental result */
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)                                        /* Takes the absolute value of the error */
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);

    if (bek == 0){                              /* If the expected equals 0, program gives error to prevent division by zero */
        totper += 0;
        cnt += 1;                               /* Increments the counter for how many times expected equals error */
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;                  /* Adds the value of the error to the total error percentage */
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }

}

else if (sym == '-')
{
    bek = a - b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a * b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '*')
{
    bek = a * b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a + b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '/')
{
    bek = a / b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a - b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

printf("\nEnter an operation (Example: 3+2): ");
scanf("%f%c%f", &a, &sym, &b);

if (sym == '+')
{
    bek = a + b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a - b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);

    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
```

```c

}

else if (sym == '-')
{
    bek = a - b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a * b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '*')
{
    bek = a * b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a + b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '/')
{
    bek = a / b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a - b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

printf("\nEnter an operation (Example: 3+2): ");
scanf("%f%c%f", &a, &sym, &b);

if (sym == '+')
{
    bek = a + b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a - b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);

    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }

}

else if (sym == '-')
{
    bek = a - b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a * b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '*')
{
    bek = a * b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a + b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '/')
{
    bek = a / b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a - b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

printf("\nEnter an operation (Example: 3+2): ");
scanf("%f%c%f", &a, &sym, &b);

if (sym == '+')
{
    bek = a + b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a - b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);

    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }

}

else if (sym == '-')
{
    bek = a - b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a * b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '*')
{
    bek = a * b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a + b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

else if (sym == '/')
{
    bek = a / b;
    printf("\nExpected Result: %.2f\n", bek);
    totbek += bek;

    dny = a - b;
    printf("\nExperimental Result: %.2f\n", dny);
    totdny += dny;

    err = bek - dny;
    if (err < 0)
    {
        err *= -1;
    }
    printf("\nError: %.2f\n", err);
    if (bek == 0){
        totper += 0;
        cnt += 1;
        printf("\nCouldn't calculate the error percentage due to division by zero mistake!\n");
    }
    else {
        totper += err/bek*100;
        printf("\nError Percentage: %.2f\n", (err/bek*100));
    }
}

if (cnt == 4)                           /* If all the expected value are 0 then the program gives this message */
    printf("\nCouldn't calculate the avearge error percentage due to division by zero mistake!\n");
else                                    /* The program calculates the average error by dividing total error percentages by the amount of operation that doesn't have the expected error value equal to 0 */
    printf("\nAverage Error Value: %.2f%%\n", totper/(4-cnt));

```

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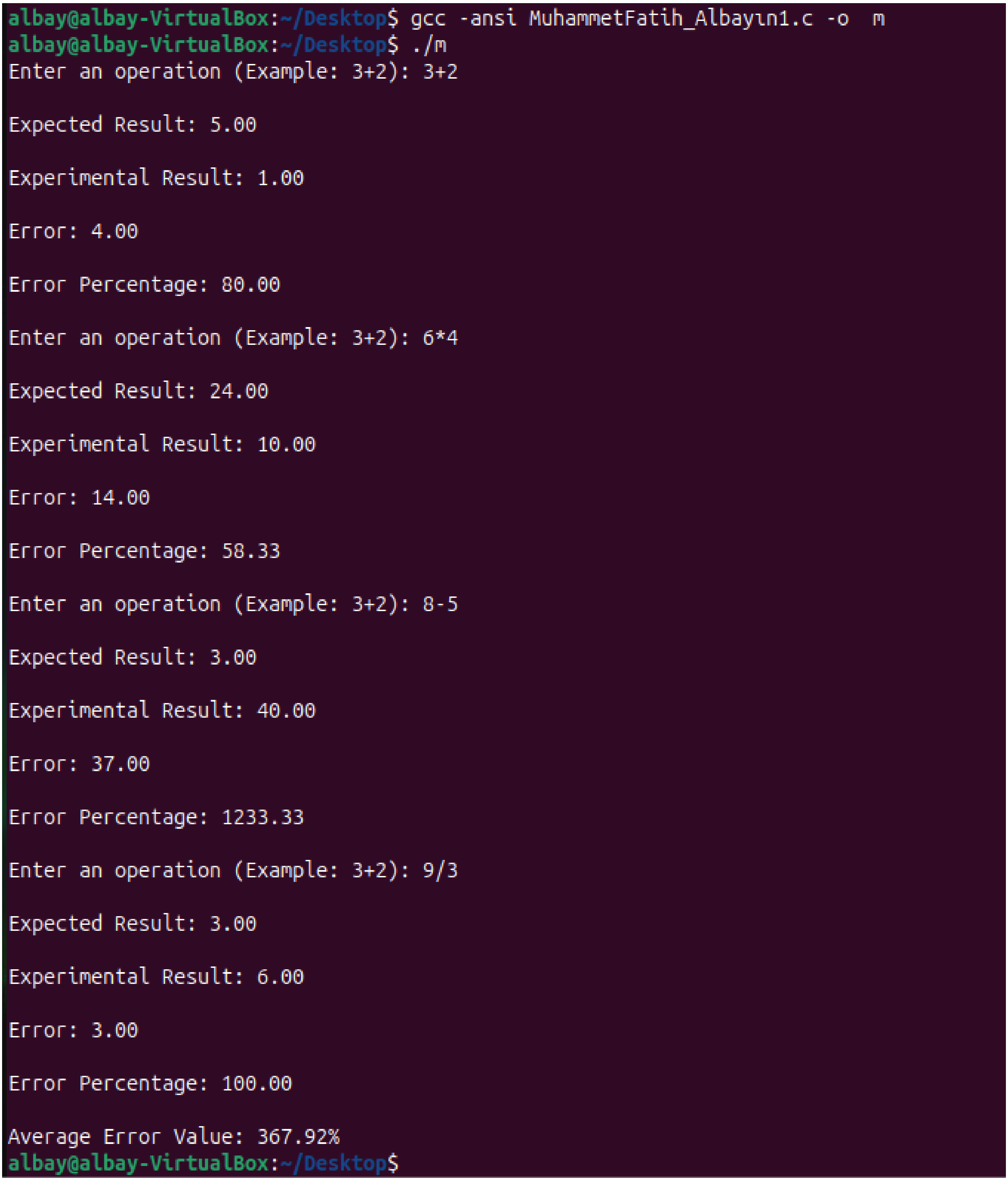
return 0;
}
```

