University of HUDDERSFIELD

CFS2160: Programming Stream

Tutorial/Practical 9

Java Capstone Project

Introduction

The following programming task brings together all the Java we have done so far.

Description

The University of Poppleton runs a Christmas Club whereby members of staff make a small contribution every week and, at the end of the year, are provided with a large turkey[1].

In the usual GitHub repo you will find a class that could be used to represent an individual member of the Christmas Club. Download it, study it, and make sure you understand what all the attributes and methods represent.

This class also contains a simple `main` method that shows how it works. It might help.

Now use this class to implement a program to store details of a group of members and their contributions. The program should store details of all members (there is a list of them below) in some collection. It should have functions (i.e. methods) to:

- Print the names and current contributions of all members.
- Calculate and return the total amount of all contributions.
- Determine and return how many turkeys can be purchased with the total contributions, given the cost of a turkey.

Contributions are only ever made in full pounds.

The program should do the following. It should:

- Create four member objects:
  - Gary, who has contributed £27.
  - Tony, who has contributed £21.
  - Rubiya, who has contributed £20.
  - Steve, who has contributed £28.
- Display a list of the current members of the club (which will be the four above).
- Calculate and display the total contributions made.

[1] Or a vegetarian equivalent.

- Calculate and display the number of turkeys that can be bought, if each turkey costs £20.

Hints

- Study your notes on the final examples from the lecture. You saw all the code you need there. The code for both examples is on GitHub.
- You already have a good amount of the code you need. You have a class that represents a Club Member, and *you do not need to change this at all*.
- You are to develop a class that represents the club itself. The class representing the club contains an ArrayList of member objects.
- The contribution amount is an integer, because we are told contributions are always full pounds.
- The three functions above are best implemented as methods in the "Club Class". The first just prints, the other two return a value. The last one ("How many turkeys?") will need a single parameter to represent the cost of one turkey (which is given in the description above).
- The last method returns an integer. You can't buy half a turkey.
- The program to demonstrate your classes could just be the `main` method in the "Club Class" or could be in a separate class - up to you.