

ESOF 322 - Homework 1

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Exercises Part A

The following UML diagrams are from the psuedocode problems on the homework.

Problem 1

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Problem 2

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Problem 3

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Problem 4

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Exercises Part B

The following is our psuedocode from the diagram given in Part B.

```
// Company is a whole and contains parts
public class Company{
    public String name;
    public Address headquarters;

    public Employee[] employee;
    public Customer[] customer;

    public VehicleRentalService service;

    public Motorbike[] motorbike;
    public Car[] car;
    public Truck[] truck;
}

public Interface IRentable{
    public void rent();
}

public class Vehicle implements IRentable{
    public void rent(){ \\ code goes here to realize rent() }
}

// Truck is an aggregate of Company
public class Truck extends Vehicle{
    public UnlimitedNatural weight;
    public UnlimitedNatural power;
    public String manufacturer;
    public String regNo;
}

// Car is an aggregate of Company
public class Car extends Vehicle{
    public CarKind kind;
    public UnlimitedNatural noSeats;
    public UnlimitedNatural power;
    public String manufacturer;
    public String regNo;
}

// Motorbike is an aggregate of Company
public class Motorbike extends Vehicle{
    public MbKind kind;
    public UnlimitedNatural cylinderCap;
    public UnlimitedNatural power;
    public String manufacturer;
    public String regNo;
}
```

```

public class Person{
    public String name;
    public String email;

    public Address address;
}

// Employee is an aggregate of Company
public class Employee extends Person{}

// Customer is a whole and contains parts
public class Customer extends Person{
    public BankAccount bankAccount;
}

public class Subcontractor extends Employee, Customer{}

// BankAccount is a composition of Company
public class BankAccount{
    public UnlimitedNatural number;
    public String depositor;
    public String bank;
}

public class Service{
    public Customer customer;
}

// VehicleRentalService is a composition of Company
public class VehicleRentalService extends Service{
    public Vehicle vehicle;

    public void offerCar();
    public void offerMotorBike();
    public void offerTruck();
}

```