WIA1002 Data Structure
Lab test 1 (1 hour + 30 mins grace period; 12:30pm to 2:00pm) Generics

Shopping mall management system

The program is expected to store information about the shoplots within a shopping mall, that includes food stores and fashion stores.

List of tasks:

1. Create a class named "ShopLot". It should have information including the shop name, contact person, and all employee's detail.
    a. Create another "Person" class to store information about contact person and employees, including name and contact number. Contact number can be null.
2. Create a generic "Item" class that accept two type parameters. It should store an item and its corresponding price.
3. Create a class named "FoodStore" and extends "ShopLot" class. Create a variable named "menu" using "Item" class.
    a. Overrides "compareTo()" method to compare with another food store in terms of number of employees.
    b. Overrides "equals()" method to compare with another food store in terms of contact name.
4. Create a class named "FashionStore" and extends "ShopLot" class. Create a variable named "clothes" using "Item" class.
5. Create a "ShoppingMall" class with main method.
    a. Within the main method, create an "foodStores" variable that stores a list of shoplots as food stores.
        i. Add data as below:
            1. Food store: McDonalds
                a. Contact: Mike, 0101122334
                b. Menu: Burger, RM10
                c. Menu: Fried Chicken, RM12
                d. Employees: Jack and Jane.
            2. Food store: Sushi Mentai
                a. Contact: Max, 0112233445
                b. Menu: Chicken Katsu Don, Rm15
                c. Menu: Ramen, Rm12
                d. Employees: Adam, Alex and Andrew
            3. Food store: Waroeng Penyet
                a. Contact: Mike, 0101122334
                b. Menu: Ayam Penyet, RM10
                c. Employees: Lex and Leon
    b. Within the main method, create a "fashionStores" variable that stores a list of shoplots as food stores.
        i. Add data as below:
            1. Fashion store: Uniqlo
                a. Contact: Nate, 0199988776S
                b. Clothes: Shirt, RM80
                c. Clothes: T-shirt, RM60
                d. Employees: Kate, Ken and Kurt
            2. Fashion store: Padini
                a. Contact: Nick, 0195544332

   b. Clothes: Blouse, Rm100
   c. Clothes: Skirt, RM80
   d. Employees: Frank and Felix
3. Fashion store: Mango
   a. Contact: Nicole, 0194433221
   b. Clothes: Dress, RM120
   c. Employees: Ron and John

c. Write a generic method to return the shoplot name the highest number of employees.
d. Write a generic method to return the most expensive item in a shoplot.

To test the program:

1. Print the details for Sushi Mentai and Mango.
2. Print the shop name that have the highest number of employees for each "foodStore" and "fashionStore".
3. Print if any of the food store is having the same or different contact person.
4. Print which food store is having more employees, between Sushi Mentai and Waroeng Penyet.
5. Print the most expensive item for McDonalds and Padini.

Expected outcome (For example):

```
ShopLot{shopName=Sushi Mentai, contact=Person{name=Max,
contactNo=0112233445}menu=[Item{item=Chicken Katsu Don, price=15},
Item{item=Ramen, price=12}], employees=[Person{name=Adam, contactNo=null},
Person{name=Alex, contactNo=null}, Person{name=Andrew, contactNo=null}]}

ShopLot{shopName=Mango, contact=Person{name=Nicole, contactNo=0194433221},
employees=[Person{name=Ron, contactNo=null}, Person{name=John, contactNo=null}]}

Food store with highest number of employees: Sushi Mentai
Fashion store with highest number of employees: Uniqlo

The contact person for McDonalds and Sushi Mentai is different
The contact person for McDonalds and Waroeng Penyet is the same
The contact person for Sushi Mentai and Waroeng Penyet is different

Sushi Mentai have more employees than Waroeng Penyet

The most expensive item in McDonalds is Fried Chicken
The most expensive item in Padini is Blouse
```

Marks allocation:

1. The completeness of the program (3 marks)
2. 1st 50% of students to submit the solution (1 mark)
3. Meaningful comments and naming conventions used throughout the program (1 mark)