

## OUTPUTS FOR PART1 AND PART2

### For Part1

\*If the user selects (+), the program performs (-).

If the user selects (-), the program performs (\*).

If the user selects (\*), the program performs (+).

If the user selects (/), the program performs (-).

\*The error was calculated as the absolute difference between the expected result and the experimental result.  $\rightarrow \text{Error} = |\text{Expected Result} - \text{Experimental Result}|$

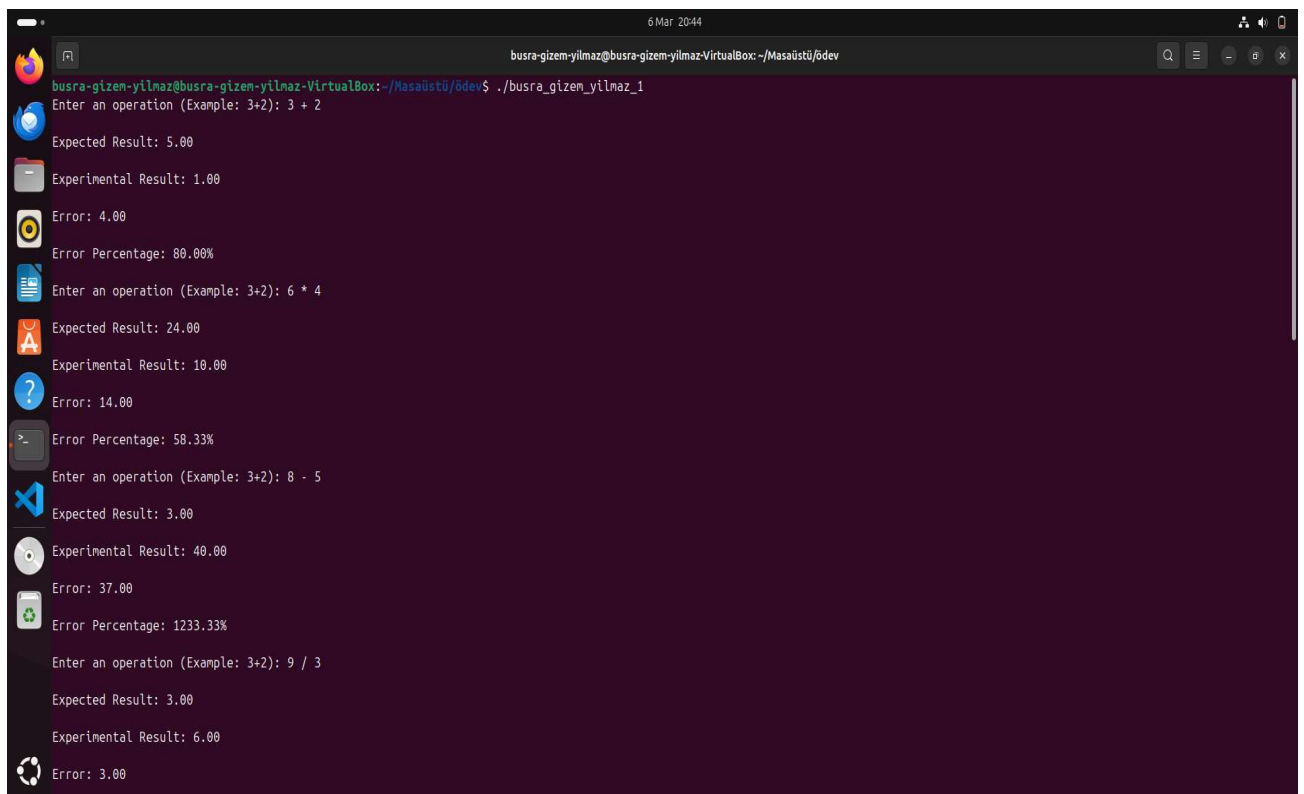
\* The error percentage is calculated by dividing the error by the expected result and then multiplying the result by 100.  $\rightarrow \text{Error Percentage} = (\text{Error} / \text{Expected Result}) * 100$

\*The average error percentage is calculated by summing the individual percentage errors and then dividing the result by 4. (The program executes four times)

### For Part2

\*The program takes the diameter as input from the user then calculates and displays the radius.

