Object Oriented Programming Assignment

16th Sep — 30th Sep, 2002
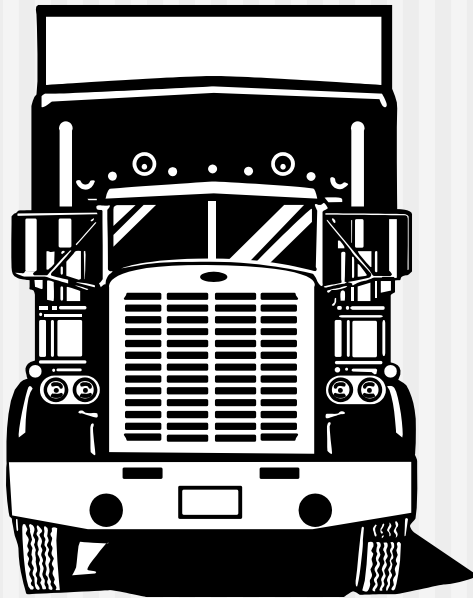
60% of CourseWork

INDIVIDUAL Work

Assignment

- **Format:**   Programming (40%),Walkthrough(60%)

- **Deadline:** <u>Monday, 30th September 2002, 12.00 noon</u> at   School of ICT,Administration Counter, Block 31, Level 8

- **Penalty for late submission: <u>NO late submission</u> shall be entertained after the deadline.**

XYZ Parking pte ltd.,- Simulator

Introduction

- **XYZ Parking Pte Ltd** has vast area to provide parking facility for the customers.
- The company wants to develop a computerised system that keeps track of the various activities involved in this business.
- The parking facility has an open space to be used for parking vehicles of type cars and trucks.
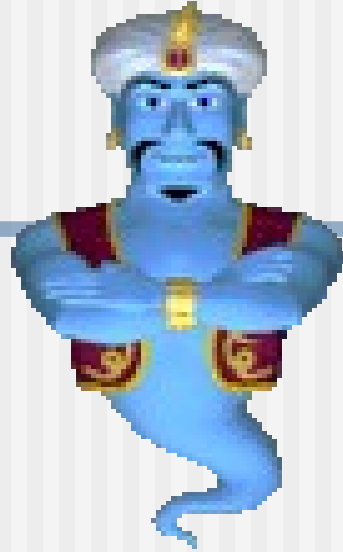- The customers can rent the parking space to park their cars or trucks.

Basic Requirements

Basic requirements

- To Register a customer with customer details
- Find a customer
- Update customer
- To Register Vehicle with the vehicle details and record the lease details
- To compute the lease amount for the parking space.

Parking Charges

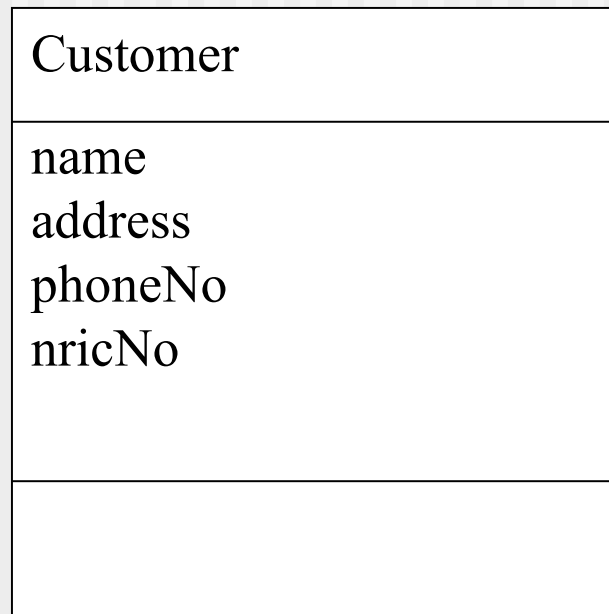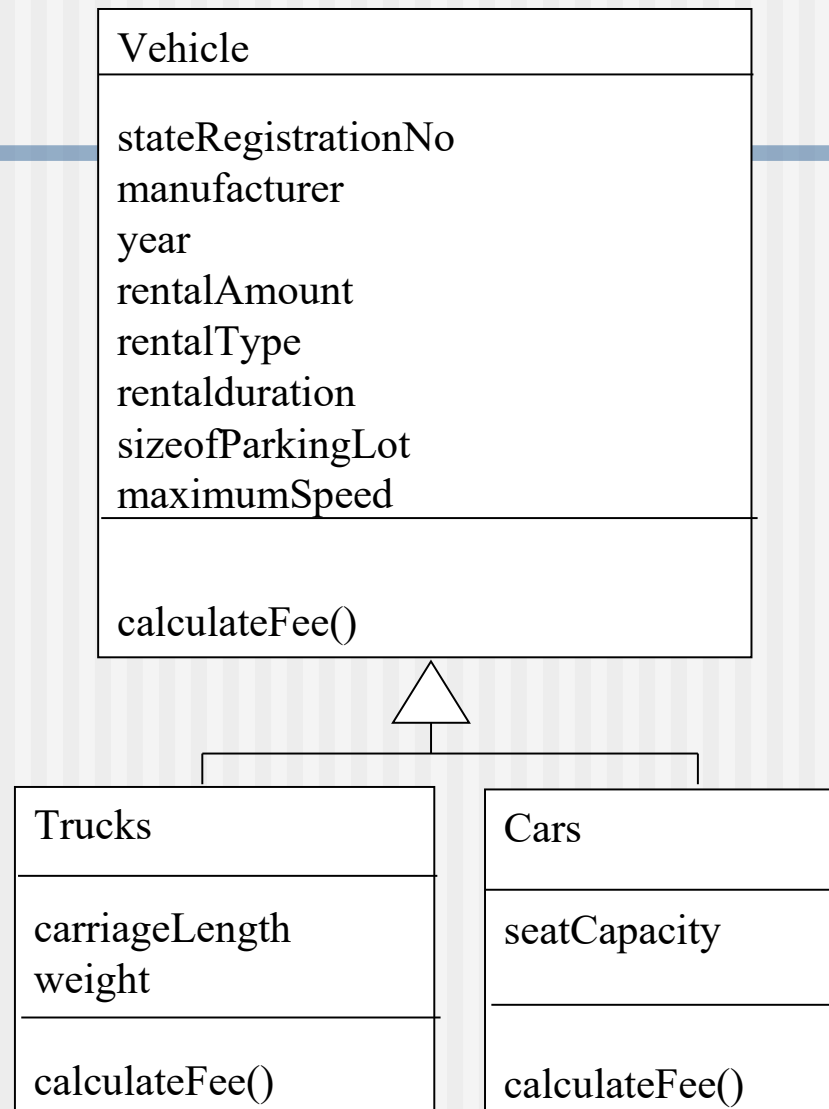| Vehicles	Daily Rental	Monthly Rental	Annual Rental
Truck	$50.00	$1200.00	$14000.00
Car	$25.00	$650.00	$7200.00

