OOP Phase 1

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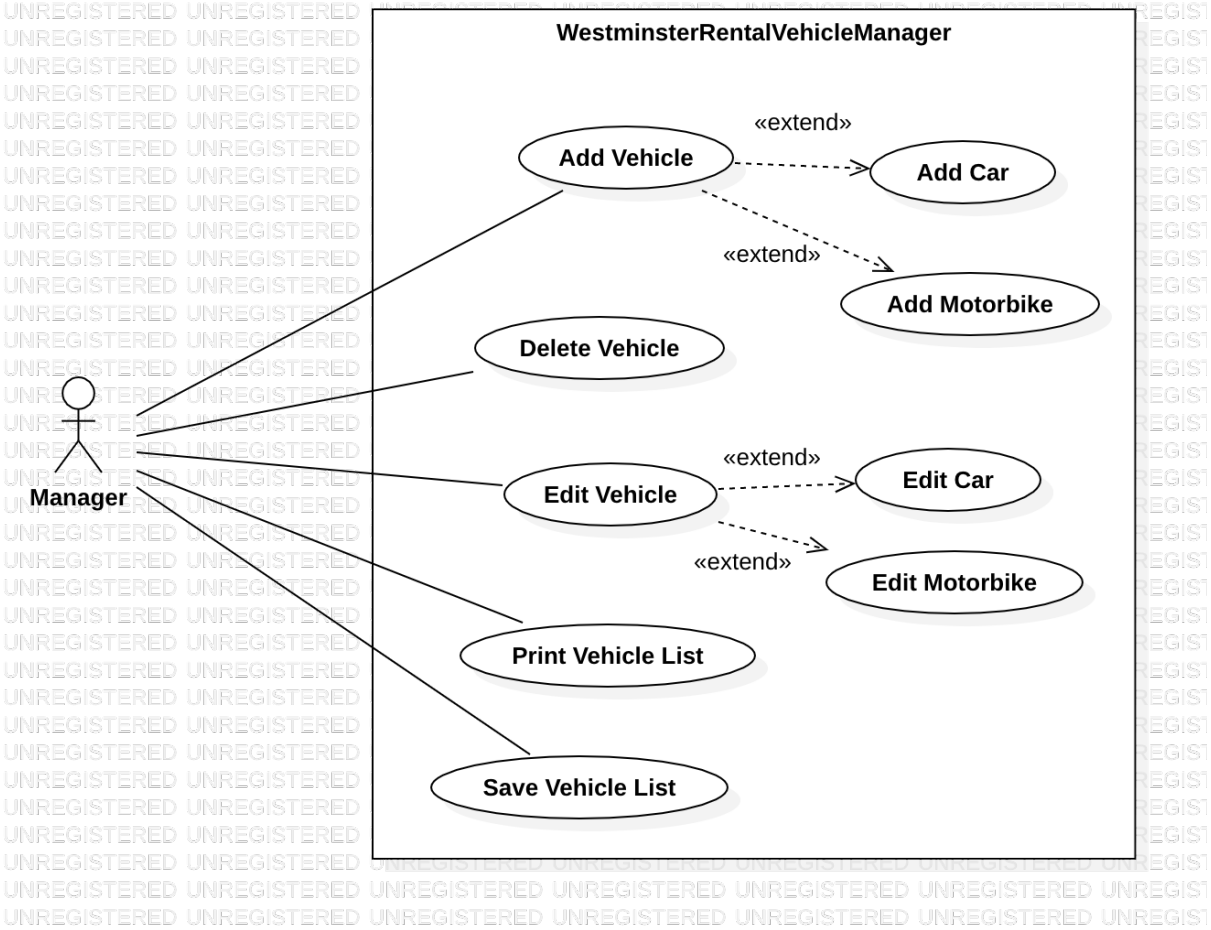
