SOLUTION - ASSIGNMENT 2 CONDITIONAL STATEMENTS

NOTE:

- **No need to submit anywhere, just keep track of all the PDF you made in a specific folder.**
- **Compare your solution with the solution I'll provide, in case of doubts, kindly reach out to me.**
- **You may get assignment solution in format of PDF or VIDEO solution, depending on the difficulty level.**

Q1. Write a program that takes two numbers as input and checks if the first number is divisible by the second.

```python
num1: int = int(input("Enter the first number: "))
num2: int = int(input("Enter the second number: "))

# Check if the first number is divisible by the second
if num1 % num2 == 0:
    print(f"{num1} is divisible by {num2}.")
else:
    print(f"{num1} is not divisible by {num2}.")
```

Q2. A student will not be allowed to sit in exam if his/her attendance is less than 75%.

Take following input from user

- Number of classes held
- Number of classes attended.

1. Print percentage of class attended

2. Print Is student is allowed to sit in exam or not.

```python
classes_held: int = int(input("Enter the number of classes held: "))
classes_attended: int = int(input("Enter the number of classes attended: "))

attendance_percentage: float = (classes_attended / classes_held) * 100

print(f"Percentage of classes attended: {attendance_percentage}%")

if attendance_percentage ⩾ 75:
    print("The student is allowed to sit in the exam.")
else:
    print("The student is not allowed to sit in the exam due to low attendance.")
```

Q3. Write a program to check if number is divisible by 2 and 3 but not 8.

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

if number % 2 == 0 and number % 3 == 0 and number % 8 ≠ 0:
    print(f"{number} is divisible by 2 and 3 but not by 8.")
else:
    print(f"{number} does not meet the conditions.")
```

Q4. Write a Python program that takes a student's score as input and prints the corresponding grade. Use the following grading scale:

A: 90-100

B: 80-89

C: 70-79

D: 60-69

F: Below 60

```python
score: int = int(input("Enter the student's score: "))

# Determine the grade
if 90 ⩽ score ⩽ 100:
    grade = 'A'
elif 80 ⩽ score < 90:
    grade = 'B'
elif 70 ⩽ score < 80:
    grade = 'C'
elif 60 ⩽ score < 70:
    grade = 'D'
else:
    grade = 'F'

print(f"The student's grade is: {grade}")
```

Have a look how we are comparing scores, you can do it using 2 ways.

- 90 <= score <= 100
- score >= 90 and score <= 100 (preferred method)

Q5. Write a program to calculate bill. Ask the final amount from the user.

You have to give discount and print the final bill after discount.

50000 above - 30% discount

40000 - 49999 - 25% discount

30000 - 39999 - 20% discount

10000 - 29999 - 10% discount

1 - 9999 - No discount

Print the discount and the final amount to be paid.

Example 1

Enter bill amount = 80000

You got 30% discount

Your final bill is Rs. 56000

```python
final_amount: float = float(input("Enter the final amount: "))

# We are taking discount as 0
# and discounted amount as final amount
# incase there is no discount we can directly
# display them
discount: float = 0
discounted_amount: float = final_amount

# Determine the discount based on the final amount
if final_amount ⩾ 50000:
    discount = 30
elif 40000 ⩽ final_amount and final_amount ⩽ 49999:
    discount = 25
elif 30000 ⩽ final_amount and final_amount ⩽ 39999:
    discount = 20
elif 10000 ⩽ final_amount and final_amount ⩽ 29999:
    discount = 10

# Calculate discount amount
if discount > 0:
    discounted_amount = final_amount - (final_amount * discount / 100)

print(f"You got {discount}% discount")
print(f"Your final bill is Rs. {discounted_amount:.2f}")
```

Q6. Ask 4 numbers from user. Make sure all the numbers entered by user are different. Print which number is the smallest.

```python
num1 = int(input("Enter the first number: "))
num2 = int(input("Enter the second number: "))
num3 = int(input("Enter the third number: "))
num4 = int(input("Enter the fourth number: "))

# Initialize the smallest_number variable with the first number
smallest_number = num1

# Check and update if the second number is smaller
if num2 < smallest_number:
    smallest_number = num2

# Check and update if the third number is smaller
if num3 < smallest_number:
    smallest_number = num3

# Check and update if the fourth number is smaller
if num4 < smallest_number:
    smallest_number = num4

print(f"The smallest number is: {smallest_number}")
```

Q7. Take Salary as input from User and Update the salary of an employee.

- salary less than 10,000, 5 % increment
- salary between 10,000 and 20, 000, 10 % increment
- salary between 20,000 and 50,000, 15 % increment
- salary more than 50,000, 20 % increment

```python
salary = float(input("Enter the current salary: "))

if salary < 10000:
    increment_percentage = 5
elif 10000 ⩽ salary < 20000:
    increment_percentage = 10
elif 20000 ⩽ salary < 50000:
    increment_percentage = 15
else:
    increment_percentage = 20

increment = (salary * increment_percentage) / 100
updated_salary = salary + increment

print(f"The original salary was: Rs. {salary:.2f}")
print(f"The increment percentage is: {increment_percentage}%")
print(f"The updated salary is: Rs. {updated_salary:.2f}")
```

Q8. An extra day is added to the calendar almost every four years as February 29, and the day is called a leap day. A leap year contains a leap day.

These are the conditions used to identify leap years:

- if the year can be evenly divided by 4, it is then a leap year
- but if the year is evenly divided by 4 and also by 100, then it is NOT a leap year
- but if the year is evenly divided by 4 and also by 400, then it is a leap year

This means the years 2000 and 2400 are leap years, while 1800, 1900, 2100, 2200, 2300 and 2500 are NOT leap years.

Ask a year input from user. And tell if the year entered by user is leap or not.

Answer 1

```python
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.")
```

Answer 2

```python
# Get input from the user
year = int(input("Enter a year: "))

if year % 4 == 0:
    if year % 100 == 0:
        if year % 400 == 0:
            print(f"{year} is a leap year.")
        else:
            print(f"{year} is not a leap year.")
    else:
        print(f"{year} is a leap year.")
else:jn
    print(f"{year} is not a leap year.")
```