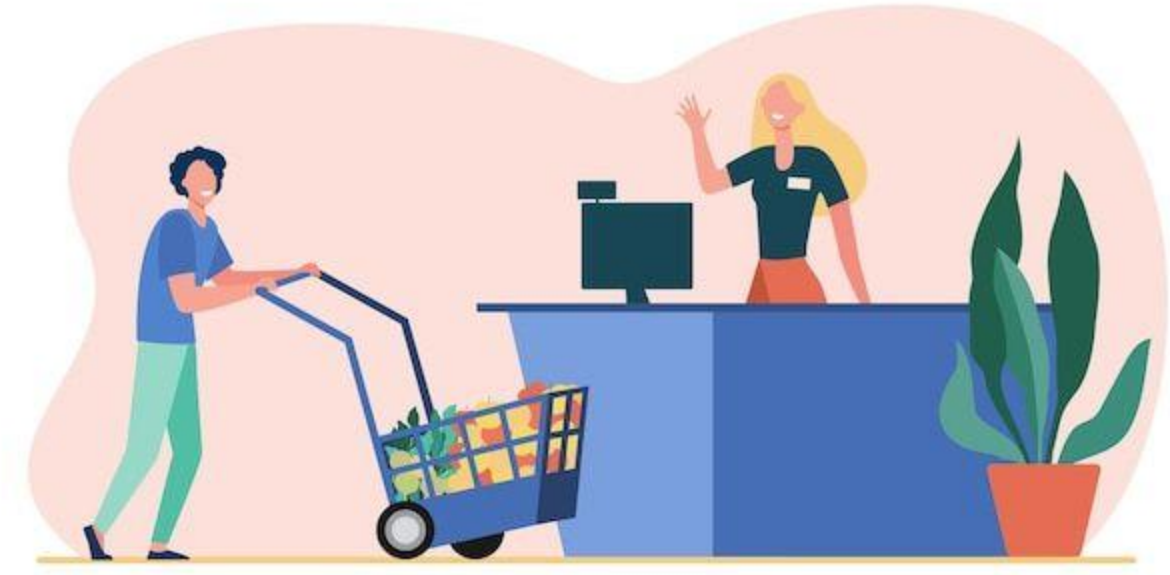
Week 14 - Final Exercise Brief

Louis Botha, `louis.botha@tuni.fi`



Free vector male customer wheeling shopping cart to cash register

Topic
A command line application that display and analyse a sales dataset from SuperStore.

Overview
In this exercise, you will read a large dataset from file into local memory. With the dataset in memory you will analyse the data and show the results to the user. The dataset contains order data over a period of time.

Requirements

1. A command line application that uses object orientated programming practices to read the data from the file and store it in different objects and collections.

2. Develop a command line user interface that provide the user different options for displaying the data.

3. 3rd party libraries are allowed

4. Test your application thoroughly to ensure that it is reliable, functional, and useable.

Deliverables

1. Source code and documentation for the application, including instructions for building and running the application. Documentation can be in the README.

2. Working command line application.

3. A presentation that summarises the key features and functionalities of the application and demonstrates its use. (ScreenCast/Video).

4. Project self evaluation

Grading
The project can be done in phases and each completed phase add to the points counts.
Total Points: 75

The points will be added to assignment sheet and be part of the final exercise calculation. Exercise completion will be converted to a percentage and the percentage converted to credits:

```
[ 0%, 30%[  => 0p
[30%, 70%[  => 1p
[70%, 100%[ => 2p
```

Repository
:github-class: GitHub Classroom

👷 Implementation

Dataset

Each row in the data set contains the following data.

```
Row ID
Order ID
Order Date
Ship Date
Ship Mode
Customer ID
Customer Name
Segment
Country
City
State
Postal Code
Region
Product ID
Category
Sub-Category
Product Name
Sales
Quantity
Discount
Profit
```

Phase 1 - 20 points

Read the data from the file and sort the data into objects for better handling, e.g. Customer, Order, Product, etc. and collections.

Each column in the dataset needs to be mapped to some object in your application.

💡 Hints

- Don't just jump in and code! Check the data. Design the classes on paper and form some understanding how the classes relate to each other.
- Open the CSV files with Excel to help with viewing and understanding the data.
- The better the objects and collections, the easier the following steps are going to complete.

> *:attention: Take note of the order id, when multiple lines have the same id, it is part of the same order.*

Phase 2 - 8 points

Create a command line user interface for navigating the application. Create an entry for navigating to a view that will take user input from where the user can search for a customer by name. A list of customers should be returned that match.

> *You will be adding more items to the interface, so design it well.*
> *Remember to add back navigation.*

Phase 3 - 15 points

From the returned customers that match the search criteria, the user can select a customer and a view will open a table with a summary of all the orders made by the customer.

💡 Hint: You can use `\t` to space the text one tab.

id (select)	order id	order date	shipping date	sales

			Total sales for order:	

> *Not the specification, just something to give direction*

Phase 4 - 15 points

From the above table the user can view the details of a specific order.

Order Id Order date Shipping date Customer id Customer Name Address			
Product id	Product name	Quantity	Sales
		Total sales for order:	

> *Not the specification, just something to give direction*

Phase 5 - 12 points

Create a view that will generate and show some statistics from dataset.

- What is the average sales amount of the orders?
- Who is the best customer (highest total sales)?
- The amount of customers per state?
- How many Corporate, Consumer and Home Office customers are there?
- What is the total sales per year?
- What is the total sales per region, West, East, Central and South.

💡 Hint: You may use streams or loops.

Phase 6 - 5 points
Add a menu item to generate a sales report. A sales report saves the last two tasks from the previous phase to a file called `sales-report_<date>.txt`.

🏆 Bonus Points

- Read the data from the `SuperStoreReturns.csv` file and adjust all the orders that are affected.
  - **10 points**
- Implementing a graphical user interface
  - **10 points**
- Unit tests for the features of stage 5
  - **6 points**