Test Project Session 2

IT SOFTWARE SOLUTIONS FOR BUSINESS

Submitted by:
Independent Test Project Design Team

Contents

This Test Project proposal consists of the following documentation/files:

1. WSC2019_TP09_S2_EN.pdf   (Session 2 instructions)
2. Session2-MySQL.sql   (SQL Script to create tables with data for MySQL)
3. Session2-MsSQL.sql   (SQL Script to create tables with data for Microsoft SQL)

Introduction

Due to the large-scale expansion at Kazan Neft, the company has decided to develop an in-house maintenance management and enterprise asset management system. As part of such a system, you are required to develop a desktop application to handle emergency maintenance orders.

Description of Project and Tasks

While developing the test project, please make sure the deliverables conform to the basic guidelines drawn out by different departments at Kazan Neft:

- There should be consistency in using the provided style guide throughout development.
- All required software modules must have applicable and useful validation and error messages as expected by the industry.
- Offer a scrollbar if the number of records on a list or a table that do not fit in the form area comfortably. Hide scrollbars if all content can comfortably be displayed.
- The de-facto standard, ISO compliant date format is YYYY-MM-DD which will be used in this task where applicable.
- Where applicable, use comments in code to have the code more programmer-readable.
- The use of valid and proper naming conventions is expected in all material submitted.
- Any form or report once created should be displayed in the centre of the screen.
- When a form or a dialogue is in focus, operations on other forms need to be suspended.
- The caption of Delete and Cancel buttons need to be in red to help with accidental mishaps.
- When using colours to differentiate between rows or records, there needs to be visible clarification on the screen as to what they stand for.
- The wireframe diagrams provided as part of this document are only suggestions and the solution produced does not have to be, in any way, mirror what has been pictured.
- Time management is critical to the success of any project and so it is expected of all deliverables to be complete and operational upon delivery.

Instructions to the Competitor

2.1 Creating the Database

Create a database by the name of "Session2" in your desired RDBMS Platform (MySQL or Microsoft SQL Server). This will be the main and only database you will use in this session.

2.2 Importing Database Structure

Depending on your preferred RDBMS platform, a SQL scripts is made available. The said scripts consist of the database structure and data required to complete the tasks. The data needs to be imported to the database created for this session named "Session2".

As instructed by the designers, the database structure provided for the purpose of this section cannot be altered. This applies to removal of tables, adding or deleting any fields on the tables or of change in their data types.
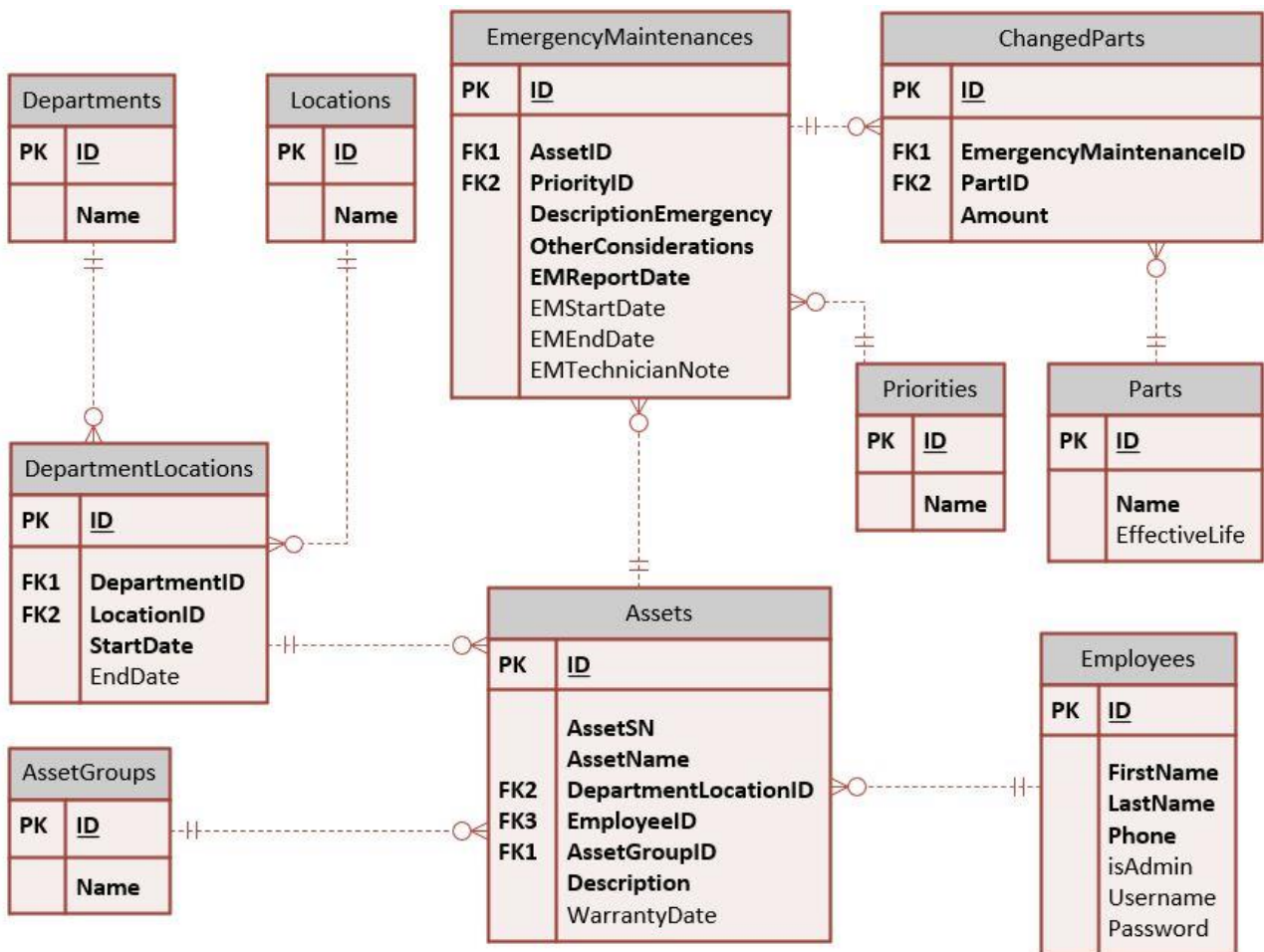
To help further perceive the thinking behind the structure of the database, the database designers provide an Entity-Relationship Diagram (ERD). The aforementioned diagram explains the conceptual and representational model of data used in the database.

