GROUP 10 - PROJECT - TOPIC - CALCULATOR

March 14, 2023

1 COMPUTER SCIENCE - ASSIGNMENT 05 - GROUP 10 - PROJECT

1.1 DATE - 14.03.2023

1.2 TOPIC - CALCULATOR

1.3 GROUP 10 TEAM MEMBERS :

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1.3.6 Link to the github repository where project can be found.

https://github.com/daniel-sany/TEAM-WORK-10-CALCULATOR-.git

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1.3.7 QUESTION

2. Calculator

Build a program that can be used as a basic calculator. Your program should have a menu displayed for the user to choose from, where are listed basic operations: addition, subtraction multiplication, division, second power, square root, exit. The program should allow user to choose the desired operation over and over again until user chooses to quit using it.

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[1]:
```
import math
# This is the function to perform addition
def add(x, y):
    return x + y
```

```
# This is the function to perform subtraction
def subtract(x, y):
    return x - y

# This is the function to perform multiplication
def multiply(x, y):
    return x * y

# This is the function to perform division
def divide(x, y):
    return x / y

# This function make the second power of a given number
def secondpower(z):
    return math.pow(z, 2)

# This function make the square root of a given number
def squareroot(w):
    return math.sqrt(w)

# Now we are creating a menu display with the different basic operations
print("Select operation.")
print("1.Add")
print("2.Subtract")
print("3.Multiply")
print("4.Divide")
print("5.Second power")
print("6.Square root")
print("7.Exit")

# This is the loop to keep prompting the user for input

while True:


# take input from the user.(operation to perfom)

    choice = input("Enter choice(1/2/3/4/5/6/7): ")

    if choice in ('1', '2', '3', '4' ):
        try:

# Get input numbers for the chosen operation (values for the operation)

        # in this part the user have to put two numbers to perfrom addition␣
 ↪,subtraction ,multiplication and division
```

```
            num1 = float(input("Enter first number: "))
            num2 = float(input("Enter second number: "))
        except ValueError:
            print("Invalid input. Please enter a number.")
            continue


# These are the functions to perform the chosen operation and display the␣
 ↪result
        # Let's start with addition , subtraction , multiplication and division
        if choice == '1':
            print(num1, "+", num2, "=", add(num1, num2))

        elif choice == '2':
            print(num1, "-", num2, "=", subtract(num1, num2))

        elif choice == '3':
            print(num1, "*", num2, "=", multiply(num1, num2))

        elif choice == '4':
            print(num1, "/", num2, "=", divide(num1, num2))


    elif choice in ('5', '6', ):
        try:

      # in this part the user have to put only one number to perform second␣
 ↪power and square root

            num3= float(input("Enter a number: "))
        except ValueError:
            print("Invalid input. Please enter a number.")
            continue

        if choice == '5':
            print(num3, "^2", "=",secondpower(num3) )

        elif choice == '6':
            print("sqrt(", num3, ")=",squareroot(num3))
            continue

 # Check if user wants to exit (Exiting option)
    elif choice in ('7'):
        print("GOOD BYE!!!  Exiting Calculator... ")
        break
```

```
    else:
        print("Invalid input")
```

```
Select operation.
1.Add
2.Subtract
3.Multiply
4.Divide
5.Second power
6.Square root
7.Exit
Enter choice(1/2/3/4/5/6/7): 1
Enter first number: 25
Enter second number: 25
25.0 + 25.0 = 50.0
Enter choice(1/2/3/4/5/6/7): 2
Enter first number: 50
Enter second number: 20
50.0 - 20.0 = 30.0
Enter choice(1/2/3/4/5/6/7): 3
Enter first number: 6
Enter second number: 7
6.0 * 7.0 = 42.0
Enter choice(1/2/3/4/5/6/7): 4
Enter first number: 45
Enter second number: 5
45.0 / 5.0 = 9.0
Enter choice(1/2/3/4/5/6/7): 5
Enter a number: 5
5.0 ^2 = 25.0
Enter choice(1/2/3/4/5/6/7): 6
Enter a number: 36
sqrt( 36.0 )= 6.0
Enter choice(1/2/3/4/5/6/7): 7
GOOD BYE!!!  Exiting Calculator…
```

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1.3.8 Small explanation on the program created.

The program starts by displaying a welcome message and a menu of available operations. The program then asks the user to input their choice of operation, and based on the user's input, it performs the corresponding mathematical operation. The program continues to loop through the menu and perform operations until the user chooses to exit by selecting option 7.

This program implements basic math operations such as addition, subtraction, multiplication, division, second power, and square root, as well as input validation to ensure that the user inputs valid data. Additionally, the program provides error messages if the user attempts to perform invalid operations, such as dividing by zero or finding the square root of a negative number.

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