UNIVERSITI TEKNOLOGI MARA

CSC186 – OBJECT ORIENTED PROGRAMMING

LAB ASSIGNMENT 5

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QUESTION 5.1

SOURCE CODE 1.1 : FTMSKApp Class

```
import java.io.*;
import java.util.*;

public class FTMSKApp {
    public static void main(String[] args) {

        try {
            // Open all files
            BufferedReader in = new BufferedReader(new FileReader
("FTMSK.txt"));
            PrintWriter outCS110 = new PrintWriter(new BufferedWriter(new
FileWriter("CS110Male.txt")));
            PrintWriter outCS111 = new PrintWriter(new BufferedWriter(new
FileWriter("CS111Male.txt")));

            outCS110.println("\t\tMale Students in CS110");
            outCS110.printf("%-15s%-30s%-10s\n", "Matrix Number", "Name",
"Part");
            outCS111.println("\t\tMale Students in CS111");
            outCS111.printf("%-15s%-30s%-10s\n", "Matrix Number", "Name",
"Part");

            // Read data from input file
            int cntCS110 = 0;
            int cntCS111 = 0;
            String inData = null;
            while((inData = in.readLine()) != null) {
                // Tokenize the record intro field
                StringTokenizer at = new StringTokenizer(inData, ";");
                String matrixNum = at.nextToken();
                String studName = at.nextToken();
                String program = at.nextToken();
                String part = at.nextToken();
                String gender = at.nextToken();

                // Manipulation
                if (program.equalsIgnoreCase("CS110") &&
gender.equalsIgnoreCase("M")) {
                    outCS110.printf("%-15s%-30s%-10s\n", matrixNum,
studName, part);
                    cntCS110++;
```

```
                }
                if (program.equalsIgnoreCase("CS111") &&
gender.equalsIgnoreCase("M")) {
                    outCS111.printf("%-15s%-30s%-10s\n", matrixNum,
studName, part);
                    cntCS111++;
                }
            } //end while

            outCS110.println("\nNumber of male students for CS110: " +
cntCS110);
            outCS111.println("\nNumber of male students for CS111: " +
cntCS111);

            // Close all files
            in.close();
            outCS110.close();
            outCS111.close();
        } //end try block

        // Catch block
        catch(FileNotFoundException fnf) {
            System.out.println(fnf.getMessage());
        }

        catch(IOException iox) {
            System.out.println(iox.getMessage());
        }

        catch(Exception e) {
            System.out.println("Problem: " + e.getMessage());
        }
    } //end main
} //end class
```

OUTPUT FILE 1.1 : CS110Male.txt

```
        Male Students in CS110
Matrix Number  Name                          Part
111111         Ahmad                         Part A
555555         Ali                           Part A
999999         Ahmad                         Part A

Number of male students for CS110: 3
```

OUTPUT FILE 1.2 : CS111Male.txt

```
        Male Students in CS111
Matrix Number  Name                          Part
333333         Muhammad                      Part A
777777         Ismail                        Part A

Number of male students for CS111: 2
```

QUESTION 5.2

SOURCE CODE 2.1 :Main Class

```
import java.io.*;

public class Main {
    public static void main(String[] args) {

        try {
            Vehicle[] arrCar = new Vehicle[100];

            BufferedReader in = new BufferedReader(new
FileReader("Car.txt"));
            PrintWriter outSelangor = new PrintWriter(new
BufferedWriter(new FileWriter("selangor.txt")));
            PrintWriter outTerengganu = new PrintWriter(new
BufferedWriter(new FileWriter("terengganu.txt")));

            outSelangor.println("Type\t\tPlate Number\tPrice (RM)");
            outSelangor.println("----\t\t------------\t----------");
            outTerengganu.println("Type\t\tPlate Number\tPrice (RM)");
            outTerengganu.println("----\t\t------------\t----------");

            int i = 0;
            double sumSelangor = 0.0, sumTerengganu = 0.0;
            String inData;
            while ((inData = in.readLine()) != null) {
                String[] tokens = inData.split(";");

                String type = tokens[0];
                String plateNo = tokens[1];
                double price = Double.parseDouble(tokens[2]);

                Vehicle vehicle = new Vehicle(type, plateNo, price);
                arrCar[i] = vehicle;

                if (vehicle.getPlateNo().charAt(0) == 'B') {
                    outSelangor.println(vehicle.getType() + "\t\t" +
vehicle.getPlateNo() + "\t\t\t" + vehicle.getPrice());

                    sumSelangor += vehicle.getPrice();
                } else if (vehicle.getPlateNo().charAt(0) == 'T') {
                    outTerengganu.println(vehicle.getType() + "\t\t" +
vehicle.getPlateNo() + "\t\t\t" + vehicle.getPrice());
```

```
                    sumTerengganu += vehicle.getPrice();
                }

                i++;
            } //end while

            outSelangor.println("\nTotal price: RM" + sumSelangor);
            outTerengganu.println("\nTotal price: RM" + sumTerengganu);

            // Close the output files
            outSelangor.close();
            outTerengganu.close();
            in.close();

        } catch (FileNotFoundException fnf) {
            System.out.println(fnf.getMessage());
        } catch (IOException iox) {
            System.out.println(iox.getMessage());
        } catch (Exception e) {
            System.out.println("Problem: " + e.getMessage());
        }

    } //end main
} //end class
```

