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Subject - AI ML Assignment

1)

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

if number > 0:

print("The number is positive.")

elif number < 0:

print("The number is negative.")

else:

print("The number is zero.")

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

if number % 5 == 0 and number % 11 == 0:

print("The number is divisible by both 5 and 11.")

else:

print("The number is not divisible by both 5 and 11.")

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

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

print(year, "is a leap year.")

else:

print(year, "is not a leap year.")

4)character = input("Enter a character: ")

if character.isalpha():

print("The input character is an alphabet.")

else:

print("The input character is not an alphabet.")

5)alphabet = input("Enter an alphabet: ")

if alphabet.lower() in ('a', 'e', 'i', 'o', 'u'):

print("The entered alphabet is a vowel.")

else:

print("The entered alphabet is a consonant.")

6)character = input("Enter a character: ")

if character.isalpha():

print("The entered character is an alphabet.")

elif character.isdigit():

print("The entered character is a digit.")

else:

print("The entered character is a special character.")

7)character = input("Enter a character: ")

if character.isalpha():

if character.isupper():

print("The entered character is an uppercase alphabet.")

else:

print("The entered character is a lowercase alphabet.")

else:

print("The entered character is not an alphabet.")

8)week\_number = int(input("Enter the week number (1-7): "))

if week\_number == 1:

print("Monday")

elif week\_number == 2:

print("Tuesday")

elif week\_number == 3:

print("Wednesday")

elif week\_number == 4:

print("Thursday")

elif week\_number == 5:

print("Friday")

elif week\_number == 6:

print("Saturday")

elif week\_number == 7:

print("Sunday")

else:

print("Invalid week number. Please enter a number between 1 and 7.")

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

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

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

# Check if the angles form a valid triangle

if angle1 + angle2 + angle3 == 180 and angle1 > 0 and angle2 > 0 and angle3 > 0:

print("The triangle is valid.")

else:

print("The triangle is not valid.")

10)side1 = float(input("Enter the length of the first side of the triangle: "))

side2 = float(input("Enter the length of the second side of the triangle: "))

side3 = float(input("Enter the length of the third side of the triangle: "))

# Check if the sides form a valid triangle

if side1 + side2 > side3 and side1 + side3 > side2 and side2 + side3 > side1:

print("The triangle is valid.")

else:

print("The triangle is not valid.")

11)side1 = float(input("Enter the length of the first side of the triangle: "))

side2 = float(input("Enter the length of the second side of the triangle: "))

side3 = float(input("Enter the length of the third side of the triangle: "))

# Check the type of triangle

if side1 == side2 == side3:

print("The triangle is an equilateral triangle.")

elif side1 == side2 or side1 == side3 or side2 == side3:

print("The triangle is an isosceles triangle.")

else:

print("The triangle is a scalene triangle.")

12)physics = float(input("Enter the marks obtained in Physics: "))

chemistry = float(input("Enter the marks obtained in Chemistry: "))

biology = float(input("Enter the marks obtained in Biology: "))

mathematics = float(input("Enter the marks obtained in Mathematics: "))

computer = float(input("Enter the marks obtained in Computer: "))

total\_marks = physics + chemistry + biology + mathematics + computer

percentage = (total\_marks / 500) \* 100

# Determine the grade based on the percentage

if percentage >= 90:

grade = "A"

elif percentage >= 80:

grade = "B"

elif percentage >= 70:

grade = "C"

elif percentage >= 60:

grade = "D"

elif percentage >= 40:

grade = "E"

else:

grade = "F"

print("Percentage: {:.2f}%".format(percentage))

print("Grade: ", grade)

13)basic\_salary = float(input("Enter the basic salary of the employee: "))

if basic\_salary <= 10000:

hra = basic\_salary \* 0.2

da = basic\_salary \* 0.8

elif basic\_salary <= 20000:

hra = basic\_salary \* 0.25

da = basic\_salary \* 0.9

else:

hra = basic\_salary \* 0.3

da = basic\_salary \* 0.95

gross\_salary = basic\_salary + hra + da

print("Gross Salary: ", gross\_salary)

14)unit\_charges = float(input("Enter the electricity unit charges: "))

total\_bill = 0

if unit\_charges <= 50:

total\_bill = unit\_charges \* 0.50

elif unit\_charges <= 150:

total\_bill = (50 \* 0.50) + ((unit\_charges - 50) \* 0.75)

elif unit\_charges <= 250:

total\_bill = (50 \* 0.50) + (100 \* 0.75) + ((unit\_charges - 150) \* 1.20)

else:

total\_bill = (50 \* 0.50) + (100 \* 0.75) + (100 \* 1.20) + ((unit\_charges - 250) \* 1.50)

total\_bill += total\_bill \* 0.20 # Adding 20% surcharge

print("Total Electricity Bill: Rs.", total\_bill)