# SCREENSHOT OF FIRST QUESTION'S OUTPUT



```
albay@albay-VirtualBox:~/Desktop$ gcc -ansi MuhammetFatih_Albayın1.c -o  m
albay@albay-VirtualBox:~/Desktop$ ./m
Enter an operation (Example: 3+2): 3+2

Expected Result: 5.00

Experimental Result: 1.00

Error: 4.00

Error Percentage: 80.00

Enter an operation (Example: 3+2): 6*4

Expected Result: 24.00

Experimental Result: 10.00

Error: 14.00

Error Percentage: 58.33

Enter an operation (Example: 3+2): 8-5

Expected Result: 3.00

Experimental Result: 40.00

Error: 37.00

Error Percentage: 1233.33

Enter an operation (Example: 3+2): 9/3

Expected Result: 3.00

Experimental Result: 6.00

Error: 3.00

Error Percentage: 100.00

Average Error Value: 367.92%
albay@albay-VirtualBox:~/Desktop$
```

# CODE FOR THE SECOND QUESTION

```
MuhammetFatih_Albayın2.txt
#include <stdio.h>

int main(){

float cap, rad;

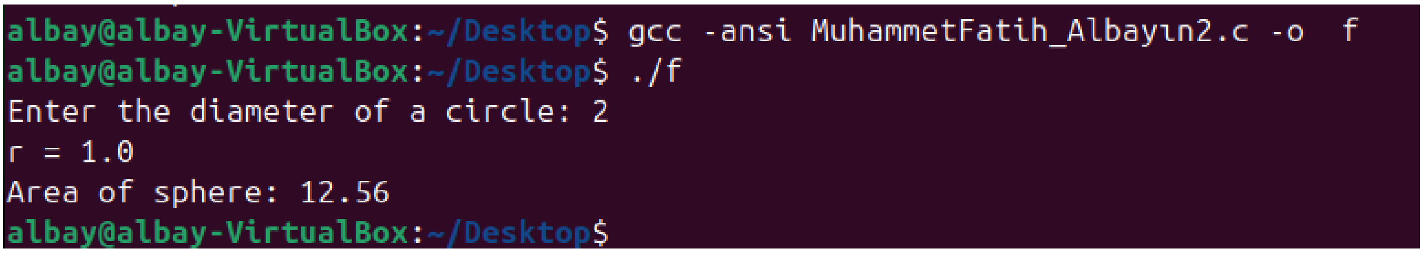
printf("Enter the diameter of a circle: ");           /* Takes the diameter as an input */
scanf("%f", &cap);
rad = cap / 2;                                          /* Calculates the radius */

printf("r = %.1f", rad);
printf("\nArea of sphere: %.2f\n", (3.14*4*rad*rad));   /* Calculates the area using the formula */

return 0;

}
```

# SCREENSHOT OF SECOND QUESTION'S OUTPUT



```
albay@albay-VirtualBox:~/Desktop$ gcc -ansi MuhammetFatih_Albayın2.c -o  f
albay@albay-VirtualBox:~/Desktop$ ./f
Enter the diameter of a circle: 2
r = 1.0
Area of sphere: 12.56
albay@albay-VirtualBox:~/Desktop$
```