SOURCE CODE 2.2 : Vehicle Class

```
public class Vehicle {
    private String type;
    private String plateNo;
    private double price;

    public Vehicle(String type, String plateNo, double price) {
        this.type = type;
        this.plateNo = plateNo;
        this.price = price;
    }

    public void setType(String type) {
        this.type = type;
    }

    public void setPlateNo(String plateNo) {
```

```
        this.plateNo = plateNo;
    }

    public void setPrice(double price) {
        this.price = price;
    }

    public String getType() {
        return this.type;
    }

    public String getPlateNo() {
        return this.plateNo;
    }

    public double getPrice() {
        return this.price;
    }
}
```

OUTPUT FILE 2.1 : selangor.txt

```
1   Type        Plate Number    Price (RM)
2   ----        ------------    ----------
3   Kancil      BFC5346         30000.0
4   Waja        BFR5499         66000.0
5   Savy        BFF1234         30000.0
6
7   Total price: RM126000.0
8
```

OUTPUT FILE 2.2 : terengganu.txt

```
1   Type        Plate Number    Price (RM)
2   ----        ------------    ----------
3   Kelisa      TAA3375         35000.0
4   Waja        TAP5609         65000.0
5   Myvi        TAN789          56000.0
6
7   Total price: RM156000.0
8
```

QUESTION 5.3

SOURCE CODE 1.1 : DeliveryApp Class

```
import java.io.*;
import java.time.*;
import java.time.format.DateTimeFormatter;

public class DeliveryApp {
    public static void main(String[] args) {

        try {
            BufferedReader in = new BufferedReader(new
FileReader("deliveroo.txt"));
            PrintWriter out = new PrintWriter(new BufferedWriter(new
FileWriter("earnings.txt")));

            out.println("Profit earned for each delivery");
            out.printf("%-20s%-15s\n", "Date(day)", "Profit");
            out.println("=====================================");

            int i = 0; //to count number of records
            int cntDelivery = 0;
            double sumProfit = 0;
            String inData;
            while ((inData = in.readLine()) != null) {
                String[] token = inData.split(",");
                String date = token[0].trim();
                String day = token[1].trim();
                String startTime = token[2].trim();
                double price = Double.parseDouble(token[5].trim());
                double priceMultiplier =
Double.parseDouble(token[7].trim());
                double profit = (price * priceMultiplier) - price;

                if (isTimeLaterThan(startTime)) { //to count delivery
after 9PM
                    cntDelivery++;
                }

                String dateDay = date + "(" + day.substring(0, 3) + ")";
//just to make it output date(day)
                out.printf("%-20sRM%-15.2f\n", dateDay, profit);

                sumProfit += profit;
```

```
                i++;
            } //end while

            double avgProfit = sumProfit / i;
            out.println("=====================================");
            out.printf("Average profit for each order: RM%.2f",
avgProfit);

            //print on console
            System.out.println("\nNumber of deliveries with start time at
9 PM or later: " + cntDelivery);
            System.out.println();

            //close all files
            in.close();
            out.close();
        } //end try

        catch (FileNotFoundException fnf) {
            System.out.println(fnf.getMessage());
        }
        catch (IOException iox) {
            System.out.println(iox.getMessage());
        }
        catch (Exception e) {
            System.out.println("Problem: " + e.getMessage());
        }


    } //end main

    public static boolean isTimeLaterThan(String startTime) { //to check
if time is later than 9PM
        String[] parts = startTime.split(":");
        int hour = Integer.parseInt(parts[0]);
        String meridiem = parts[2].split(" ")[1];

        if (meridiem.equalsIgnoreCase("PM") && hour < 12) {
            hour += 12;
        }

        LocalTime time = LocalTime.of(hour, Integer.parseInt(parts[1]));
        LocalTime targetTime = LocalTime.parse("21:00",
DateTimeFormatter.ofPattern("HH:mm"));
        return time.isAfter(targetTime);
    } //end isTimeLaterThan
```

```
} //end class
```

