2023

Car Agency System

KemoMoh11

OOP Project

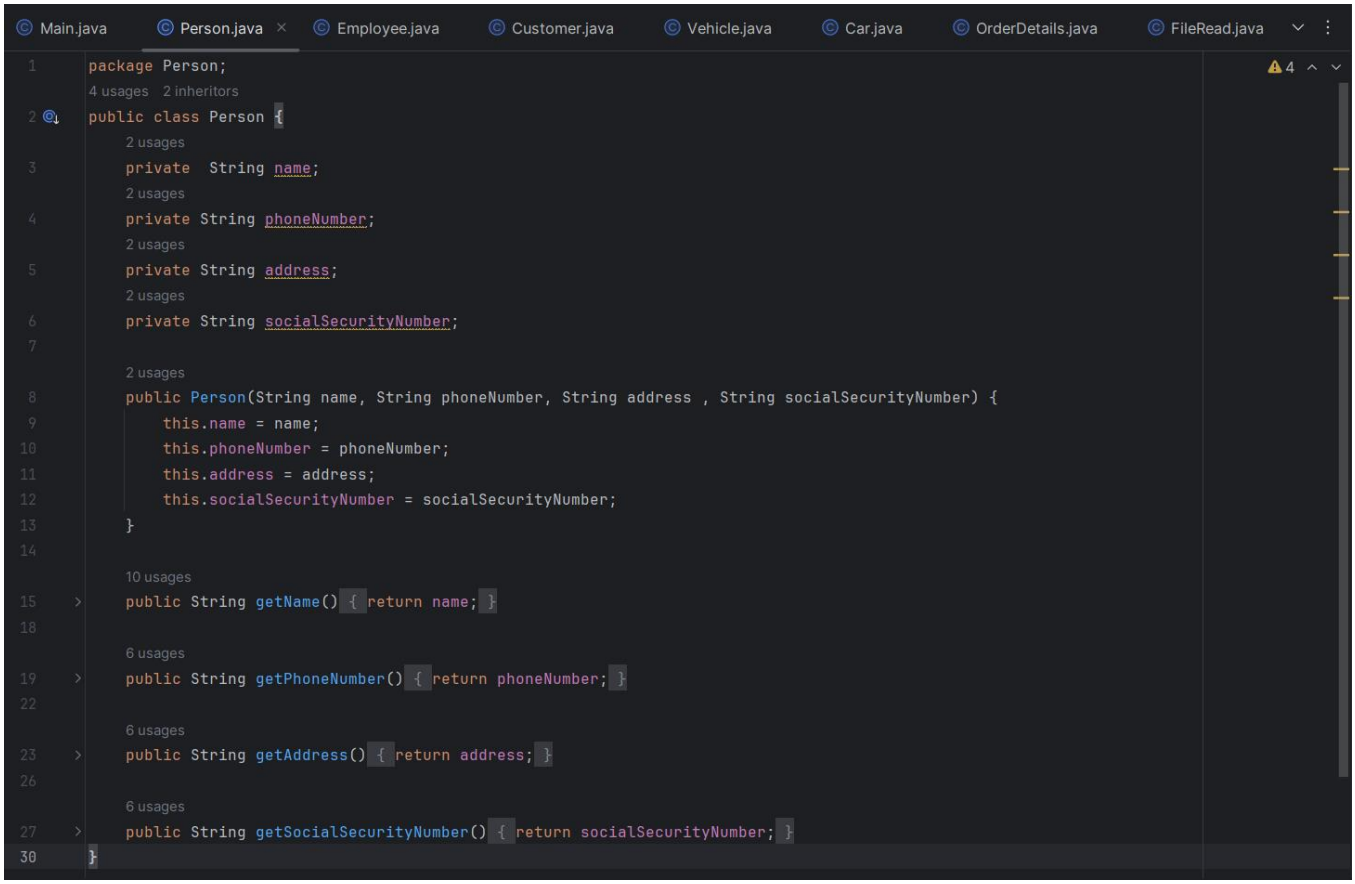
12/24/2023

Car Agency System:

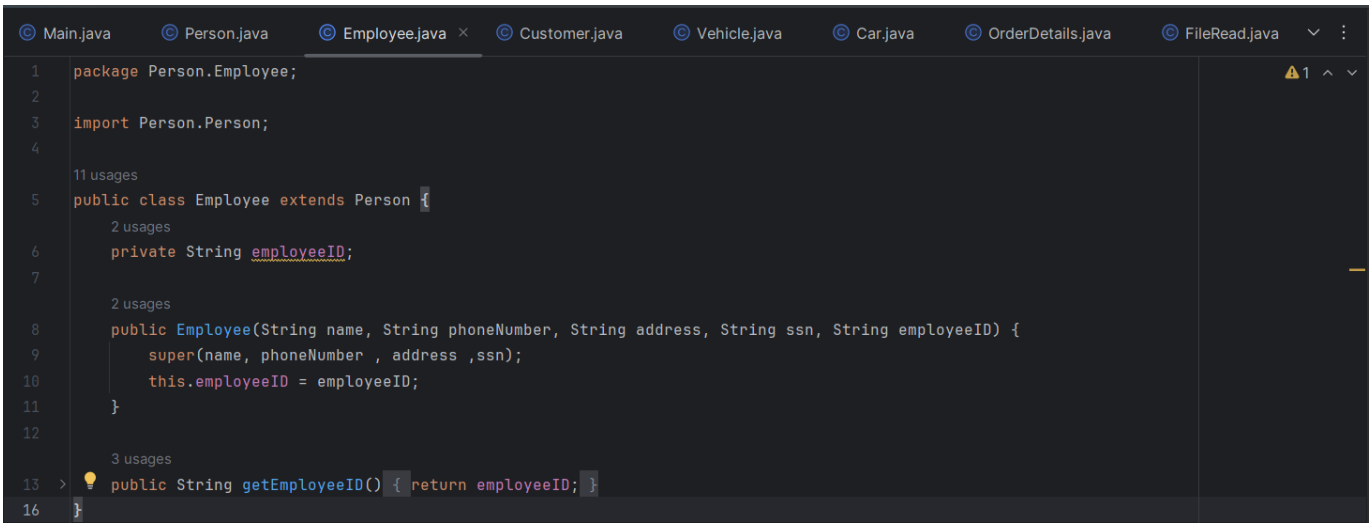
OOP Masters Team:

Name: Akram Mohamed (Leader)	ID: 225186
Name: Mahmoud Maher	ID: 225200
Name: Arwa Hassan	ID: 225176
Name: Youmna Alaa	ID: 225023
Name: AbdElRahman Omar	ID: 225189

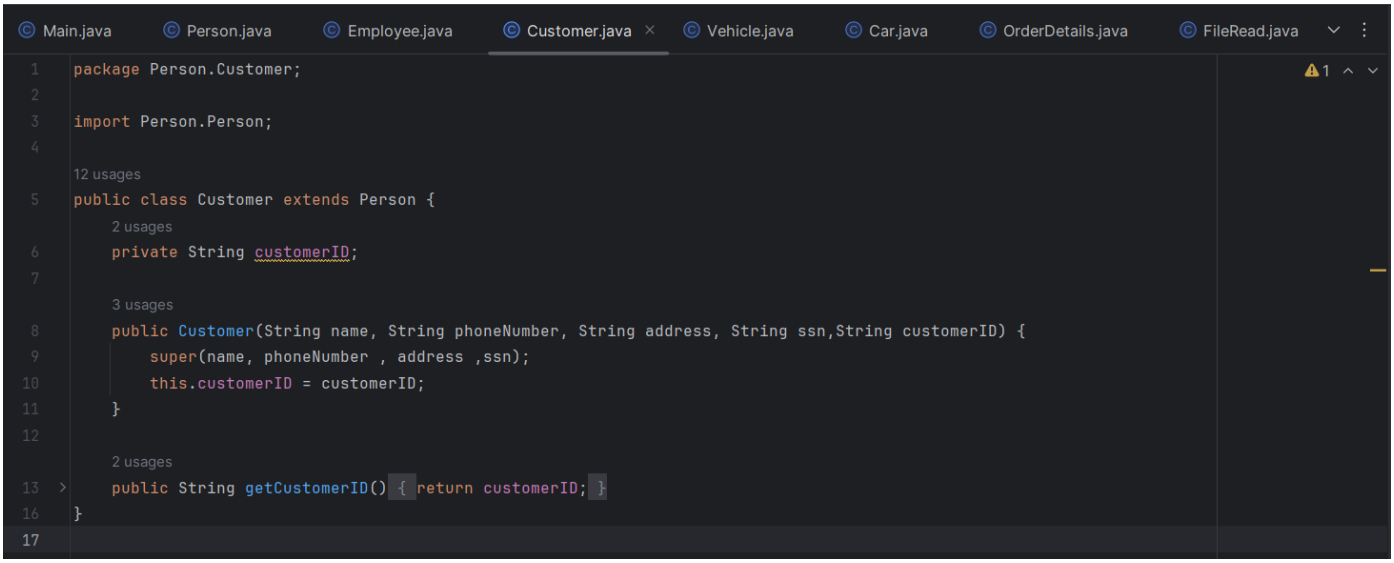
Person Class:



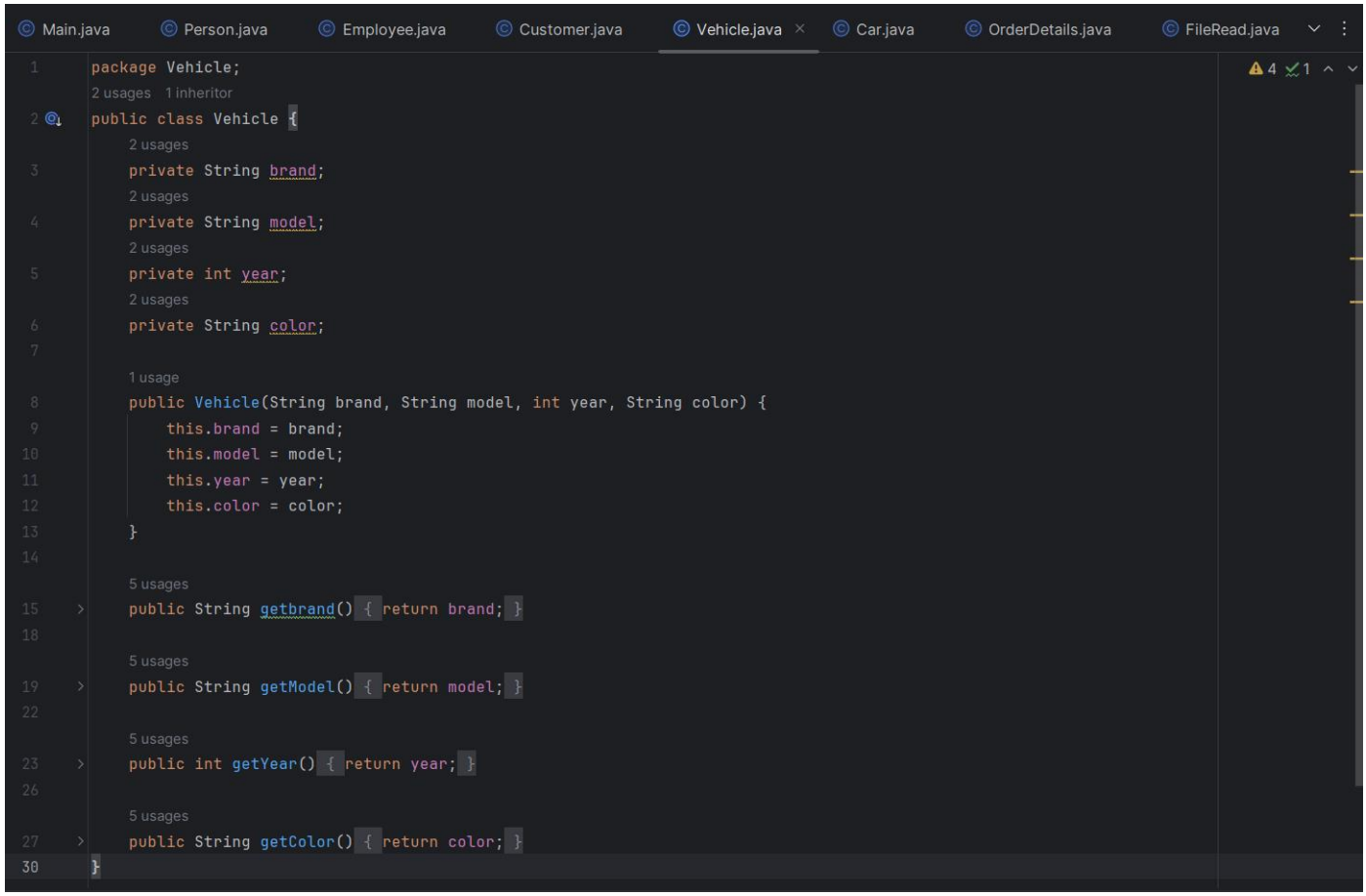
Employee Class:



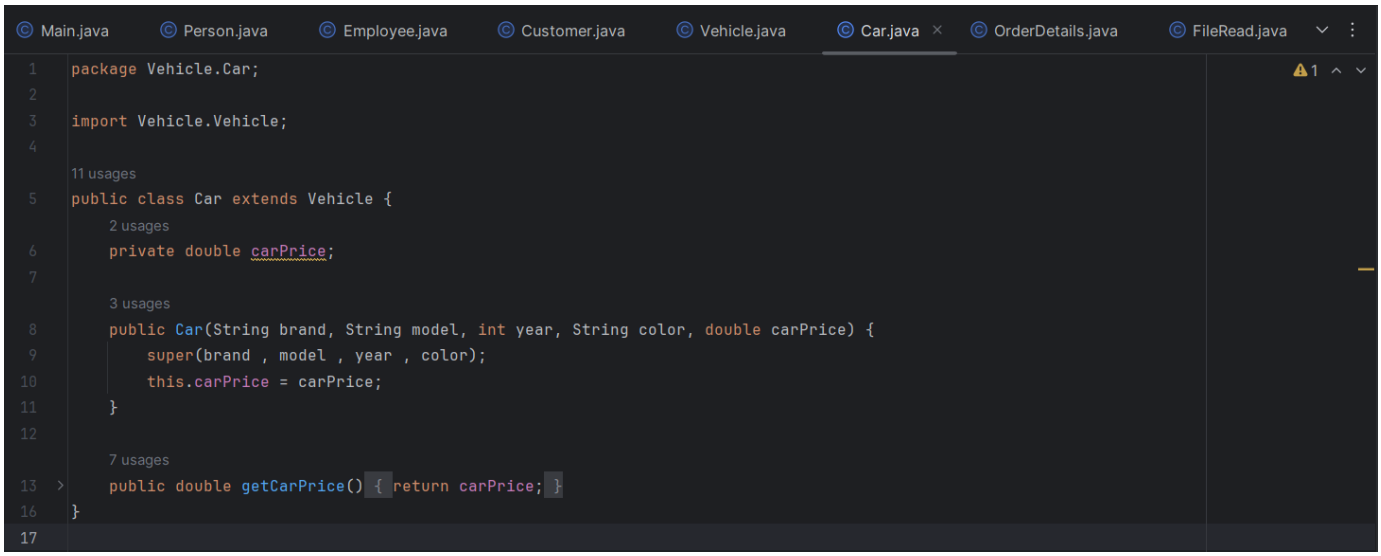
Customer Class:



