BIRZEIT UNIVERSITY

Introduction To Computers And Computing Ethics (COMP1310)

Assignment 2– FALL 2024

Notes:

1. This assignment is due by ***Monday (11/11/2024).*** Assignment should be submitted on Moodle ITC comp1310 metacourse "Assignment Two".
2. The assignment answers should be clear, readable in TYPED format, and should be submitted on ITC (Moodle) meta course on COMP1310 -Meta: "Assignment Two" before the deadline. Submissions not sent as specified here will not be considered.
3. The assignment should be submitted by the due date and time. ***(Late Assignments will not be accepted for any reason).***
4. The assignment as well as your personal information (Name, student id, section #, …) MUST be FULLY TYPED. Hand written assignments will NOT be accepted.
5. The assignments are *individual* effort and copying the assignment from any source will be treated as a cheating attempt, which may lead to *FAILING* the course.

Question 1: Write an algorithm that calculates the prices for any number of items مشتريات. The algorithm should accept for each item purchased the number of item units and item price (itemprice = number of item units * unit price). The total number of items is unknown), (when the user finish he must enter -1):

Then this algorithm computes the following:

-- Print price for each item

-- Average prices (Hint = Total prices / total number of units)

-- Highest and lowest price

-- How many prices are above 1000$

-- How many prices between 500 $ and 1000 $ (inclusive)

-- Summation for all Prices

Example:

Input:

- User entry:
  - Number units: 3
  - Unit price: 200
- User entry:
  - Number units: 5
  - Unit price: 150
- User entry:
  - Number units: 10
  - Unit price: 100
- User entry:
  - Number units: 1

    - Unit price: 1200
- User enters:
    - Number units: -1

Expected Output:

- Prices for each item: 600, 750, 1000, 1200
- Average price: 186.8
- Highest price: 1200
- Lowest price: 600
- Count of prices above $1000: 1
- Count of prices between $500 and $1000: 3
- Summation of all prices: 3550

Question 2: Write an algorithm that asks the user to enter 10 integers numbers (whatever was their number of digits) then prints the number that has the Largest sum of digits.

Example: the user enter: 1090, 46, 7, 300, 100, 99, 31111, 200, 19, 5.

The algorithm should print: The number that have the largest sum of digits is 99.

Question 3: Write an algorithm that for a group of cars, finds the percentage of Mercedes/BMW for each age category (Old car, Middle age car, New car). The algorithm should accept the car type (M for Mercedes or B for BMW) and car production year, for each car until zero value is entered. Then the algorithm should find and print the percentage of Mercedes and percentage of BMW in each age category.

Car categories are considered as follows: **Old Car**: for ages above 20, **Middle age car** : for ages between 5 and 20 inclusive, **New car**: for ages under 5.

Hint: car age: current Year – production Year

Example:

Input:

User entry:

- Car Type: M
- Car Production Year: 2002

User entry:

- Car Type: B
- Car Production: 2015

User entry:

- Cart Type: B
- Car Production: 2020

User entry:

- Car Type:M
- Car Production: 2019

User entry: 0

<u>Expected Output:</u>

Old Cars : 100% Mercedes, 0% BMW

Middle Cars: 50% Mercedes, 50% BMW

New Cars: 0% Mercedes, 100% BMW