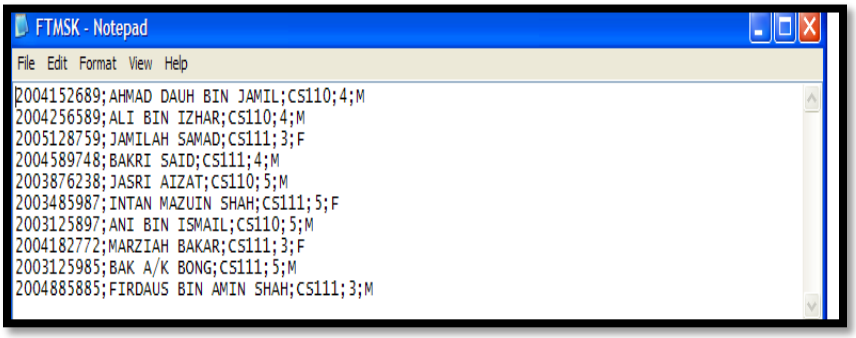
CSC186 – Object Oriented Programming
Academic Session March 2023 – August 2023
Lab Assignment 5 – File Input and Output

Course Outcomes (CO)	LO1	LO2	LO3
CO1			
CO2	√	√	√
CO3			

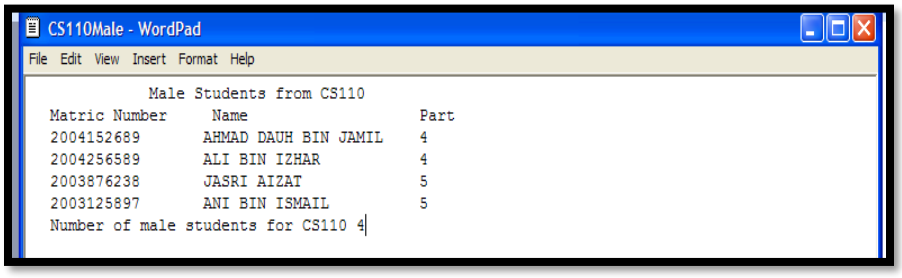
3.1 Given the input file of `FTMSK.txt` that includes the following attributes such as MatricNumber, StudentName, Program, Part and Gender (either M (Male) or F (Female)).

The following input text file includes all records of FTMSK students.

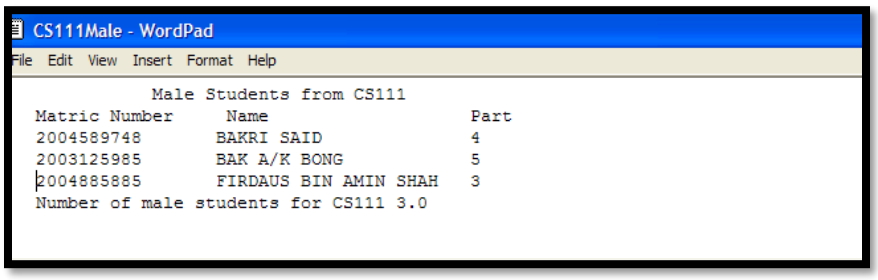


Write a program that reads each record from `FTMSK.txt` and filter the records into two output text files called `CS110Male.txt` and `CS111Male.txt`. The first output text file will store all male students from CS110, while the second output file will store all male students from CS111. Calculate and display the total records for each output text file.

Examples of output text file for `CS110Male.txt`.



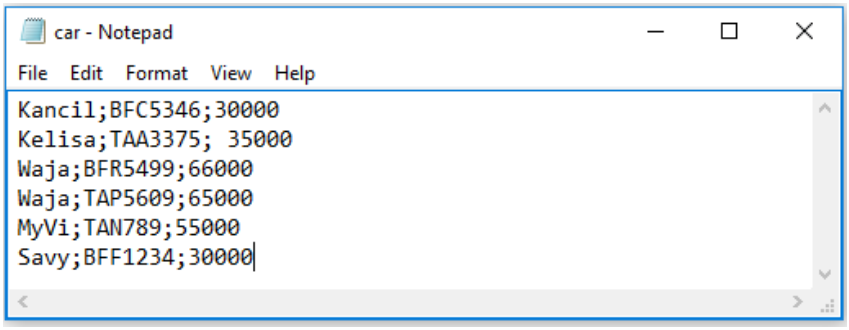
Examples of output text file for `CS111Male.txt`.



