Here's a set of programming exercises involving functions, if statements and loops that

you can solve:

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1. Even or Odd: Write a function called evenOrOdd that takes an integer as input and returns

"Even" if the number is even, and "Odd" if the number is odd.

def evenOrOdd(number):

    if number % 2 == 0:

     return "Even"

    else:

     return "odd"

2. Maximum of Two Numbers: Write a function called maxOfTwo that takes two numbers as

input and returns the maximum of the two.

def maxOfTwo(num\_1,num\_2):

    if num\_1 > num\_2:

        return num\_1

    else:

        return num\_2

 3. Leap Year Checker: Write a function called isLeapYear that takes a year as input and returns

True if it is a leap year, and False otherwise. (A leap year is divisible by 4, but not by 100 unless

it is also divisible by 400).

def isLeapYear(year):

    if(year%4==0 and year%100!=0) or (year%400==0):

        return True

    else:

        return False

4. Factorial Calculator: Write a function called factorial that takes an integer as input and

returns its factorial. The factorial of a number n is the product of all positive integers less than

or equal to n.

 #base case:factoral of 0 or 1 is 1

def factorial(n):

    if n == 0:

        return 1

    else:

        result = 1

        for i in range(1, n + 1):

            result \*= i

        return result

5. Greatest Common Divisor (GCD): Write a function called gcd that takes two positive integers

as input and returns their greatest common divisor.

def gcd(a,b):

    while b:

        a,b = a,a % b

return a

6. Absolute Value: Write a function called absoluteValue that takes a number as input and

returns its absolute value without using the built-in abs() function.

def absoluteValue(number):

    if number < 0:

        return -number

    else:

        return number

7. Temperature Converter: Write a function called convertTemperature that takes a

temperature in Celsius as input and returns it converted to Fahrenheit. The conversion formula

is: Fahrenheit = (Celsius \* 9/5) + 32.

def convertTemperature(celcius):

    Fahrenheit= (celcius \*9/5)+32

    return Fahrenheit

8. Grade Calculator: Write a function called calculateGrade that takes a score as input and

returns the corresponding letter grade according to the following scheme:

- 90-100: A

- 80-89: B

- 70-79: C

- 60-69: D

- Below 60: F

def calculateGrade(score):

    if score >= 90:

     return 'A'

    elif score >= 80:

      return 'B'

    elif score >= 70:

     return 'C'

    elif score >= 60:

     return 'D'

    else:

        return 'F'

score=50

grade=calculateGrade(score)

9. Sum of Squares with Loop: Write a function called sumOfSquares that takes a positive

integer n as input and calculates the sum of the squares of all positive integers up to n using a

loop. The function should return the resulting sum.

def sumOfSquares(n):

    result = 0

    for i in range(1, n+1):

        result += i\*\*2

    return result

n = 5

10. Quadratic Equation Solver: Write a function called solveQuadratic that takes three numbers

(a, b, c) as input, representing the coefficients of a quadratic equation ax^2 + bx + c = 0, and

returns the solutions as a tuple. If the equation has no real roots, return None.

def solveQuadratic(a,b,c):

    discriminant= b\*\*2-4\*a\*c

    if discriminant < 0:

        return None

    elif discriminant ==0:

        x=-b/(2\*a)

        return (x,)

    else:

        x1= (-b + discriminant\*\* 0.5)/(2\*a)

        x2=(-b-discriminant \*\*0.5)/ (2\*a)

        return (x1, x2)

a=1

b=-3

c=2

end