After that, it calculates and displays the surface area of the sphere using the formula  $4\pi r^2$ . (where  $\pi = 3.14$ )



```
6 Mar 20:44
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü/ödev
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizem_yilmaz_1
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
```

```
6 Mar 20:45
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox: ~/Masaüstü/ödev
Error Percentage: 100.00%
Average Error Value: 367.92%
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizem_yilmaz_1
Enter an operation (Example: 3+2): 4 + 5
Expected Result: 9.00
Experimental Result: -1.00
Error: 10.00
Error Percentage: 111.11%
Enter an operation (Example: 3+2): 8 * 2
Expected Result: 16.00
Experimental Result: 10.00
Error: 6.00
Error Percentage: 37.50%
Enter an operation (Example: 3+2): 6 - 5
Expected Result: 1.00
Experimental Result: 30.00
Error: 29.00
Error Percentage: 2900.00%
Enter an operation (Example: 3+2): 5 / 1
Expected Result: 5.00
```

```
Experimental Result: 4.00
Error: 1.00
Error Percentage: 20.00%
Average Error Value: 767.15%
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizem_yilmaz_2
Enter the diameter of a circle: 2
r = 1.0
Area of sphere: 12.56
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizem_yilmaz_2
Enter the diameter of a circle: 32.8
r = 16.4
Area of sphere: 3378.14
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizem_yilmaz_2
Enter the diameter of a circle: 5
r = 2.5
Area of sphere: 78.50
busra-gizem-yilmaz@busra-gizem-yilmaz-VirtualBox:~/Masaüstü/ödev$
```

## SOME ERRORS ABOUT PART1

**\*If the user does not enter one of the following operations (+, -, , /), the program prints a warning message and exits.**

**\*If the user attempts to divide by zero, the program displays a warning message. In this case, expected result and error percentage cannot be calculated and this part is excluded from the average error calculation.**

**\*If the expected result is zero (for example if the user enters 5 – 5), error percentage cannot be calculated and this part is excluded from the average error calculation.**

```
8 Mar 17:30
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox: ~/Masaüstü/ödev
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizen_yilmaz_1
Enter an operation (Example: 3+2): 3 c 2
Invalid! Please choose one of the following operations (+, -, *, /).
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizen_yilmaz_1
Enter an operation (Example: 3+2): 5 / 0
Error! Division by zero is not allowed. Expected Result cannot be calculated.
Experimental Result: 5.00
Error: 5.00
Error percentage cannot be calculated.
Enter an operation (Example: 3+2): 2 + 7
Expected Result: 9.00
Experimental Result: -5.00
Error: 14.00
Error Percentage: 155.56%
Enter an operation (Example: 3+2): 8 - 3
Expected Result: 5.00
Experimental Result: 24.00
Error: 19.00
Error Percentage: 380.00%
Enter an operation (Example: 3+2): 6 / 2
Expected Result: 3.00
Experimental Result: 4.00
```

```
8 Mar 17:30
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox: ~/Masaüstü/ödev
Error: 1.00
Error Percentage: 33.33%
Average Error Value: 189.63%
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü/ödev$ ./busra_gizen_yilmaz_1
Enter an operation (Example: 3+2): 5 - 5
Expected Result: 0.00
Experimental Result: 25.00
Error: 25.00
Error percentage cannot be calculated.
Enter an operation (Example: 3+2): 4 + 1
Expected Result: 5.00
Experimental Result: 3.00
Error: 2.00
Error Percentage: 40.00%
Enter an operation (Example: 3+2): 5 * 2
Expected Result: 10.00
Experimental Result: 7.00
Error: 3.00
Error Percentage: 30.00%
Enter an operation (Example: 3+2): 8 / 4
```

```
Enter an operation (Example: 3+2): 8 / 4
Expected Result: 2.00
Experimental Result: 4.00
Error: 2.00
Error Percentage: 100.00%
Average Error Value: 56.67%
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü/ödev$
busra-gizen-yilmaz@busra-gizen-yilmaz-VirtualBox:~/Masaüstü/ödev$
```