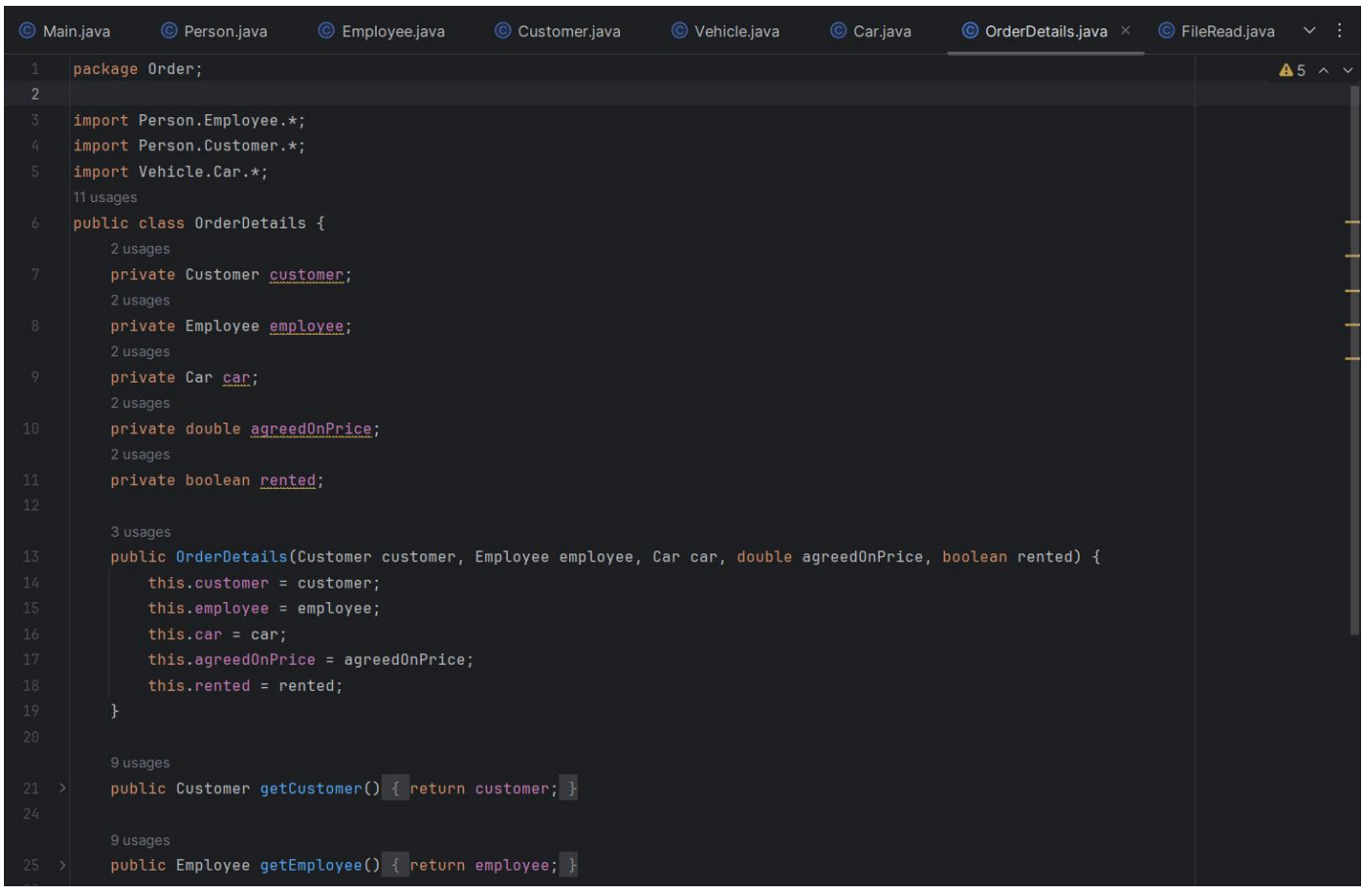
Vehicle Class:



Car Class:



OrderDetails Class:



```
    9 usages
29  public Car getCar() { return car; }
32
    2 usages
33  public boolean isRented() { return rented; }
36
    2 usages
37  public double getAgreedOnPrice() { return agreedOnPrice; }
40  }
```

FileRead Class:

Main.java | Person.java | Employee.java | Customer.java | Vehicle.java | Car.java | OrderDetails.java | FileRead.java

```
1   package FileHandler;
2
3   import java.io.BufferedReader;
4   import java.io.FileReader;
5
6   import Order.OrderDetails;
7   import Person.Employee.*;
8   import Person.Customer.*;
9   import Vehicle.Car.*;
10
    5 usages
11  public class FileRead {
        1 usage
12  @      public static Car[] readCars() {
13          final int size = 50;
14
15          int i = 0;
16          Car[] cars = new Car[size];
17          try (BufferedReader buff = new BufferedReader(new FileReader( fileName: "cars.txt"))) {
18              String data;
19
20              while ((data = buff.readLine()) != null && i < size) {
21                  String[] extractedData = data.split( regex: ",");
22                  if (extractedData.length == 5) {
23                      cars[i] = new Car(extractedData[0], extractedData[1], Integer.parseInt(extractedData[2]), extractedData[3], Double.
24                      i++;
25                  } else {
26                      throw new Exception();
27                  }
28              }
29          }
30
```

```
        catch (Exception e) {
            System.out.println("An error has occurred while reading cars: " + e.getMessage());
        }

        return cars;
    }

    1 usage
    public static Employee[] readEmployees() {
        final int size = 50;

        int i = 0;
        Employee[] employees = new Employee[size];
        try (BufferedReader buff = new BufferedReader(new FileReader( fileName: "employees.txt"))) {
            String data;

            while ((data = buff.readLine()) != null && i < size) {
                String[] extractedData = data.split( regex: ",");
                if (extractedData.length == 5) {
                    employees[i] = new Employee(extractedData[0], extractedData[1], extractedData[2], extractedData[3], extractedData[4
                    i++;
                }
            }
        } catch (Exception e) {
            System.out.println("An error has occurred while reading employees: " + e.getMessage());
        }

        return employees;
    }

    1 usage
    public static Customer[] readCustomers() {
        final int size = 50;

        int i = 0;
        Customer[] customers = new Customer[size];
        try (BufferedReader buff = new BufferedReader(new FileReader( fileName: "customers.txt"))) {
            String data;

            while ((data = buff.readLine()) != null && i < size) {
                String[] extractedData = data.split( regex: ",");

                if (extractedData.length == 5) {
                    customers[i] = new Customer(extractedData[0], extractedData[1], extractedData[2], extractedData[3], extractedData[4
                    i++;
                }
            }
        } catch (Exception e) {
            System.out.println("An error has occurred while reading customers: " + e.getMessage());
        }

        return customers;
    }
```

```java
    1 usage
    public static OrderDetails[] readOrderDetails() {
        final int size = 50;

        int i = 0;
        OrderDetails[] orderDetails = new OrderDetails[size];
        try (BufferedReader buff = new BufferedReader(new FileReader( fileName: "orderDetails.txt"))) {
            String data;

            while ((data = buff.readLine()) != null && i < size) {
                String[] extractedData = data.split( regex: ",");

                if (extractedData.length == 17) {
                    orderDetails[i] = new OrderDetails(new Customer(extractedData[7],extractedData[8],extractedData[9],extractedData[10
                    i++;
                }
            }
        } catch (Exception e) {
            System.out.println("An error has occurred while reading customers: " + e.getMessage());
        }

        return orderDetails;
    }
}
```

FileWrite Class:

rson.java | Employee.java | Customer.java | Vehicle.java | Car.java | OrderDetails.java | FileRead.java | FileWrite.java

```java
package FileHandler;

import Order.OrderDetails;
import Person.Customer.*;
import Person.Employee.*;
import Vehicle.Car.*;


import java.io.BufferedWriter;
import java.io.IOException;
import java.io.FileWriter;

5 usages
public class FileWrite {
    1 usage
    public static void saveCustomer(Customer customer) {
        try (BufferedWriter writer = new BufferedWriter(new FileWriter( fileName: "customers.txt",  append: true))) {
            writer.write( str: customer.getName() + "," + customer.getPhoneNumber() + "," + customer.getAddress()
                    + "," + customer.getSocialSecurityNumber()
                    + "," + customer.getCustomerID());
            writer.newLine();
        } catch (IOException e) {
            System.out.print(e.getMessage());
        }
    }
```

```java
    no usages
    public static void saveEmployee(Employee employee) {
        try (BufferedWriter writer = new BufferedWriter(new java.io.FileWriter( fileName: "employees.txt",  append: true))) {
            writer.write( str: employee.getName() + "," + employee.getPhoneNumber() + "," + employee.getAddress()
                    + "," + employee.getSocialSecurityNumber()
                    + "," + employee.getEmployeeID());
            writer.newLine();
        } catch (IOException e) {
            System.out.print(e.getMessage());
        }
    }

    1 usage
    public static void saveCar(Car car) {
        try (BufferedWriter writer = new BufferedWriter(new java.io.FileWriter( fileName: "cars.txt",  append: true))) {
            writer.write( str: car.getbrand() + "," + car.getModel() + "," + car.getYear() + ","
                    + car.getColor() + "," + car.getCarPrice());
            writer.newLine();
        } catch (IOException e) {
            System.out.print(e.getMessage());
        }
    }

    2 usages
    public static void saveOrder(OrderDetails order) {
        try (BufferedWriter writer = new BufferedWriter(new java.io.FileWriter( fileName: "orderdetails.txt",  append: true))) {
            writer.write( str: order.getAgreedOnPrice() + "," + (order.isRented() ? "Yes" : "No") + ",");

            writer.write( str: order.getEmployee().getName() + "," + order.getEmployee().getPhoneNumber() + "," + order.getEmployee().getA
                    + "," + order.getEmployee().getSocialSecurityNumber()
                    + "," + order.getEmployee().getEmployeeID() + ",");

            writer.write( str: order.getCustomer().getName() + "," + order.getCustomer().getPhoneNumber() + "," + order.getCustomer().getA
                    + "," + order.getCustomer().getSocialSecurityNumber()
                    + "," + order.getCustomer().getCustomerID() + ",");

            writer.write( str: order.getCar().getbrand() + "," + order.getCar().getModel() + "," + order.getCar().getYear() + ","
                    + order.getCar().getColor() + "," + order.getCar().getCarPrice());

            writer.newLine();
        } catch (IOException e) {
            System.out.print(e.getMessage());
        }
    }
}
```

