CSE5APG
Week 3: Lab03

OBJECTIVES

- Implement Input, Process and Output steps.
- Learn how to use conditional execution.
- Learn how to write basic Python programs

1- **Minimum of Two Numbers:** Write a program that reads two integers and prints out the Minimum

2- **Maximum of Three Numbers:** Write a program that reads three integers and prints out the maximum of the three.

3- **Sorting Three Numbers:** Write a program that reads three integers and prints them out in increasing order.

4- **Are numbers Strictly Ordered?:** Write a program that reads three numbers and prints "increasing" if they are in increasing order, "decreasing" if they are in decreasing, and "neither" otherwise. We will take "increasing" to mean "strictly increasing", with each value larger than its predecessor. For example, the sequence **3 4 4** would not be considered increasing.

5- **Number Relations:** Write a program that reads three numbers and prints "all the same" if they are all the same, "all different" if they are all different, and "neither" otherwise.

6- **Three Sides of a Triangle:** Write a program that prompts the user for three positive numbers and then determines if the numbers can be the three sides of a triangle. For three positive numbers to be the sides of a triangle, none should be bigger than or equal to the sum of the other two.

7- **Input Validation for Triangle Problem:** In the previous question, what will happen to your program if the user enters numbers that are 0 or negative? Modify the previous program to validate the inputs upfront.

8- **Counting Digits:** Write a program that reads a positive integer and prints out how many digits it has by checking whether the number is >= 10, >=100, and so on. The program prints out one of the following messages "The number has 1 digit", "The number has 2 digits", "The number has 3 digits", "The number has 4 digits", "The number has more than 4 digits"

9- **Egg Classification:** Eggs that weigh less than 55 grams are graded as small. Eggs in the range 55-65 are graded medium. Eggs over 65 grams are graded large. Write a program that asks a user to enter the weight of an egg and prints out its grade.

10- **Employee's Payment:** Write a program to calculate the weekly payment for an employee working at a store. Information about the employee includes:

- the employee's name (a string)
- the hourly pay rate (a float)
- the number of hours the employee worked in the week (a float)
- the total sales for the week (a float).

An employee is expected to sell at least $100 worth of goods in each hour they work. If they sell on average more than $100 an hour, they receive a bonus. The pay is calculated as the number of hours they worked multiplied by their hourly pay rate plus the bonus if they are entitled to one. The bonus is 10% of the sales amount they made above the expected sales amount based on $100 an hour. Test Cases:

- hours = 20.0
- rate = 15.45
- total sales = 4600.90
- pay = 369.09
- hours = 10.0
- rate = 20.00
- total sales = 3000.00
- pay = 400.00

11- **Ordering Books:** A university bookstore wants a program to determine the number of copies it should order for a book. Experience has shown that sales depend largely on whether the book is required as a prescribed textbook or merely recommended and whether or not it has been used before. A new, required textbook will sell 90% of prospective enrollment, but if it has been used before 65% will buy. Similarly, 40% will buy newly recommended books, but just half that many buy a book that has been used before. Write a program that asks the user for all the information required for a book, including the prospective class enrollment, and prints out how many copies the bookstore should order (assuming there is no left-over stock for the book).