

# Sri Lanka Institute of Information Technology



## Software Technology II (OOP in Java)

Year 2 – Semester 1, 2012

### Programming Assignment

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## Vehicle Reservation System

In this assignment you are going to develop a stand alone Java application with a GUI using swing components to manage vehicle reservations for the Transport Division of Amazing Destination Travel (Pvt) Ltd. This system will be used by two types of users. Travel Guides will use this system to view available vehicles and to reserve them. Transport Officers use the system to view requests for vehicle reservations and to approve or cancel them. Further, Transport officers can manage vehicle information and user information using this system.

#### Using this system a Travel Guide must be able to

- Login to the system using a username and a password.
- Search available vehicles which can accommodate a given number of passengers during a given time period (Between given two dates).
- Reserve an available vehicle for a given time period. (Must reserve a vehicle for a minimum of one day).
- View whether the reservation made is approved or rejected by the Transport Officer.
- Cancel a reservation made by the Guide himself/herself.

#### Using this system a Transport Officer must be able to

- Login to the system using a username and a password.
- View available requests for the reservations and approve or reject.
- Insert, update and delete information about vehicles.
- Insert, update and delete information about Travel Guides.
- Insert, update and delete information about Transport Officers.

#### Using this system Transport Officer must be able to generate two reports to view

(You must use iReports for this).

- Information about all vehicles.
- Reservations made for a certain vehicle during a given time period.  
(You must use a parameterized report).

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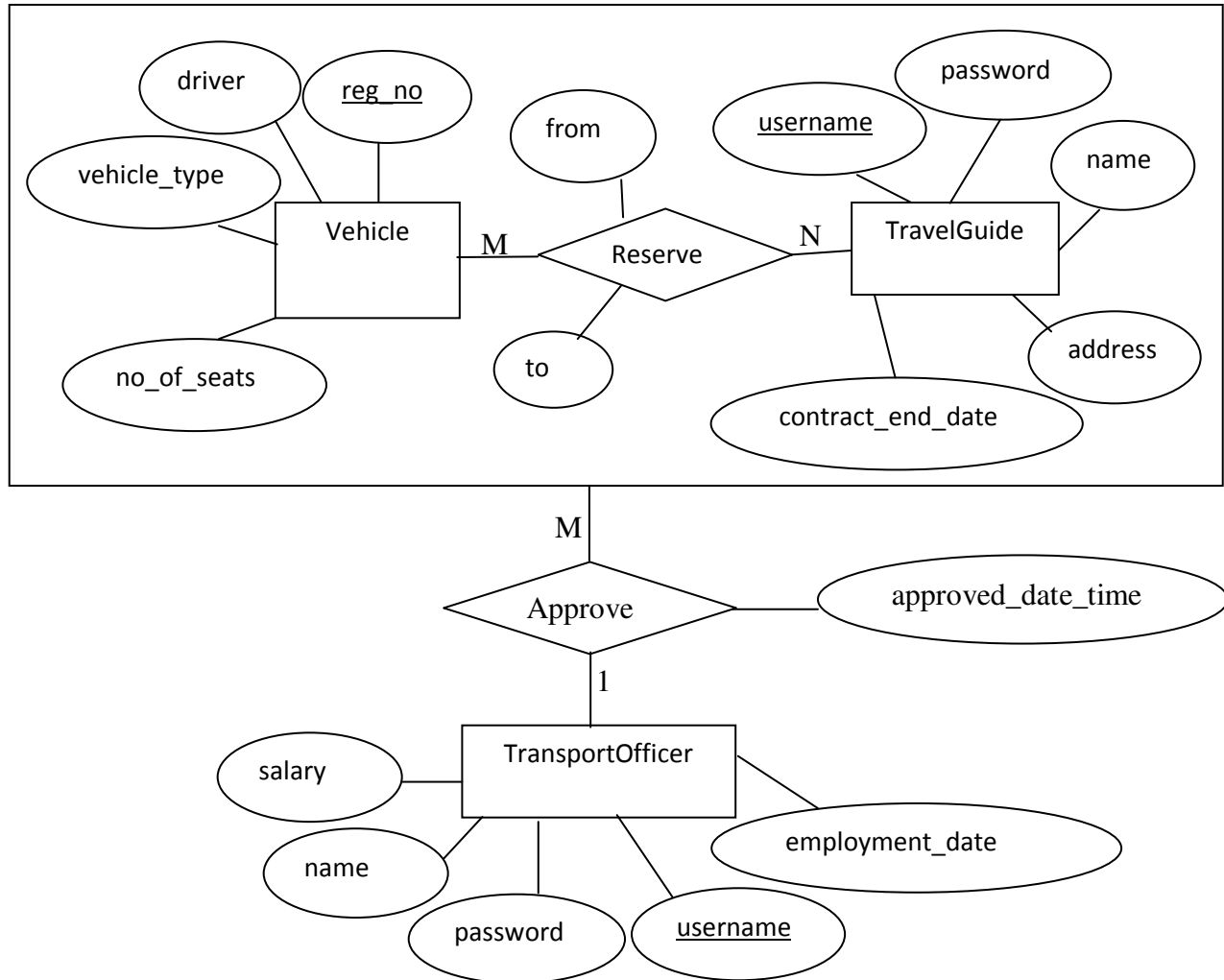
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## Database Model

You will be using the following database model to store the information needed.



