Lab-3

Lab Session - Academic Week 3

Boot into **Linux** using any computer in the lab, and login using your **CS** username. Remember to adhere to the lab policies mentioned in your introductory lab session at all times (lab-0). Recall your suggested time management strategy:

- **First hour:** go through the lecture material, familiarise yourself with the code provided in it, and make sure you understand how each feature works
- **Second hour**: prepare for your tutorial - please see Tutorial-3 in the Google Drive
- **Third hour**: once the above two points are complete, you should work on the task mentioned below

You are recommended to read this entire document and fully understand the task you have been set **before** attempting to write any code.

Task

Today we will develop a program using JavaScript for a coffee shop to calculate their sales.

You are given the amounts of coffee dispensed (in millilitres) from the coffee machine within a one hour period, along with the ID number of the employee who made each coffee. The names of the employees are also given to you. These are provided in the form of arrays.

- `var ml = [210, 230, 302, 530, 488, 501, 320, 330, 370, 221, 199, 50, 301, 180, 250, 450, 600, 225, 325, 475];`

- `var ids = [1,2,4,1,3,2,5,1,2,3,4,5,1,2,3,4,1,5,4,3];`

- `var names = ["Amy", "Beth", "Chad", "Doug", "Ed"];`

You are also given the following information about different coffee sizes:

Extra large coffee (xl)	500 ml or above	£4.00
Large coffee (large)	400 ml - 499 ml	£3.50
Medium coffee (medium)	300 ml - 399 ml	£3.00
Small coffee (small)	200 ml - 299 ml	£2.50
Any less than 200 ml is considered an error by the employee, and not charged to the customer		

Your program should calculate:

- How many coffees were made of each size (small, medium, large, and xl)
- How many coffees were made by each employee (Amy, Beth, Chad, Doug and Ed)

Hints

These hints are for the first task only. This is just one possible solution, there may be other shorter or more efficient solutions you may want to investigate as alternatives.

- Start by copying the three provided arrays into the console
- Write a function (e.g. ***findCoffeeSize***) which takes the millilitre value (***ml***) as a parameter and returns the size (*small, medium, large, xl*) as a result.
    - Use a series of ***if/else*** conditions inside this function to achieve the desired result
- Test this function with a few values from the above array to make sure it works correctly
    - E.g. ***findCoffeeSize(210);*** → *"small"*
    - E.g. ***findCoffeeSize(302);*** → *"medium"*
- Write a function ***countEachCoffeeSize***, that:
    - Creates four variables (***small, medium, large, xl***) all which are initially set to 0
    - Uses a for loop to iterate through the ***ml*** array, and:
        - pass each value into ***findCoffeeSize*** to obtain the size of each coffee made
        - Uses a ***switch*** statement to increment ***small, medium, large*** or ***xl*** variables depending on the value returned from ***findCoffeeSize***
    - Prints the values of ***small, medium, large*** and ***xl*** to the console

The following is one possible solution for the second task (counting the coffees made by each employee). Note that these instructions are intentionally more abstract than the previous ones.

- Create a function ***countCoffeesByEmployee*** which:
    - Creates a variable for each employee (***c1, c2, c3, c4, c5***) which holds the count of coffees made by each employee (you could alternatively use an array ***count*** of size 5)
    - Iterates through the ids array using a for loop, and increments ***c1***-***c5*** as appropriate or the corresponding element in the ***count*** array
    - Prints the name of each employee to the console along with the value of their count

If you have any questions when completing this task, please as your tutors.

Extra challenges

If you are finding the task easy, you can try addressing the following:

- Find the shop's total income
- Find the income brought in by each employee
- Find the employee who brought in the highest income

Further work

Once again, if you complete this task you should continue designing your own website.