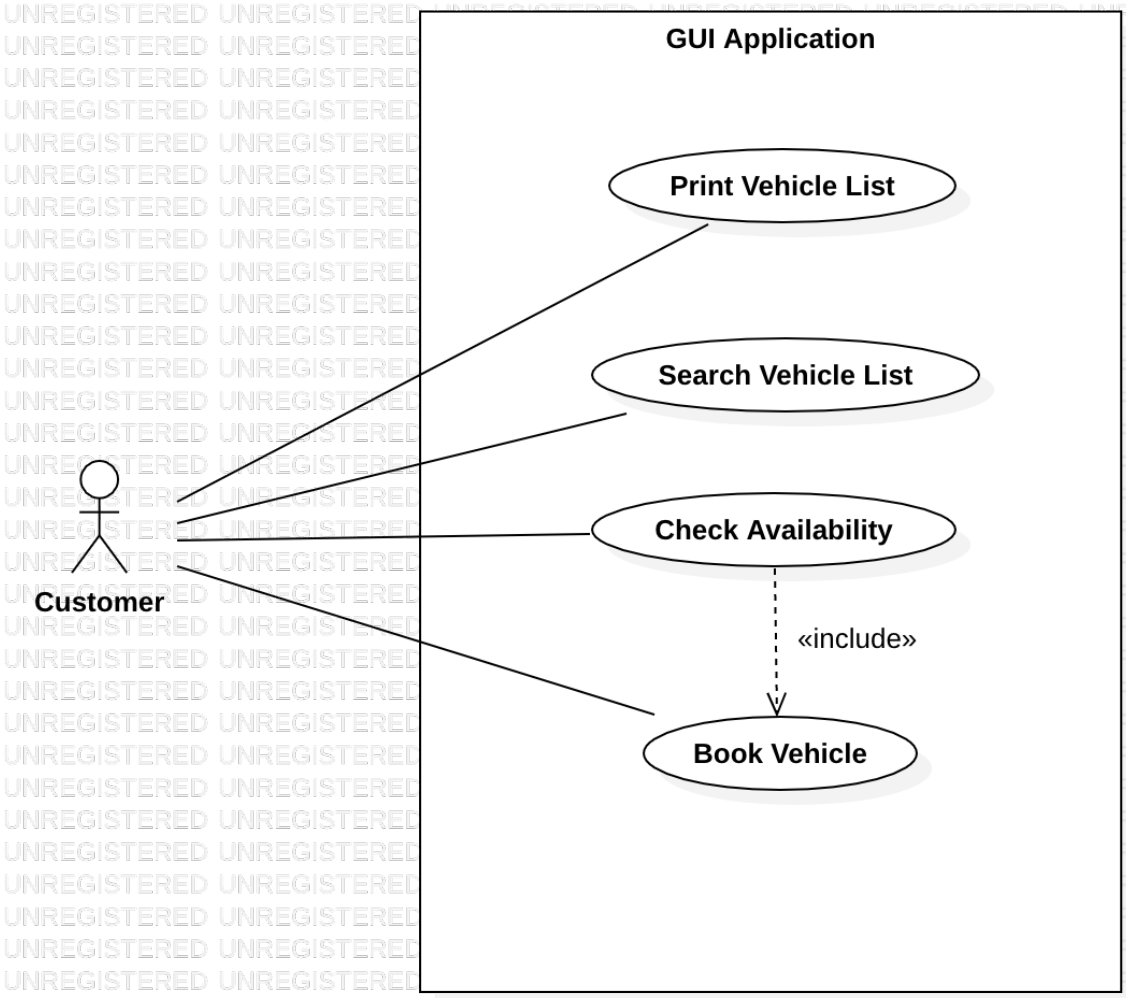
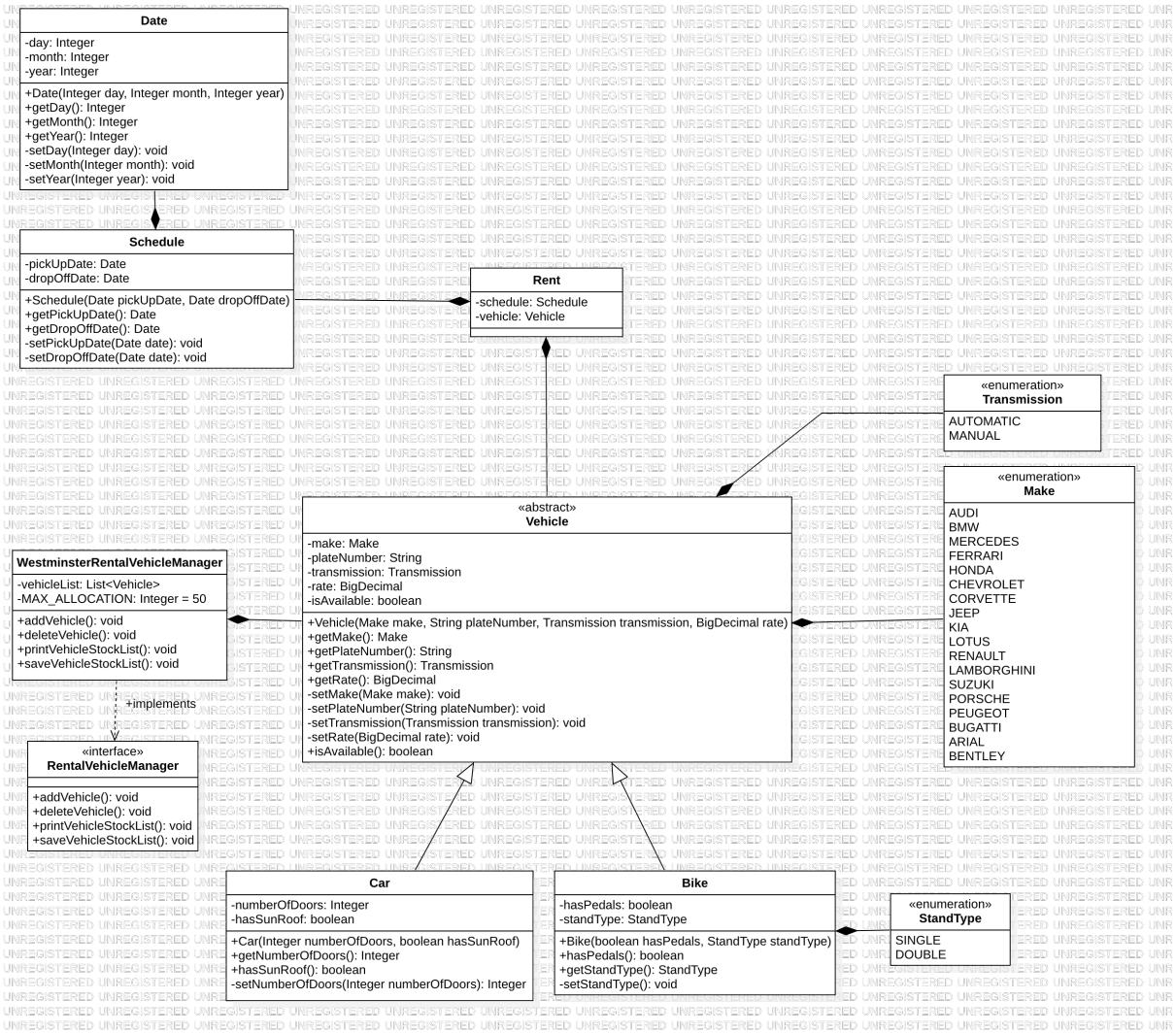
Console App Use Case Diagram



