**Student marks:**

def calculate\_grade(marks):

total = sum(marks)

aggregate = (total / 400) \* 100

if aggregate > 75:

grade = "Distinction"

elif 60 <= aggregate < 75:

grade = "First Division"

elif 50 <= aggregate < 60:

grade = "Second Division"

elif 40 <= aggregate < 50:

grade = "Third Division"

else:

grade = "Fail"

return total, aggregate, grade

marks = []

for i in range(4):

mark = float(input(f"Enter mark for subject {i+1}: "))

marks.append(mark)

total, aggregate, grade = calculate\_grade(marks)

print(f"Total: {total}")

print(f"Aggregate: {aggregate:.2f}%")

print(f"Grade: {grade}")

**skipping numbers:**

M = int(input("Enter M: "))

N = int(input("Enter N: "))

K = int(input("Enter K: "))

for i in range(M, N + 1, K):

print(i, end=", ")

print()

**pythagorous triplet**

def generate\_pythagorean\_triplets(limit):

triplets = []

for a in range(1, limit):

for b in range(a, limit):

c = (a\*2 + b2)\*0.5

if c <= limit and c == int(c):

triplets.append((a, b, int(c)))

return triplets

limit = int(input("Enter the limit: "))

triplets = generate\_pythagorean\_triplets(limit)

for triplet in triplets:

  print(triplet)

**matrix addition:**

def add\_matrices(mat1, mat2):

result = [[mat1[0][0] + mat2[0][0], mat1[0][1] + mat2[0][1]],

[mat1[1][0] + mat2[1][0], mat1[1][1] + mat2[1][1]]]

return result

mat1 = [[1, 2], [5, 3]]

mat2 = [[2, 3], [4, 1]]

result = add\_matrices(mat1, mat2)

print("Mat Sum = ")

for row in result:

print(" ".join(str(x) for x in row))

**income tax:**

def calculate\_tax(income):

if income <= 150000:

tax = 0

elif 150001 <= income <= 300000:

tax = (income - 150000) \* 0.10

elif 300001 <= income <= 500000:

tax = (income - 300000) \* 0.20 + 15000

else:

tax = (income - 500000) \* 0.30 + 55000

return tax

income = int(input("Enter the income: "))

tax = calculate\_tax(income)

print("Tax =", int(tax))

**sorted names AS per alp[hebetic:**

def sort\_names(names, order):

if order == "asc":

names.sort()

elif order == "desc":

names.sort(reverse=True)

return names

names = input("Enter a list of names (separated by commas): ").split(",")

order = input("Enter the sorting order (asc/desc): ")

names = [name.strip() for name in names]

sorted\_names = sort\_names(names, order)

print("Sorted names:")

for name in sorted\_names:

    print(name)

**matrix multiplication:**

def matrix\_multiply(mat1, mat2):

result = [[0, 0], [0, 0]]

for i in range(2):

for j in range(2):

for k in range(2):

result[i][j] += mat1[i][k] \* mat2[k][j]

return result

mat1 = [[1, 2], [5, 3]]

mat2 = [[2, 3], [4, 1]]

result = matrix\_multiply(mat1, mat2)

print("Mat Mul = ")

for row in result:

print(" ".join(str(x) for x in row))

**pattern maximum numbers:**

def print\_pattern(num, max\_times):

for i in range(1, max\_times + 1):

print(str(num) \* i)

for i in range(max\_times - 1, 0, -1):

print(str(num) \* i)

num = int(input("Enter the number to be printed: "))

max\_times = int(input("Max Number of time printed: "))

print\_pattern(num, max\_times)

**special chatacters:**

import re

def print\_special\_chars(line):

special\_chars = re.findall(r'[^a-zA-Z0-9\s]', line)

print("Special characters:")

for char in special\_chars:

print(char)

print(f"Number of special characters: {len(special\_chars)}")

line = input("Enter a line of text: ")

print\_special\_chars(line)