Additional Features

Additional Features

- To remove a customer from the customer list
- To remove Vehicle from the vehicles list
- To have the ability to modify the capacity of the car park, i.e., number of trucks and number of cars
- To indicate that the parking space is "Full" where there is no more free parking lot.
- To display the amount collected so far in each of the categories namely daily rental, monthly rental and annual rental.

The class diagrams

Customer
name address phoneNo nricNo

The class diagrams

Vehicle

stateRegistrationNo
manufacturer
year
rentalAmount
rentalType
rentalduration
sizeofParkingLot
maximumSpeed

calculateFee()

Trucks

carriageLength
weight

calculateFee()

Cars

seatCapacity

calculateFee()

Others…

- You can add meaningful attributes to the classes, if needed in addition to the attributes given in the class diagram.

- You are limited only by your creativity.

- You may consult your tutor.

Testing

- You are required to devise a suitable test plan for your programming work

- Test your program logic to make sure that it works. You must prepare test data to see that your program works correctly.

- All data entry in the GUI should be validated and illegal data entry should be informed to the user so that the user can enter correct data.

Testing (cont'd)

Test No.	Purpose	Test Shot/Data	Expected Result	Actual Result
E.g. 1a)	Calculate Daily Rental for Truck ($50)	Enter No of Days leased Eg : 5	Lease Amount = 50 * 5	$250
E.g. 1b)	Calculate Annual Rental for Car	Click Annual lease Radio Button	Amount payable appears	Amount payable shown as $7200
E.g. 1c)	Validate Year field	Enter a String in "Year" Textfield	Error message displayed for invalid data entry	Message – "Year must be numeric" appears

Deliverables

- By **Monday, 30th September before 12.00 noon**, hand in the following to the School of ICT Administrative Office at Block 31, level 8:

- A copy of the printout of your **.java** file**.**

- A diskette labelled with your name, group, student ID. The diskette should contain **ALL** the necessary files to run your application.

Deliverables (cont'd)

- In your .java program, you are to include a blocked comment at the top stating:

  - **Your name, student ID, tutorial group.**
  - **Assumptions (if any) or any deviations from the specified requirements.**
  - **Any features that you would like to highlight**

Assignment Walkthrough

- **<u>Saturday 28thth September at 2:00 p.m.</u>**

- In the walk-through, you will be asked to give short, written answers to some questions about your program. These questions will assess your basic understanding of the code that you are handing in.

Grading Criteria

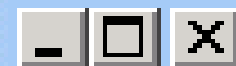|	
Correct & robust implementation of basic features	40%
Additional features(at least three)	20%
Programming style: • **Program design** • **Appropriate use of classes** • **Proper use of encapsulation, information hiding and inheritance** • **Appropriate use of variables, methods, and parameters** • **Proper usage of control structures**	20%

Grading Criteria (cont'd)

Good programming practice: • **Meaningful variable names** • **Proper indentations** • **Useful and neat comments**	10%
Adequate(black-box) testing: • **Suitably-designed test plan**	10%

Sample Screen Shots

XYZ Parking Pte Ltd.

Add a Vehicle for this Customer

| Manufacturer: | BMW | Maximum Speed: | 450 |
| Year: | 2002 | State Registration No: | SGD43567 |

○ Truck ◉ Car

Seat Capacity: 2 ◉ Daily Lease No of Days: 10 ○ Annual Lease [Calculate] S$ 250

[Add Customer & Vehicle] [Reset] [Close]

Message

Customer and Vehicle added

[OK]

Find A Customer and Vehicle

XYZ Parking Pte Ltd.

Joann
Dave
Brian
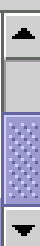Dan
Rocky

NewYork   678-879

BMW, 450.0, 2002, SGD43567

[Find] [Update] [Close]

Happy

Programming !