GUI Application Use Case Diagram



Class Diagram



Vehicle Class

```
package model;

import java.math.BigDecimal;

public abstract class Vehicle {
    protected Make make;
    protected String plateNumber;
    protected Transmission transmission;
    protected BigDecimal rate;
    protected boolean isAvailable;

    public Vehicle(Make make, String plateNumber, Transmission
transmission, BigDecimal rate, boolean isAvailable) {
        this.make = make;
        this.plateNumber = plateNumber;
        this.transmission = transmission;
        this.rate = rate;
        this.isAvailable = isAvailable;
    }

    public Make getMake() {
        return make;
    }

    public String getPlateNumber() {
        return plateNumber;
    }

    private void setPlateNumber(String plateNumber) {
        // add validation for plate number
        this.plateNumber = plateNumber;
    }

    private void setTransmission(Transmission transmission) {
        this.transmission = transmission;
    }

    public BigDecimal getRate() {
        return rate;
    }

    public boolean isAvailable() {
        return isAvailable;
    }
}
```

Car Class

```
package model;

import java.math.BigDecimal;

public class Car extends Vehicle {
    private int numberOfDoors;
    private boolean hasSunRoof;

    public Car(Make make, String plateNumber, Transmission transmission,
BigDecimal rate, boolean isAvailable, int numberOfDoors, boolean
hasSunRoof) {
        super(make, plateNumber, transmission, rate, isAvailable);
        this.numberOfDoors = numberOfDoors;
        this.hasSunRoof = hasSunRoof;
    }

    public int getNumberOfDoors() {
        return numberOfDoors;
    }

    public boolean hasSunRoof() {
        return hasSunRoof;
    }
}
```