Use exception-handling operations to deal with the input-output errors.

3.2 H&M Car Motors Bhd is in the process of updating the record of cars information. You are given a file named `car.txt` that contains the following details:

- car type
- car plate number
- car price



A sample of `car.txt` file.

Write a complete program to perform the following:

a) Design a complete class named `Vehicle` consist of the following method:
   i) Constructor
   ii) Setter/mutator
   iii) Getter/Assessor

b) Write Java Application program to perform the following tasks:

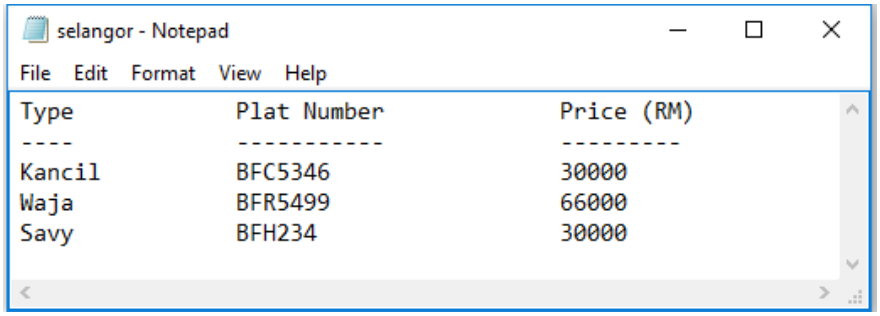
   i) Create an array of object for Vehicle named `arrCar`.

   ii) Read all records from the file named `car.txt` and store each object onto array of object named `arrCar`

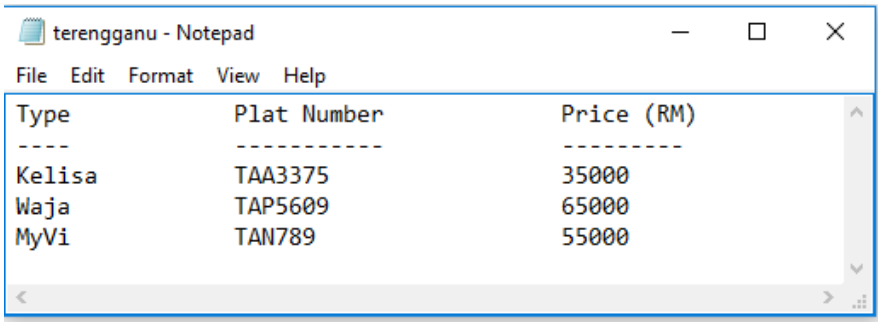
iii) Write the following information into a file named `selangor.txt`:
   a. Information for all cars that are manufactured in Selangor, where the plate numbers start with the letter 'B'.
   b. Calculate the total price for all cars that are manufactured in Selangor.

iv) Write the following information into a file named `terengganu.txt`:
   a. Store the information for all cars that are manufactured in Terengganu, where the plate numbers start with the letter 'T'.
   b. Calculate the total price for all cars that are manufactured in Terengganu.

v) Use exception to handle possible file errors and wrong data type errors.