Note : A Test database will be available at Metro and Malabe campuses. Your program can access these databases. Refer moodle to find sql script to create database and to find how you access the databases.

\*\*\* YOU MUST DEVELOP YOUR ANSWER IN A WAY THAT IT CAN WORK WITH TEST DATABASE GIVEN. DURING VIVA SESSION YOU MUST ACCESS THE TEST DATABASE.

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---

## Software to be Used

You must use software mentioned below.

### GUI

- You must use JDK 1.6 and Netbeans 6.8 editor (or a version above) to develop the GUI. You must use swing package to come up with the expected output.

### Database

- You must use MySQL 5.1 or above to implement the database and MySQL Connector Java 5.1 or above as the database driver.

### Report Generating

- You must use iReports 3.7.1 or above to generate the reports.

Note: You can find all the required software installations in the student server, public folder (Y: drive) or refer moodle.

**\*\* You are not allowed to use predefined Look and Feel Themes (e.g. Synthetica) for swing to generate GUIs.**

## Deliverables

### Source Code

- You must submit all the source codes (.java) and any other necessary file.  
\*\* the program you submit MUST work with the Test database available at respective campus.
- Compress the whole application into a single ZIP file when you submit.
- Your ZIP file should include a *readme.txt* file, which include your information.
- Follow the links in Moodle to upload your answer on or before the deadline.

**Note :** If the size of the ZIP file is above 8MB then you will not be able to upload in moodle. In such case you MUST submit the answer in a CD.

### Report

- You must submit a report in printed form which contains not less than five pages and no more than seven pages.
- Student should submit the report during the viva session.
- You may follow the outline given below to compose the document.

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---

#### Cover Page (1 page)

Must mention the name of the institute, subject name, project title, name of the report, Student id, Student name, submitted to and submitted date.

#### Table of Contents

1. Abstract (5-10 lines)
2. Introduction (1/2 page)  
Detailed introduction about the system
3. Database Design  
Explain the database schema used, tables created and constraints applied.
4. Requirements Fulfilled.  
Describe the requirements you completed.
5. User Interface Designs
  - 5.1. Interface  
Insert a description of each User Interface and the screen shots of each interface.
6. Report Generating.
  - 6.1. Report  
Insert a description of each report generated and the screen shots of each report.
7. Problems Encounter.  
Discuss the requirements you did not fulfill and explain the reasons.
8. Conclusion  
Discuss what you learnt from this assignment and state whether this assignment is a productive one or not with valid arguments.

#### Viva

- Every student must demonstrate the program and explain the codes during viva sessions.
- Refer the moodle for dates and time (schedule) of viva sessions.

Note: The student MUST bring the printed report to the viva session.

## Deadline

**You must submit your answer on or before 5.00 P.M. on 17<sup>th</sup> April 2012.**

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## Evaluation

- **THIS ASSIGNMENT IS COMPULSORY.**
- THE ASSIGNMENT WILL BE ALLOCATED 15% OF THE MARKS FROM YOUR OVERALL RESULTS.
- MARKS GIVEN TO THE ASSIGNMENT WILL BE DISTRIBUTED AS FOLLOWS.
  - Satisfy basic requirements 30% of marks
  - Generating reports with iReports. 15% of marks
  - Explain the codes. 20% of marks
  - Uniqueness, creativity and user friendliness 20% of marks
  - Printed report 15% of marks
- EVERY STUDENT MUST PRESENT IN A VIVA SESSION.
- STUDENTS MUST BE ABLE TO EXPLAIN THE CODES THEY WRITE.
- **ANY STUDENT, WHO DOES NOT SUBMIT THE ANSWER AND THE REPORT FOR THE ASSIGNMENT AND/OR WHO DOES NOT PARTICIPATE IN VIVA SESSIONS, GETS 0 MARK FOR THE ASSIGNMENT.**
- **IF THE ASSESSOR BELIEVES THAT THE ANSWER SUBMITTED IS NOT A GENUINE WORK OF THE STUDENT, THEN THE ASSESSOR HAS THE RIGHT TO GIVE 0 MARK.**

## Key Points to Note

- The assignment is an individual assignment.
- But you are free to discuss with other students.
- Your program must adhere to all the standard object oriented program design and implementation guidelines including modularity, reusability, extensibility, maintainability and adaptability.
- Your program must adhere to all the standard Java programming style guidelines including code readability, logical clarity, scoping rules, proper use of class and instance variables, encapsulation, naming conventions for classes, methods and variables and concept of variable-free programming.

## References

### Installing and Creating Database

- Refer MySQL documentation. Can find in Y: drive (public folder)

### iReports

- <http://ireport-tutorial.blogspot.com>  
Can find visual guides to set up iReports, to create data sources, to create reports and to call them from a Java program.

### GUI

- Refer any swing text book or any tutorial.