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Calculator : 1) Scientific : Trigonometric Fun, Logarithmic Fun

2) Mathematical : +, -, *, /, %

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# Calculator using function and library :
import math

def Choose_calculator():
        choice = str(input("Please Choose Calculator for performing
Various Operations :\n  1 For SCIENTIFIC CALCULATOR \n  2 For
MATHEMATICAL CALCULATOR \n  Please Enter Your Choice :"))

        if choice == '1':
            Scientific_calculator()
        elif choice == '2':
            Mathmetical_calculator()
        else:
            print("  \nError ! Please check your input ")
            again()


def Scientific_calculator():
    print("\nWelcome to Scientific calculator : This is developed by
Vaishnavi Gangurde.")

    Oper_n = input("Select the input for logarithm function OR
Trigonometric function. \n  trf For TRIGONOMETRIC FUNCTION  \n  logf
For LOGARITHMIC FUNCTION  \n  Please Enter Your Choice :")

    if Oper_n == 'trf':
        Trigonometry_operation = input(
            " \nPlease Select Trigonometric Function that you want to
perform :\n  sinx For SINE FUNCTION \n  cosx For COSINE FUNCTION \n
tanx For TANGENT FUNCTION \n  cosecx For COSEC FUNCTION \n  secx For
SEC FUNCTION \n  cotx For COT FUNCTION \n  sinhx For HYPERBOLIC SINE
\n  coshx For HYPERBOLIC COSINE \n  tanhx For HYPERBOLIC TANGENT \n
cosechx For HYPERBOLIC COSEC  \n  sechx For HYPERBOLIC SEC \n  cothx
For HYPERBOLIC COT \n  Please Enter your Choice :")

        if Trigonometry_operation == 'sinx':
                degree = float(input("  Enter the angle in degree :"))
                radian = degree * (math.pi / 180.0)
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        print(f"  sin({degree}) = {math.sin(radian)}")

elif Trigonometry_operation == 'cosx':
        degree = float(input("  Enter the angle in degree :"))
        radian = degree * (math.pi / 180.0)
        print(f"  cos({degree}) = {math.cos(radian)}")

elif Trigonometry_operation == 'tanx':
        degree = float(input("  Enter the angle in degree :"))
        radian = degree * (math.pi / 180.0)
        print(f"  tan({degree}) = {math.tan(radian)}")

elif Trigonometry_operation == 'cosecx':
        degree = float(input("  Enter the angle in degree :"))
        radian = degree * (math.pi / 180.0)
        print(f"  cosec({degree}) = {1 / math.sin(radian)}")

elif Trigonometry_operation == 'secx':
        degree = float(input("  Enter the angle in degree :"))
        radian = degree * (math.pi / 180.0)
        print(f"  sec({degree}) = {1 / math.cos(radian)}")

elif Trigonometry_operation == 'cotx':
    degree = float(input("  Enter the angle in degree :"))
    radian = degree * (math.pi / 180.0)
    print(f"  cot({degree}) = {1 / math.tan(radian)}")

elif Trigonometry_operation == 'sinhx':
    degree = float(input("  Enter the angle in degree :"))
    radian = degree * (math.pi / 180.0)
    print(f"  sinh({degree}) = {math.sinh(radian)}")

elif Trigonometry_operation == 'coshx':
    degree = float(input("  Enter the angle in degree :"))
    radian = degree * (math.pi / 180.0)
    print(f"  cosh({degree}) = {math.cosh(radian)}")

elif Trigonometry_operation == 'tanhx':
    degree = float(input("  Enter the angle in degree :"))
    radian = degree * (math.pi / 180.0)
    print(f"  tanh({degree}) = {math.tanh(radian)}")

elif Trigonometry_operation == 'cosechx':
    degree = float(input("  Enter the angle in degree :"))
    radian = degree * (math.pi / 180.0)
    print(f"  cosech({degree}) = {1 / math.sinh(radian)}")

elif Trigonometry_operation == 'sechx':
    degree = float(input("  Enter the angle in degree :"))
    radian = degree * (math.pi / 180.0)
    print(f"  sech({degree}) = {1 / math.cosh(radian)}")
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        elif Trigonometry_operation == 'cothx':
            degree = float(input("  Enter the angle in degree :"))
            radian = degree * (math.pi / 180.0)
            print(f"  coth({degree}) = {1 / math.tanh(radian)}")

        else:
            print("  \nError ! Please check your input ")
            again()