Motorbike Class

```
package model;

import java.math.BigDecimal;

public class Motorbike extends Vehicle {
    private boolean hasPedals;
    private StandType standType;

    public Motorbike(Make make, String plateNumber, Transmission
transmission, BigDecimal rate, boolean isAvailable, boolean hasPedals,
StandType standType) {
        super(make, plateNumber, transmission, rate, isAvailable);
        this.hasPedals = hasPedals;
        this.standType = standType;
    }

    public boolean hasPedals() {
        return hasPedals;
    }

    public StandType getStandType() {
        return standType;
    }
}
```

RentalVehicleManager Interface

```
import model.Vehicle;

import java.util.ArrayList;
import java.util.List;

public interface RentalVehicleManager {

    public abstract void addVehicle();

    public abstract void deleteVehicle();

    public abstract void printVehicleStockList();

    public abstract void saveVehicleStockList();

}
```

WestminsterRentalVehicleManager Class

```
import model.Vehicle;

import java.util.ArrayList;
import java.util.List;

public class WestminsterRentalVehicleManager implements
RentalVehicleManager {
    List<Vehicle> vehicleList = new ArrayList<>();

    @Override
    public void addVehicle() {
        // add vehicle
    }

    @Override
    public void deleteVehicle() {
        // delete vehicle
    }

    @Override
    public void printVehicleStockList() {

    }

    @Override
    public void saveVehicleStockList() {

    }
}
```

Date Class

```
package model;

import java.util.Objects;

public class Date {
    private int day;
    private int month;
    private int year;

    public Date(int day, int month, int year) {
        this.setDay(day);
        this.setMonth(month);
        this.setYear(year);
    }

    public int getDay() {
        return day;
    }

    public int getMonth() {
        return month;
    }

    public int getYear() {
        return year;
    }

    private void setDay(int day) {
        // checking for leap year
        if (this.month == 2) {
            if (this.year % 4 == 0) {
                if (day <= 0 || day > 29) {
                    throw new IllegalArgumentException("Day should be in
range of 1-29");
                }
                this.day = day;
            } else {
                if (day <= 0 || day > 28) {
                    throw new IllegalArgumentException("Day should be in
range of 1-28");
                }
                this.day = day;
            }
        } else if (day > 31 || day < 1) {
            throw new IllegalArgumentException("Day should be in range of
1-31");
        }

        this.day = day;
    }

    private void setMonth(int month) {
```

```
        if (month > 12 || month < 1) {
            throw new IllegalArgumentException("Month should be in range
of 1-12");
        }
        this.month = month;
    }

    private void setYear(int year) {
        if (year > 2019 || year < 1) {
            throw new IllegalArgumentException("Year should be in range of
1-2019");
        }
        this.year = year;
    }

    @Override
    public boolean equals(Object o) {
        if (this == o) return true;
        if (!(o instanceof Date)) return false;
        Date date = (Date) o;
        return day == date.day &&
                month == date.month &&
                year == date.year;
    }

    @Override
    public int hashCode() {
        return Objects.hash(day, month, year);
    }
}
```

Schedule class

```
package model;

public class Schedule {
    private Date pickUpDate;
    private Date dropOffDate;

    public Schedule(Date pickUpDate, Date dropOffDate) {
        this.setPickUpDate(pickUpDate, dropOffDate);
        this.dropOffDate = dropOffDate;
    }

    public Date getPickUpDate() {
        return pickUpDate;
    }

    private void setPickUpDate(Date pickUpDate, Date dropOffDate) {
        // validate dates
        this.pickUpDate = pickUpDate;
    }

    public Date getDropOffDate() {
        return dropOffDate;
    }

    public void setDropOffDate(Date dropOffDate) {
        // validate dates
        this.dropOffDate = dropOffDate;
    }
}
```

Make enum

```
package model;

public enum Make {
    AUDI,
    BMW,
    BENTLEY,
    BUGATTI,
    CHEVROLET,
    CORVETTE,
    FERRARI,
    HONDA,
    KIA,
    JEEP,
    LOTUS,
    LAMBORGHINI,
}
```

StandType enum

```
package model;

public enum StandType {
    SINGLE,
    DOUBLE
}
```

Transmission enum

```
package model;

public enum Transmission {
    MANUAL,
    AUTOMATIC
}
```