notebookL1

January 20, 2024

[1]:
```python
# 1. Program for a simple calculator
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

while True:
    choice = input("Enter choice(1/2/3/4): ")

    if choice in ('1', '2', '3', '4'):
        try:
            num1 = float(input("Enter first number: "))
            num2 = float(input("Enter second number: "))
        except ValueError:
            print("Invalid input. Please enter a number.")
            continue

        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))

        next_calculation = input("Continue? (yes/no): ")
```

```
        if next_calculation == "no":
          break
    else:
        print("Invalid Input")
```

```
Enter choice(1/2/3/4): 1
Enter first number: 23
Enter second number: 34
23.0 + 34.0 = 57.0
Continue? (yes/no): no
```

[2]:
```
# 2. program to find out the area of a rectangle
length = input('Enter length of the rectangle: ')
width  = input('Enter width of the rectangle: ')
area = int(length) * int(width)
print("The area of rectangle with length {0} and width {1} is {2}".
 ↪format(length, width, area))
```

```
Enter length of the rectangle: 10
Enter width of the rectangle: 20
The area of rectangle with length 10 and width 20 is 200
```

[3]:
```
# 3. Program to convert celsius to farenheit
def converter(cel):
    faren = ((9/5)*cel) + 32
    return faren

celsius = int(input('Enter a temperature in celsius: '))
print("The temperature {0} is {1} in Farenheit.".format(celsius,␣
 ↪converter(celsius)))
```

```
Enter a temperature in celsius: 34
The temperature 34 is 93.2 in Farenheit.
```

[4]:
```
# 4. Program to find out the roots of a quadratic equation
import cmath
a = int(input('Enter the value of a: '))
b = int(input('Enter the value of b: '))
c = int(input('Enter the value of c: '))

d = (b**2) - (4*a*c)

x1 = (-b-cmath.sqrt(d))/(2*a)
x2 = (-b+cmath.sqrt(d))/(2*a)

print('The solution are {0} and {1}'.format(x1,x2))
```

```
Enter the value of a: 3
Enter the value of b: 4
```

```
Enter the value of c: 5
The solution are (-0.6666666666666666-1.1055415967851332j) and
(-0.6666666666666666+1.1055415967851332j)
```

[5]:
```python
# 5. program to find whether a number is even or odd
num = int(input('Enter a number'))
if (num%2==0):
    print('Even')

else:
    print('Odd')
```

```
Enter a number45
Odd
```

[6]:
```python
# 6. Program to calculate simple interest
princ = int(input("Enter a principal"))
time = int(input("Enter time in months"))
rate = int(input("Enter rate of interest"))

simpint = (princ * rate * time)/100

print("SI = ", simpint)
print("Amount = ", simpint + princ)
```

```
Enter a principal4000
Enter time in months12
Enter rate of interest4
SI =  1920.0
Amount =  5920.0
```

[7]:
```python
# 7. Program to check whether a year is a leap year
year = int(input("Enter a year: "))
if year%4==0 and year%100!=0:
    print("Leap Year")
else:
    print("Not a Leap Year")
```

```
Enter a year: 2024
Leap Year
```

[8]:
```python
# 8. Program to concat 2 strings and print them
string1 = "hello "
string2 = "world!"
finalstring = string1 + string2
print(finalstring)
```

```
hello world!
```

[9]:
```
# 9. program to find out the maximum of 3 numbers
def maximum(a, b, c):
    if (a>=b) and (a>=c):
        largest = a
    elif (b>=a) and (b>=c):
        largest = b
    else:
        largest = c

    return largest

n1 = int(input('Enter a number: '))
n2 = int(input('Enter a number: '))
n3 = int(input('Enter a number: '))
print("maximum: {0}".format(maximum(n1, n2, n3)))
```

```
Enter a number: 5
Enter a number: 6
Enter a number: 7
maximum: 7
```

[10]:
```
# 10. factorial of a number
def factorial(n):
    f = 1
    for i in range(1, n+1):
        f = f*i
    return f

num = int(input('Enter a number: '))
print("Factorial is {0}".format(factorial(num)))
```

```
Enter a number: 5
Factorial is 120
```

[11]:
```
# program to generate a random number and have the user guess it correctly
import random


def random_no_gen():
    print("Enter 2 numbers: ")
    x = int(input("Enter 1st number: "))
    y = int(input("Enter 2nd number: "))
    r = random.randint(x, y)
    return r


def input_user_guess():
    randno = random_no_gen()
```

```
    while True:
        inp = int(input("Enter your guess: "))
        if inp == randno:
            print("Correct!")
            break
        if inp < randno:
            print("Too low")
        if inp > randno:
            print("Too high")


input_user_guess()
```

```
Enter 2 numbers:
Enter 1st number: 1
Enter 2nd number: 10
Enter your guess: 6
Too low
Enter your guess: 8
Too low
Enter your guess: 9
Correct!
```