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Subject - AI ML Assignment 1.14

1)def sum\_of\_digits(num):

while num > 9:

# Calculate the sum of digits

sum\_digits = 0

while num > 0:

sum\_digits += num % 10

num //= 10

num = sum\_digits

return num

# Input a number from the user

number = int(input("Enter a number: "))

# Find the sum of digits until reduced to 1 digit

result = sum\_of\_digits(number)

print("Sum of digits until reduced to 1 digit:", result)

2)def find\_lcm(x, y):

# Find the maximum of the two numbers

max\_num = max(x, y)

# Find the LCM

lcm = max\_num

while True:

if lcm % x == 0 and lcm % y == 0:

break

lcm += max\_num

return lcm

def find\_hcf(x, y):

# Find the minimum of the two numbers

min\_num = min(x, y)

# Find the HCF

hcf = 1

for i in range(1, min\_num + 1):

if x % i == 0 and y % i == 0:

hcf = i

return hcf

# Input two numbers from the user

num1 = int(input("Enter first number: "))

num2 = int(input("Enter second number: "))

# Find the LCM

lcm = find\_lcm(num1, num2)

print("LCM of", num1, "and", num2, "is:", lcm)

# Find the HCF

hcf = find\_hcf(num1, num2)

print("HCF of", num1, "and", num2, "is:", hcf)

3)n = int(input("Enter a number: "))

for i in range(1, n+1):

if i % 3 != 0:

continue

cube = i \*\* 3

print("Cube of", i, "is:", cube)

4)def get\_valid\_roll\_number():

while True:

roll\_number = int(input("Enter roll number (between 1000 and 9999): "))

if 1000 <= roll\_number <= 9999:

return roll\_number

else:

print("Invalid roll number. Please try again.")

# Initialize variables

total\_marks\_above\_200 = 0

highest\_total\_marks = 0

highest\_total\_roll\_numbers = []

# Read roll number and marks for 10 students

for \_ in range(10):

print("Enter details for student", \_ + 1)

roll\_number = get\_valid\_roll\_number()

# Read marks for 3 subjects

marks = []

for subject in range(3):

marks.append(int(input("Enter marks for subject {}: ".format(subject + 1))))

# Calculate total marks

total\_marks = sum(marks)

# Check if student gets more than or equal to 40 marks in each subject

if all(mark >= 40 for mark in marks):

# Increment the count if total marks are more than 200

if total\_marks > 200:

total\_marks\_above\_200 += 1

# Check if the current student has the highest total marks

if total\_marks > highest\_total\_marks:

highest\_total\_marks = total\_marks

highest\_total\_roll\_numbers = [roll\_number]

elif total\_marks == highest\_total\_marks:

highest\_total\_roll\_numbers.append(roll\_number)

# Print the results

print("Number of students with total marks above 200:", total\_marks\_above\_200)

print("Roll number(s) of student(s) with the highest total marks:", highest\_total\_roll\_numbers)

5)num = int(input("Enter a number: "))

# Handle the case when the input number is 0

if num == 0:

digit\_count = 1

else:

digit\_count = 0

# Take the absolute value of the number to handle negative numbers

num = abs(num)

# Count the digits using a while loop

while num > 0:

num //= 10

digit\_count += 1

print("Number of digits:", digit\_count)

6)num = int(input("Enter a number: "))

reverse\_num = 0

temp = num

# Reverse the number

while temp > 0:

digit = temp % 10

reverse\_num = reverse\_num \* 10 + digit

temp //= 10

# Double the reverse number

double\_reverse\_num = reverse\_num \* 2

print("Reverse number:", reverse\_num)

print("Double of the reverse number:", double\_reverse\_num)