Sample of `selangor.txt`



Sample of `terengganu.txt`

3.3 You are given a text file named `deliveroo. txt`, which contains a list of food delivery orders for a food delivery company. The data consists of the delivery date (DDIMMIYYYY), day, start time, end time,, restaurant name, total price, delivery distance in kilometres, and price multiplier.

deliveroo.txt

```
02/09/2022,Wednesday,7:10:00 PM,7:28:00 PM,Turtle Bay,20.68,3.3,1.1
02/09/2022,Wednesday,7:45:00 PM,8:07:00 PM,Smoke & Glaze,19.79,2.4,1.1
02/09/2022,Wednesday,8:11:00 PM,8:29:00 PM,Pinkmans,18.42,2.4,1.1
02/09/2022,Wednesday,8:29:00 PM,8:54:00 PM,Taka Taka,32.90,3.2,1.1
02/09/2022,Wednesday,8:56:00 PM,9:17:00 PM,Nandos,18.61,1.7,1.1
02/09/2022,Wednesday,9:27:00 AM,9:58:00 AM,Salamabites,17.39,1.3,1.1
02/09/2022,Wednesday,10:03:00 PM,10:19:00 PM,Creams,18.47,2.8,1.1
04/09/2022,Friday,6:38:00 PM,7:06:00 PM,Chandos Fish Bar,33.46,4.5,1.3
04/09/2022,Friday,7:09:00 PM,7:31:00 PM,Pho,25.05,0.3,1.3
04/09/2022,Friday,7:31:00 PM,7:46:00 PM,Tuk Tuck,25.29,4.3,1.3
04/09/2022,Friday,7:52:00 PM,8:25:00 PM,The Real Greek,25.19,2.5,1.3
04/09/2022,Friday,8:36:00 PM,9:00:00 PM,GBK,26.88,2.3,1.3
04/09/2022,Friday,9:04:00 PM,9:22:00 PM,Reel Soul,23.59,3.6,1.1
04/09/2022,Friday,9:48:00 AM,10:02:00 AM,Pho,17.34,2,1.1
06/09/2022,Sunday,5:53:00 PM,6:15:00 PM,KFC,21.90,2.4,1.2
06/09/2022,Sunday,6:15:00 PM,6:32:00 PM,Pizza Hut,24.35,2.5,1.2
06/09/2022,Sunday,6:32:00 PM,6:43:00 PM,Subway,21.43,0.9,1.2
```

Figure 1: `deliveroo. txt`

Write a complete Java program using File 1/0 operation to perform the following tasks:

a) Read all records from the text file named `deliveroo. txt` in Figure 1.

b) Generate an output file named `earnings.txt` which contains the profit and summary of the orders. The profit for each delivery is calculated using the following formula:

profit= (price multiplier x final price) - final price

The final price that the buyer must pay is the sum of the order's total price multiplied by the price multiplier. The price multiplier was set based on the type of customers and the coupon they used.

A sample of `earnings. txt` is shown in Figure 2.