Main:

Main.java | Person.java | Employee.java | Customer.java | Vehicle.java | Car.java | OrderDetails.java | FileRead.java

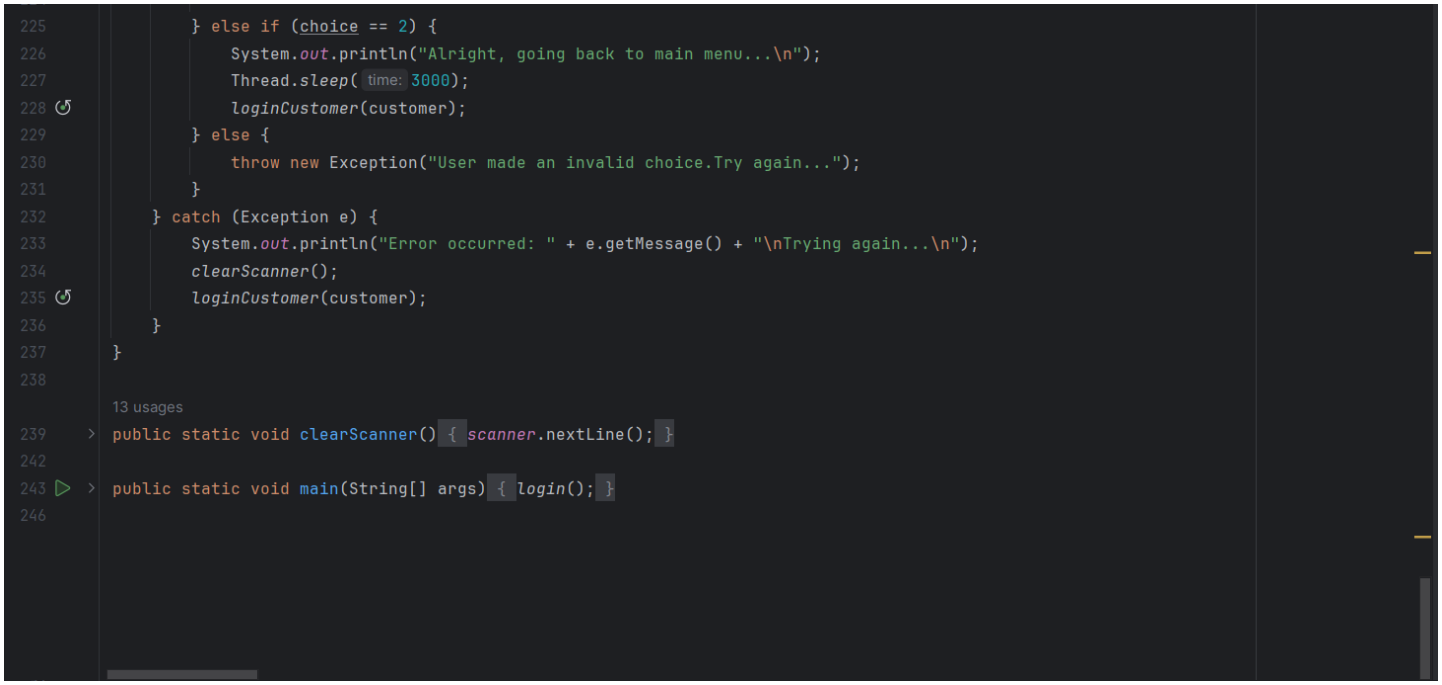
```java
import FileHandler.FileRead;
import FileHandler.FileWrite;
import Order.OrderDetails;
import Person.Employee.*;
import Person.Customer.*;
import Vehicle.Car.*;

import java.util.Scanner;

public class Main {
    20 usages
    static Scanner scanner = new Scanner(System.in);
    3 usages
    static Employee[] employees = FileRead.readEmployees();
    1 usage
    static Customer[] customers = FileRead.readCustomers();
    18 usages
    static Car[] cars = FileRead.readCars();
    16 usages
    static OrderDetails[] orderDetails = FileRead.readOrderDetails();

    5 usages
    public static void login() {
        int choice;
        boolean found = false;

        System.out.println("Are you an employee or a customer?\n1- Employee\n2- Customer");

        try {
            choice = scanner.nextInt();
            clearScanner();

            if (choice == 1) {
                System.out.print("Please state your name: ");
                String name;
                name = scanner.nextLine();

                for (var employee : employees) {
                    if (employee != null && employee.getName() != null && employee.getName().equalsIgnoreCase(name)) {
                        System.out.println("Hello, " + employee.getName() + "!\nLogging you in at the moment, please wait...");
                        Thread.sleep( time: 3000);
                        try {
                            loginEmployee(employee);
                        } catch (Exception e) {
                            System.out.println("An error has occurred: " + e.getMessage() + "\nPlease try again in a moment...");
                            Thread.sleep( time: 5000);
                            login();
                            return;
                        }

                        found = true;
                        break;
                    }
                }

                if (!found) {
                    System.out.println("We could not find your name in our list, you may not be an employee?\nLet's try again..\n");
                    login();
                }
```

```
            } else if (choice == 2) {
                System.out.print("Please enter your social security number: ");
                String ssn = scanner.next();

                for (var customer : customers) {
                    if (ssn.equals(customer.getSocialSecurityNumber())) {

                        System.out.println("Welcome, " + customer.getName() + "! We will log you in shortly...");

                        Thread.sleep( time: 3000);

                        try {
                            loginCustomer(customer);
                        } catch (Exception e) {
                            System.out.println("An error has occurred: " + e.getMessage() + "\nPlease try again in a moment...");
                            clearScanner();
                            Thread.sleep( time: 5000);
                            login();
                            return;
                        }

                        found = true;
                        break;
                    }
                }

                if (!found) {
                    System.out.println("We could not find your name in our list, please try again and check your input");
```

```
                }
            } else {
                throw new Exception("You have entered the wrong choice...Please try again");
            }
        } catch (Exception e) {
            System.out.println("Error while logging in: " + e.getMessage());
            clearScanner();
            login();
        }
    }

    1 usage
    public static void showAllCars()  {
        for (int i = 0; i < cars.length; i++) {
            if (cars[i] != null) {
                System.out.println((i + 1) + ". " + cars[i].getbrand() + " " + cars[i].getModel() +
                        " " + cars[i].getYear() + ", Color: " + cars[i].getColor() + ", Price: $" + cars[i].getCarPrice());
            }
        }
    }

    1 usage
    public static void showAllOrderDetails() {
        final String line = "-------------------";
        for (int i = 0; i < orderDetails.length; i++) {
            if (orderDetails[i] != null) {
                System.out.println(line + "\n" + line + "\nOrder #"+ (i + 1) + "\n" + line + "\nCar\n" + line + "\nCar brand: " + order
            }
        }
    }
```

```
    1 usage
    public static void showCar(int i) {
        if (cars[i] != null) {
            System.out.println(cars[i].getbrand() + " " + cars[i].getModel() +
                    " " + cars[i].getYear() + ", Color: " + cars[i].getColor() + ", Price: $" + cars[i].getCarPrice());
        }
    }


    2 usages
    public static void loginEmployee(Employee employee) {
        System.out.println("Now, what (else) do you want to do?\n1- Add a new car\n2- Add a new Customer\n3- Show all order details\n4-
        try {
            int choice = scanner.nextInt();
            clearScanner();

            if (choice == 1) {
                String brand, model, color;
                int year;
                double price;
                System.out.println("Please enter all the details of your new car in this order: brand, model, year, color, price");

                brand = scanner.next();
                model = scanner.next();
                year = scanner.nextInt();
                clearScanner();
                color = scanner.next();
                price = scanner.nextDouble();
                clearScanner();

