

Simple Calculator

Project of Team 3:

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Simple calculator has a menu displayed for the user to choose from, where are listed basic operations:

- addition
- subtraction
- multiplication
- division
- second power
- square root
- exit

User should select an operation by inputting it's number from list.

Next user inputs numbers, on which operation will be executed.

The program outputs result and goes to input of next operation.

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In [1]: # Added import math for sqrt function//psword
from math import sqrt
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In [2]: # Add, subtract, multiply, divide//Farhan
# Basic function structure//Farhan
def add(x, y):
    return x + y

def subtract(x, y):
    return x - y

def multiply(x, y):
    return x * y

def divide(x, y):
    return x / y

# Squareroot and square functions//psword
def squareroot(x):
    return sqrt(x)

def square(x):
    return x ** 2
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In [3]: '''Team: Restructured "while true" loop (elevate 'while' in code block) and added logic ch
Viewers/editors: This loop repeats until the user chooses '7' to cause a soft exit (break
This loop will also replay the selection menu for the user to improve readability and
to remind them of the menu system. The reminder is to prevent the need for the user to
scroll back up within the console after each arithmetic function.//psword
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while True:
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# begin using new line character '\n' for easier readability
# menu system format and structure//Farhan
print("-----\n-----")
print("\nSelect operation.\n")
print("1.Add")
print("2.Subtract")
print("3.Multiply")
print("4.Divide")
# 5 //psword
print("5.Square Root")
# 6 //psword
print("6.Square")
# 7 //psword
print("7.Exit")
print("\n-----\n-----")
choice = input("Enter choice(1/2/3/4/5/6/7): ")

# Check for a valid choice
# Exclude numbers out of range and letters//psword
# Loop will repeat with user instruction until condition is met
# Valid exit choice not placed here because it is assumed user wants to calculate
# User will need to terminate with CTRL-C
while choice not in {'1', '2', '3', '4', '5', '6', '7'}:
    print("I think you selected something not listed as a valid operation.")
    print("Enter the operation would you like to perform?\n")
    choice = input("(1/2/3/4/5/6/7):")

# Basic code to input the choice for add, subtract, multiply, divide//Farhan
# Added logic checks for correct numeric input [no numbers out of range or letters]
if choice in ('1', '2', '3', '4'):
    while True:
        try:
            num1 = float(input("Enter first number: "))
        except ValueError:
            print("\nYou must type a valid number! Try again.\n")
        else:
            break
    while True:
        try:
            num2 = float(input("Enter second number: "))
        except ValueError:
            print("\nYou must type a valid number! Try again.\n")
        else:
            break

# Code to import number for square root//psword
if choice in ('5'):
    while True:
        try:
            num1 = float(input("Enter the number for the square root function: "))
        except ValueError:
            print("\nYou must type a valid number! Try again.\n")
        else:
            break

# Code for input number for square//psword
if choice in ('6'):
    while True:
        try:
            num1 = float(input("Enter the number to square: "))
        except ValueError:
            print("\nYou must type a valid number! Try again.\n")
        else:
            break
```

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# Additional code block for the exit choice//psword
if choice in ('7'):
    print("Exiting!")
    break

# Enter the operations for each choice
if choice == '1':
    print("Here is your result: \n\nOutput:", num1, "+", num2, "=", add(num1, num2), '\n')

elif choice == '2':
    print("Here is your result: \n\nOutput:", num1, "-", num2, "=", subtract(num1, num2), '\n')

elif choice == '3':
    print("Here is your result: \n\nOutput:", num1, "*", num2, "=", multiply(num1, num2), '\n')

elif choice == '4':
    print("Here is your result: \n\nOutput:", num1, "/", num2, "=", divide(num1, num2), '\n')

# Additional if added for square root 'sqrt'//psword
if choice == '5':
    print("Here is your result: \n\nThe square root of ", num1, "=", squareroot(num1), '\n')

# Additional if added for square//psword
if choice == '6':
    print("Here is your result: \n\nThe square of ", num1, "=", square(num1), '\n')

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Select operation.

- 1.Add
- 2.Subtract
- 3.Multiply
- 4.Divide
- 5.Square Root
- 6.Square
- 7.Exit

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Enter choice(1/2/3/4/5/6/7): 8

I think you selected something not listed as a valid operation.

Enter the operation would you like to perform?

(1/2/3/4/5/6/7):a

I think you selected something not listed as a valid operation.

Enter the operation would you like to perform?

(1/2/3/4/5/6/7):1

Enter first number: 2

Enter second number: 3

Here is your result:

Output: 2.0 + 3.0 = 5.0

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Select operation.

- 1.Add
- 2.Subtract
- 3.Multiply

4.Divide
5.Square Root
6.Square
7.Exit

Enter choice(1/2/3/4/5/6/7): 2
Enter first number: 2
Enter second number: 3
Here is your result:

Output: $2.0 - 3.0 = -1.0$

Select operation.

1.Add
2.Subtract
3.Multiply
4.Divide
5.Square Root
6.Square
7.Exit

Enter choice(1/2/3/4/5/6/7): 3
Enter first number: 2
Enter second number: 3
Here is your result:

Output: $2.0 * 3.0 = 6.0$

Select operation.

1.Add
2.Subtract
3.Multiply
4.Divide
5.Square Root
6.Square
7.Exit

Enter choice(1/2/3/4/5/6/7): 4
Enter first number: 2
Enter second number: 3
Here is your result:

Output: $2.0 / 3.0 = 0.6666666666666666$

Select operation.

1.Add
2.Subtract
3.Multiply

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4.Divide
5.Square Root
6.Square
7.Exit

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Enter choice(1/2/3/4/5/6/7): 5
Enter the number for the square root function: 4
Here is your result:

The square root of  4.0 = 2.0

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Select operation.

1.Add
2.Subtract
3.Multiply
4.Divide
5.Square Root
6.Square
7.Exit

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Enter choice(1/2/3/4/5/6/7): 6
Enter the number to square: 5
Here is your result:

The square of  5.0 = 25.0

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Select operation.

1.Add
2.Subtract
3.Multiply
4.Divide
5.Square Root
6.Square
7.Exit

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Enter choice(1/2/3/4/5/6/7): 7
Exiting!

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In []: