Name:- ANSHUMAN GAIROLA

Roll No:- 24BCH116

Div:- 2(E4) Branch :- Chemical Engineering

1# Print largest and smallest values out of two using if else statement.

num1 = float(input("Enter the first number: "))

num2 = float(input("Enter the second number: "))

if num1 > num2:

largest = num1

smallest = num2

else:

largest = num2

smallest = num1

print("The largest number is: {largest}")

print("The smallest number is: {smallest}")

output:-

Enter the first number: 43

Enter the second number: 42

The largest number is: 43.0

The smallest number is: 42.0

2# Print largest and smallest values out of three using if else statement.

a = float(input("Enter the first number: "))

b = float(input("Enter the second number: "))

c = float(input("Enter the third number: "))

if a >= b and a >= c:

largest = a

elif b >= a and b >= c:

largest = b

else:

largest = c

if a <= b and a <= c:

smallest = a

elif b <= a and b <= c:

smallest = b

else:

smallest = c

print("Largest number: {largest}")

print("Smallest number: {smallest}")

Output:-

Enter the first number: 34

Enter the second number: 35

Enter the third number: 37

Largest number: 37.0

Smallest number: 34.0

3#Check whether a given number is odd or even using if else statement.

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

if number % 2 == 0:

print(f"{number} is Even.")

else:

print(f"{number} is Odd.")

Output:-

Enter a number: 75

75 is Odd.

4# Check whether a given number is divisible by 10 or not.

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

if number % 10 == 0:

print("The number {number} is divisible by 10.")

else:

print("The number {number} is not divisible by 10.")

Output:-

Enter a number: 6

The number 6 is not divisible by 10.

5# Accept age of a person. If age is less than 18, print minor otherwise Major.

age = int(input("Enter your age: "))

if age < 18:

print("Minor")

else:

print("Major")

Output:-

Enter your age: 34

Major

6# Accept a number from the user. And print number of digits in it.

number = input("Enter a number: ")

if number[0] == '-':

digit count = len(number) - 1

else:

digit count = len(number)

print("The number of digits in the number is: {digit count}")

Output:-

Enter a number: 36

The number of digits in the number is: 2

7# Accept a year value from the user. Check whether it is a leap year or not.

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

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

print(f"{year} is a leap year.")

else:

print(f"{year} is not a leap year.")

Output:-

Enter a year: 2078

2078 is not a leap year.

8# Check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard a triangle is valid if the sum of all the three angles is equal to 180 degrees.

angle1 = float(input("Enter the first angle of the triangle: "))

angle2 = float(input("Enter the second angle of the triangle: "))

angle3 = float(input("Enter the third angle of the triangle: "))

if angle1 + angle2 + angle3 == 180:

print("The triangle is valid.")

else:

print("The triangle is not valid.")

Output:-

Enter the first angle of the triangle: 75

Enter the second angle of the triangle: 90

Enter the third angle of the triangle: 15

The triangle is valid.

9# Print absolute value of a given number using if else statement.

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

if number < 0:

absolute value = -number

else:

absolute value = number

print( "The absolute value of {number} is {absolute value}")

Output:-

Enter a number: 65

The absolute value of 65.0 is 65.0

10# Given the length and breadth of a rectangle, write a program to find whether the are of the rectangle is greater than its perimeter using if else statement.

length = float(input("Enter the length of the rectangle: "))

breadth = float(input("Enter the breadth of the rectangle: "))

area = length \* breadth

perimeter = 2 \* (length + breadth)

if area > perimeter:

print("The area of the rectangle ({area}) is greater than its perimeter ({perimeter}).")

else:

print("The area of the rectangle ({area}) is not greater than its perimeter ({perimeter}).")

Output:-

Enter the length of the rectangle: 30

Enter the breadth of the rectangle: 15

The area of the rectangle (450.0) is greater than its perimeter (90.0).

11# Given three points (x1,y1), (x2,y2) and (x3,y3), check if all the three points fall on one straight line. using if else statement.

x1, y1 = float(input("Enter x1, y1: ")), float(input("Enter y1: "))

x2, y2 = float(input("Enter x2, y2: ")), float(input("Enter y2: "))

x3, y3 = float(input("Enter x3, y3: ")), float(input("Enter y3: "))

if (y2 - y1) \* (x3 - x2) == (y3 - y2) \* (x2 - x1):

print("The points lie on a straight line.")

else:

print("The points do not lie on a straight line.")

Output:-

Enter x1, y1: 10

Enter y1: 12

Enter x2, y2: 15

Enter y2: 9

Enter x3, y3: 2

Enter y3: 4

The points do not lie on a straight line.

12# Given the coordinates (x, y) of centre of a circle and its radius, determine whether a point lies inside the circle, on the circle or outside the circle using if else statement

x = float(input("Enter the x-coordinate of the circle's centre: "))

y = float(input("Enter the y-coordinate of the circle's centre: "))

r = float(input("Enter the radius of the circle: "))

px = float(input("Enter the x-coordinate of the point: "))

py = float(input("Enter the y-coordinate of the point: "))

distance squared = (px - x) \*\* 2 + (py - y) \*\* 2

radius squared = r \*\* 2

if distance squared < radius squared:

print("The point lies inside the circle.")

elif distance squared == radius squared:

print("The point lies on the circle.")

else:

print("The point lies outside the circle.")

Output:-

Enter the x-coordinate of the circle's centre: 5

Enter the y-coordinate of the circle's centre: 2

Enter the radius of the circle: 3

Enter the x-coordinate of the point: 8

Enter the y-coordinate of the point: 1

The point lies outside the circle.

13# Convert number 0 to 19 to its equivalent words. E.g. 0 à zero, 19ànineteen.

number = int(input("Enter a number between 0 and 19: "))

if number == 0:

print("zero")

elif number == 1:

print("one")

elif number == 2:

print("two")

elif number == 3:

print("three")

elif number == 4:

print("four")

elif number == 5:

print("five")

elif number == 6:

print("six")

elif number == 7:

print("seven")

elif number == 8:

print("eight")

elif number == 9:

print("nine")

elif number == 10:

print("ten")

elif number == 11:

print("eleven")

elif number == 12:

print("twelve")

elif number == 13:

print("thirteen")

elif number == 14:

print("fourteen")

elif number == 15:

print("fifteen")

elif number == 16:

print("sixteen")

elif number == 17:

print("seventeen")

elif number == 18:

print("eighteen")

elif number == 19:

print("nineteen")

else:

print("Invalid input! Please enter a number between 0 and 19.")

Output:-

Enter a number between 0 and 19: 5

Five

14# Accept marks of three subjects. Print total and average along with whether a candidate has passed or fail. If student secures <= 39 marks in any subject, consider him as fail. Also assigned a subject wise grade based on the following table: -

subject1 = int(input("Enter marks for Subject 1: "))

subject2 = int(input("Enter marks for Subject 2: "))

subject3 = int(input("Enter marks for Subject 3: "))

pass status = True

if subject1 <= 39 or subject2 <= 39 or subject3 <= 39:

pass status = False

total marks = subject1 + subject2 + subject3

average marks = total marks / 3

if subject1 >= 90:

grade1 = "A"

elif subject1 >= 75:

grade1 = "B"

elif subject1 >= 50:

grade1 = "C"

elif subject1 >= 40:

grade1 = "D"

else:

grade1 = "Fail"

if subject2 >= 90:

grade2 = "A"

elif subject2 >= 75:

grade2 = "B"

elif subject2 >= 50:

grade2 = "C"

elif subject2 >= 40:

grade2 = "D"

else:

grade2 = "Fail"

if subject3 >= 90:

grade3 = "A"

elif subject3 >= 75:

grade3 = "B"

elif subject3 >= 50:

grade3 = "C"

elif subject3 >= 40:

grade3 = "D"

else:

grade3 = "Fail"

print("\n Results:")

print( "Total Marks: {total marks}")

print( "Average Marks: {average\_marks:.2f}")

if pass status:

print("Status: Pass")

else:

print("Status: Fail")

print( "Grade in Subject 1: {grade1}")

print("Grade in Subject 2: {grade2}")

print( "Grade in Subject 3: {grade3}")

Output:-

Enter marks for Subject 1: 55

Enter marks for Subject 2: 86

Enter marks for Subject 3: 24

Results:

Total Marks: 165

Average Marks: 55.00

Status: Fail

Grade in Subject 1: C

Grade in Subject 2: B

Grade in Subject 3: Fail