                FileWrite.saveCar(new Car(brand, model, year, color, price));
                System.out.println("Car added successfully!");
            } else if (choice == 2) {
                System.out.println("Please enter the customer information in this order: name, phone number, address, social security n
                String name, phoneNumber, address, socialSecurityNumber, id;
                name = scanner.next();
                phoneNumber = scanner.next();
                address = scanner.next();
                socialSecurityNumber = scanner.next();
                id = scanner.next();

                FileWrite.saveCustomer(new Customer(name, phoneNumber, address, socialSecurityNumber, id));
                System.out.println("Customer added successfully!");
            } else if (choice == 3) {
                System.out.println("Sure, here's your list of the latest 50 orders:");
                showAllOrderDetails();
            } else if (choice == 4) {
                System.exit( code: 0);
            } else {
                throw new Exception("User made an invalid choice.Try again...");
            }
        } catch (Exception e) {
            System.out.println("An error has occurred: " + e.getMessage());
            clearScanner();
        }
        loginEmployee(employee);
    }

    4 usages
    public static void loginCustomer(Customer customer) {
        System.out.println("Please choose which car you'd like to buy/rent: ");
        showAllCars();
```

```
170         int carChoice = scanner.nextInt();
171         clearScanner();
172
173         try {
174             showCar( i: carChoice - 1);
175             System.out.println("Do you want to purchase this car?\n1- Yes\n2- No");
176             int choice = scanner.nextInt();
177             clearScanner();
178
179             if (choice == 1) {
180                 System.out.println("Do you want to buy or rent the car?\n1- Buy\n2- Rent");
181                 choice = scanner.nextInt();
182                 clearScanner();
183
184                 if (choice == 1) {
185                     FileWrite.saveOrder(new OrderDetails(customer, employees[0], cars[carChoice - 1], cars[carChoice - 1].getCarPrice(),
186                     System.out.println("Your purchase has completed successfully. Thank you for using our service!");
187                     System.exit( code: 0);
188                 } else if (choice == 2) {
189                     System.out.print("Please enter for how many months you're going to rent this car: ");
190                     do {
191                         try {
192                             int months = scanner.nextInt();
193                             if (months > 1 && months != cars[carChoice - 1].getCarPrice()) {
194                                 double price = cars[carChoice - 1].getCarPrice() * 0.05 * months;
195                                 System.out.println("Your car rent is going to cost $" + (int)(price/months) + " per month\nDo you want to
196                                 choice = scanner.nextInt();
197                                 clearScanner();
198                                 if (choice == 1) {
199                                     FileWrite.saveOrder(new OrderDetails(customer, employees[0], cars[carChoice - 1], price,  rented: true))
200                                     System.out.println("Your purchase has completed successfully. Thank you for using our service!");
201                                 } else if (choice == 2) {
202                                     System.out.print("Enter your new month to calculate the rent with: ");
203                                 } else if (choice == 3) {
204                                     System.out.println("Alright, going back to main menu...\n");
205                                     Thread.sleep( time: 3000);
206                                     loginCustomer(customer);
207                                     break;
208                                 } else {
209                                     throw new Exception("User gave an invalid number of months");
210                                 }
211
212                             } else {
213                                 throw new Exception("User gave an invalid number of months");
214                             }
215                             break;
216                         } catch (Exception e) {
217                             System.out.print("An error has occurred please enter your months again: ");
218                             clearScanner();
219                         }
220                     } while (true);
221                 } else {
222                     throw new Exception("User made an invalid choice.Try again...");
223                 }
224
225             } else if (choice == 2) {
226                 System.out.println("Alright, going back to main menu...\n");
```



```
225             } else if (choice == 2) {
226                 System.out.println("Alright, going back to main menu...\n");
227                 Thread.sleep( time: 3000);
228                 loginCustomer(customer);
229             } else {
230                 throw new Exception("User made an invalid choice.Try again...");
231             }
232         } catch (Exception e) {
233             System.out.println("Error occurred: " + e.getMessage() + "\nTrying again...\n");
234             clearScanner();
235             loginCustomer(customer);
236         }
237     }
238
        13 usages
239     public static void clearScanner() { scanner.nextLine(); }
242
243     public static void main(String[] args) { login(); }
246
```