    elif Oper_n == 'logf':
        Numeric_value = int(input("  \n  Enter the number that on you
perform logarithmic operation:"))
        Base = int(input("  Enter the base of log that you will taken
for perform logarithmic operation:"))
        print(f"  log{Base}({Numeric_value}) = {1 /
math.log(Numeric_value, Base)}")

    else:
        print("  \nError ! Please check your input ")
        again()


def Mathmetical_calculator():
    print("\nWelcome to Mathematical calculator : This is developed by
Vaishnavi Gangurde")
    operation = input(" Please type in the mathematical operation you
would like to complete :\n  + For Addition \n  - For Subtraction \n  *
For Multiplication \n  / For Division \n  % For Modulus \n  Please
Enter your Choice :")


    num1 = int(input("  Enter the 1st number :"))
    num2 = int(input("  Enter the 2nd number :"))

    if operation == '+':
        print(f"  {num1} + {num2} =", num1 + num2)

    elif operation == '-':
        print(f"  {num1} - {num2} =", num1 - num2)

    elif operation == '*':
        print(f"  {num1} * {num2} =", num1 * num2)

    elif operation == '/':
      print(f"  {num1} / {num2} =", num1 / num2)

    elif operation == '**':
        print(f"  {num1} ** {num2} =", num1 ** num2)

    elif operation == '%':
        print(f"  {num1} % {num2} =", num1 % num2)
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    else:
        print("  \nError ! Please check your input ")
        again()

def again():
    cal_again = input("Do you want to calculate again ? \nPlease type
y for YES and n for NO :")

    if cal_again == "y":
        print("\nHii, Again !!!")
        Choose_calculator()

    elif cal_again == "n":
        print("See you later !!!")

    else:
        again()

Choose_calculator()

"""
Output:
1)
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :1

Welcome to Scientific calculator : This is developed by Vaishnavi Gangurde.
Select the input for logarithm function OR Trigonometric function.
  trf For TRIGONOMETRIC FUNCTION
  logf For LOGARITHMIC FUNCTION
  Please Enter Your Choice :trf

Please Select Trigonometric Function that you want to perform :
  sinx For SINE FUNCTION
  cosx For COSINE FUNCTION
  tanx For TANGENT FUNCTION
  cosecx For COSEC FUNCTION
  secx For SEC FUNCTION
  cotx For COT FUNCTION
  sinhx For HYPERBOLIC SINE
  coshx For HYPERBOLIC COSINE
  tanhx For HYPERBOLIC TANGENT
  cosechx For HYPERBOLIC COSEC
  sechx For HYPERBOLIC SEC
  cothx For HYPERBOLIC COT
  Please Enter your Choice :sinx
  Enter the angle in degree :30
  sin(30.0) = 0.49999999999999994


2)
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
```

```
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :1

Welcome to Scientific calculator : This is developed by Vaishnavi Gangurde.
Select the input for logarithm function OR Trigonometric function.
  trf For TRIGONOMETRIC FUNCTION
  logf For LOGARITHMIC FUNCTION
  Please Enter Your Choice :logf

  Enter the number that on you perform logarithmic operation:10
  Enter the base of log that you will taken for perform logarithmic
operation:2
  log2(10) = 0.30102999566398114
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3)
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :2

Welcome to Mathematical calculator : This is developed by Vaishnavi Gangurde
 Please type in the mathematical operation you would like to complete :
  + For Addition
  - For Subtraction
  * For Multiplication
  / For Division
  % For Modulus
  Please Enter your Choice :+
  Enter the 1st number :20
  Enter the 2nd number :41
  20 + 41 = 61
```

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4)
  i)
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :3

Error ! Please check your input
Do you want to calculate again ?
Please type y for YES and n for NO :
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```
  ii)
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :1

Welcome to Scientific calculator : This is developed by Vaishnavi Gangurde.
Select the input for logarithm function OR Trigonometric function.
  trf For TRIGONOMETRIC FUNCTION
  logf For LOGARITHMIC FUNCTION
  Please Enter Your Choice :trfs
```

```
Error ! Please check your input
Do you want to calculate again ?
Please type y for YES and n for NO :

  iii)
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :5

Error ! Please check your input
Do you want to calculate again ?
Please type y for YES and n for NO :y

Hii, Again !!!
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :

  iv)
Please Choose Calculator for performing Various Operations :
  1 For SCIENTIFIC CALCULATOR
  2 For MATHEMATICAL CALCULATOR
  Please Enter Your Choice :5

Error ! Please check your input
Do you want to calculate again ?
Please type y for YES and n for NO :n
See you later !!!

"""
```