OUTPUT FILE 1.1 : earnings.txt

```
Profit earned for each delivery
Date(day)           Profit
=====================================
02/09/2022(Wed)     RM2.07
02/09/2022(Wed)     RM1.98
02/09/2022(Wed)     RM1.84
02/09/2022(Wed)     RM3.29
02/09/2022(Wed)     RM1.86
02/09/2022(Wed)     RM1.74
02/09/2022(Wed)     RM1.85
04/09/2022(Fri)     RM10.04
04/09/2022(Fri)     RM7.52
04/09/2022(Fri)     RM7.59
04/09/2022(Fri)     RM7.56
04/09/2022(Fri)     RM8.06
04/09/2022(Fri)     RM2.36
04/09/2022(Fri)     RM1.73
06/09/2022(Sun)     RM4.38
06/09/2022(Sun)     RM4.87
06/09/2022(Sun)     RM4.29
=====================================
Average profit for each order: RM4.30
```

QUESTION 5.4

SOURCE CODE 2.1 :Main Class

```
import java.io.*;

public class Main {
    public static void main(String[] args) {

        try {
            Supermarket[] arrStore = new Supermarket[100];

            BufferedReader in = new BufferedReader(new
FileReader("20180221.txt"));
            PrintWriter out = new PrintWriter(new BufferedWriter(new
FileWriter("reportSale.txt")));

            out.printf("%-30s%-15s%-15s%-10s", "Item", "Quantity",
"Price(RM)", "Sub total(RM)");

            int i = 0;
            double sum = 0;
            String inData = null;
            while((inData = in.readLine()) != null) {
                String[] tokens = inData.split(",");

                String itemName = tokens[0];
                int qty = Integer.parseInt(tokens[1]);
                double unitPrice = Double.parseDouble(tokens[2]);
                sum = qty * unitPrice;

                Supermarket supermarket = new Supermarket(itemName, qty,
unitPrice);
                arrStore[i] = supermarket;

                out.println();
                out.printf("%-30s%-15s%-15s%-10.2f",
supermarket.getItemName(), supermarket.getQty(),
supermarket.getUnitPrice(), sum );

                i++;
            }

            out.println();
            out.println();
```

```
            out.printf("TOTAL SALE for date: 21st, February 2018 is:
RM %.2f", sum);

            in.close();
            out.close();

        } //end try

        catch (FileNotFoundException fnf) {
            System.out.println(fnf.getMessage());
        } catch (IOException iox) {
            System.out.println(iox.getMessage());
        } catch (Exception e) {
            System.out.println("Problem: " + e.getMessage());
        }

    } // end main
} //end class
```

SOURCE CODE 2.2 : Supermarket Class

```
public class Supermarket {
    private String itemName;
    private int qty;
    private double unitPrice;

    public Supermarket(String itemName, int qty, double unitPrice) {
        this.itemName = itemName;
        this.qty = qty;
        this.unitPrice = unitPrice;
    }

    public void setItemName(String itemName) {
        this.itemName = itemName;
    }

    public void setQty(int qty) {
        this.qty = qty;
    }

    public void setUnitPrice(double unitPrice) {
        this.unitPrice = unitPrice;
    }
```

```
    public String getItemName() {
        return itemName;
    }

    public int getQty() {
        return qty;
    }

    public double getUnitPrice() {
        return unitPrice;
    }
}
```

OUTPUT FILE 2.1 : selangor.txt

5.4 > src > reportSale.txt

Item	Quantity	Price(RM)	Sub total(RM)
Mi Maggi	5	1.2	6.00
Colgate Toothpaste	10	12.4	124.00
Fresh Vegetable-01	6	2.5	15.00
Fresh Vegetable-02	3	3.0	9.00
Biscuit	20	6.3	126.00

TOTAL SALE for date: 21st, February 2018 is: RM 126.00