Out Put:

- If I entered as Employee:

```
Are you an employee or a customer?
1- Employee
2- Customer
1
Please state your name: Mahmoud Maher
Hello, Mahmoud Maher!
Logging you in at the moment, please wait...
Now, what (else) do you want to do?
1- Add a new car
2- Add a new Customer
3- Show all order details
4- Exit
```

- If I Added a New Car:

```
Are you an employee or a customer?
1- Employee
2- Customer
1
Please state your name: Mahmoud Maher
Hello, Mahmoud Maher!
Logging you in at the moment, please wait...
Now, what (else) do you want to do?
1- Add a new car
2- Add a new Customer
3- Show all order details
4- Exit
1
Please enter all the details of your new car in this order: brand, model, year, color, price
Bmw
X6
2020
White
95000
Car added successfully!
Now, what (else) do you want to do?
1- Add a new car
2- Add a new Customer
3- Show all order details
4- Exit
```

- If I Add New Customer:

```
Hello, Mahmoud Maher!
Logging you in at the moment, please wait...
Now, what (else) do you want to do?
1- Add a new car
2- Add a new Customer
3- Show all order details
4- Exit
2
Please enter the customer information in this order: name, phone number, address, social security number, id
Akram
01067405635
Tanta
30412151602399
A2
```

- If I Show All Order Details:

```
--------------------
Order #9
--------------------
Car
--------------------
Car brand: Bmw
Car model: X6
Car year: 2020
Car color: White
Car is rented: true
Agreed on price: 28500.0
--------------------
Employee
--------------------
Employee name: Mahmoud Maher
Employee phone number: 012112362565
Employee address: El-Nozha
Employee ID: A456
--------------------
Customer
--------------------
Customer name: Mahmoud Maher
Customer phone number: 1212121221
Customer address: Salam
Customer social security number: 30412170100655
--------------------
```

- If I entered as a customer:

```
Are you an employee or a customer?
1- Employee
2- Customer
2
Please enter your social security number: 30412151602399
Welcome, Akram! We will log you in shortly...
Please choose which car you'd like to buy/rent:
1. Toyota Camry 2022, Color: Blue, Price: $25000.0
2. Bmw X6 2020, Color: White, Price: $95000.0
```

- If I Choose to buy a Car:

```
Are you an employee or a customer?
1- Employee
2- Customer
2
Please enter your social security number: 30412151602399
Welcome, Akram! We will log you in shortly...
Please choose which car you'd like to buy/rent:
1. Toyota Camry 2022, Color: Blue, Price: $25000.0
2. Bmw X6 2020, Color: White, Price: $95000.0
2
Bmw X6 2020, Color: White, Price: $95000.0
Do you want to purchase this car?
1- Yes
2- No
1
Do you want to buy or rent the car?
1- Buy
2- Rent
1
Your purchase has completed successfully. Thank you for using our service!
```

- If I Choose to Rent a Car:

```
2
Please enter your social security number: 30412151602399
Welcome, Akram! We will log you in shortly...
Please choose which car you'd like to buy/rent:
1. Toyota Camry 2022, Color: Blue, Price: $25000.0
2. Bmw X6 2020, Color: White, Price: $95000.0
2
Bmw X6 2020, Color: White, Price: $95000.0
Do you want to purchase this car?
1- Yes
2- No
1
Do you want to buy or rent the car?
1- Buy
2- Rent
2
Please enter for how many months you're going to rent this car: 12
Your car rent is going to cost $3800 per month
Do you want to confirm rent?
1- Yes
2- No, Enter another month
3- Cancel
1
Your purchase has completed successfully. Thank you for using our service!
```