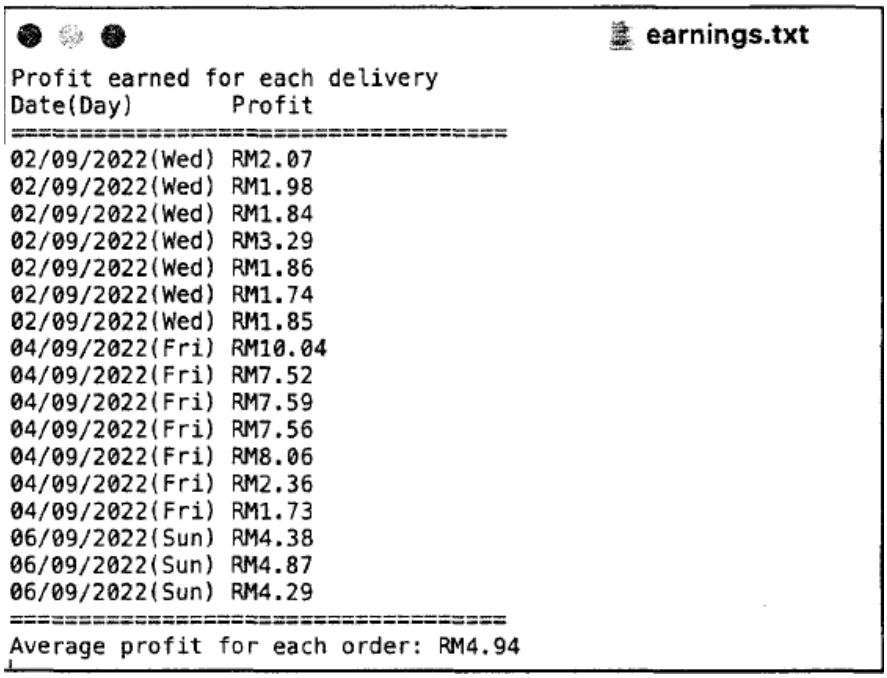


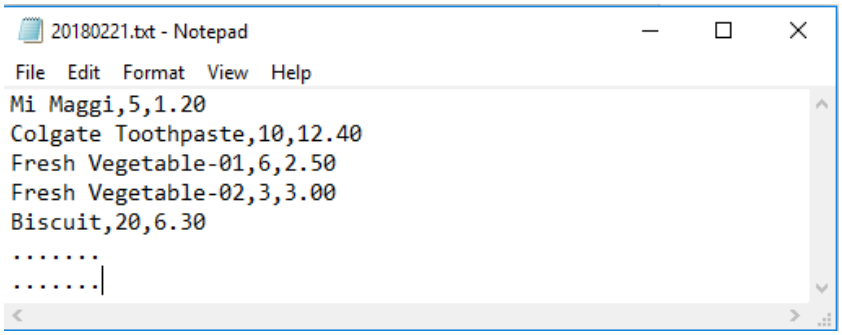
Figure 2: earnings. txt

c) Count the number of deliveries with start time at 9 PM or later and display it on the console.

d) Close all file streams in use.

e) Apply exception handling mechanism in the program.

3.4 Ahmad Jimat Supermarket is a convenient store that sells varieties of goods to its customers. All sales are recorded in text files. The text files are named according to the date of the sales. The stored data contains item name, quantity and unit price. The file is named "`20180221.txt`" records all the sales on 21st February 2018 as follows:



A sample of `20180221.txt`

Write a complete Java program using file I/O to perform the following tasks:

a) Design a complete class named `Supermarket` consist of the following method:
   i) Constructor
   ii) Setter/mutator
   iii) Getter/Assessor

b) Write Java Application program to perform the following tasks:

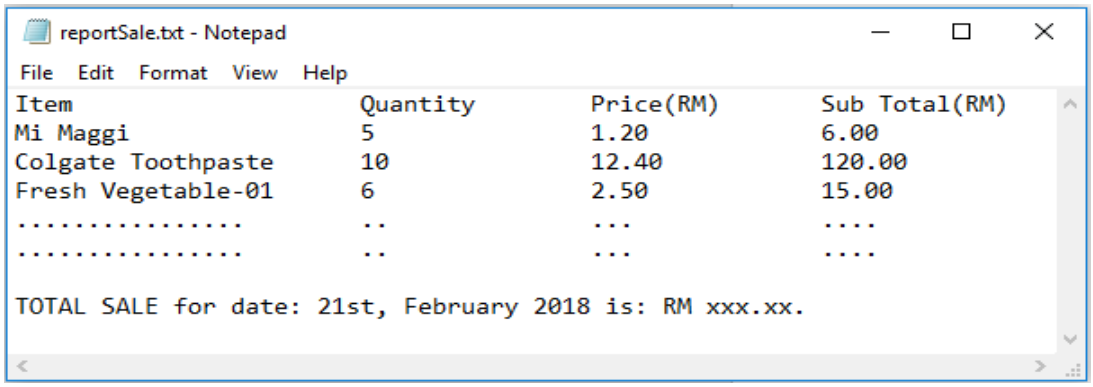
   i) Create an array of object for named `arrStore`.

   ii) Read all records from the file named `20180221.txt` and store each object onto array of object named `arrStore`

   iii) Write the following into a file named `reportSale.txt`:
   - Calculate and display the total sale on 21st February 2018 by summing up the subtotal of all the records in the text file for each record. For example, the subtotal of the first record is shown below:

     ```
     Sub total = 5 * 1.20 = 6.00
     ```

   - The expected output of the program is shown below:



A sample of `reportSale.txt`

iv) Use exception handling operations to deal with possible file input/output error.