Login ✕

┌─ Sign in to EM managment ──────────────────────┐
│   │
│   Username: [   ]   │
│   │
│   Passwrod: [   ]   │
│   │
└──┘

                          [OK]   [Cancel]

2.3 Create Login Form

Company employees depending on their responsibilities need to gain access to the system using a form as pictured above. There are two major categories using the Emergency Maintenance system which can be described as follows:

1. Accountable Party: Each of the assets in the system need to be associated with an employee. This person will be responsible in making sure it is operational. There are no limits as to how many assets can a single employee be liable for.
2. Maintenance Manager: There are managers in the company who will look after the assets and will be following up on their maintenance jobs.

- Please note that only employees with a username may log onto the system.
- The field "isAdmin" in the database indicates whether the user is a manager (TRUE) or not.
- After a successful login the user should be directed to the proper form.

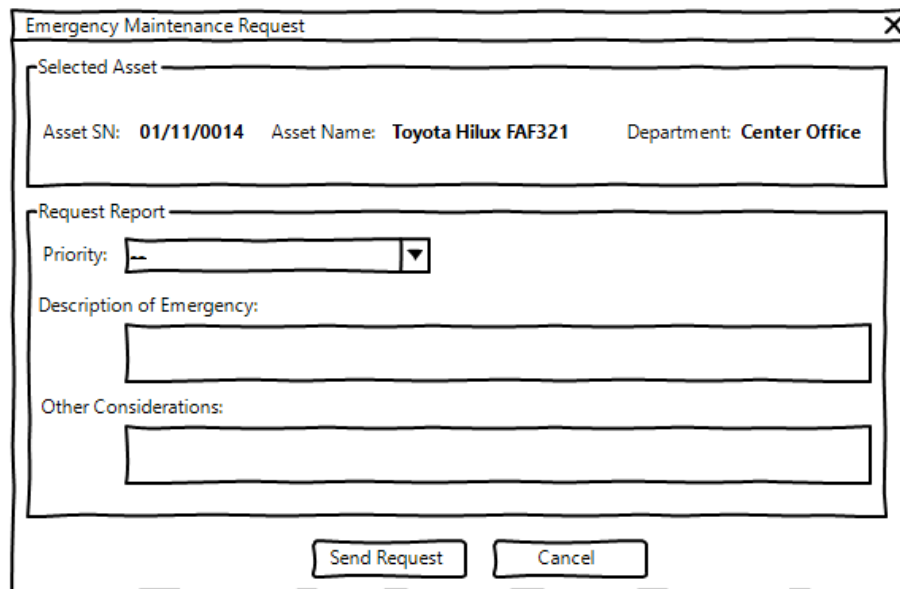**Emergency Maintenance Management**   ✕

Available Assets:

Asset SN	Asset Name	Last Closed EM	Number of EMs
03/05/0009	suction line	--	0
01/11/0014	toyota hilux FAF321	9/8/2018	5
03/05/0015	Mooring System	--	0

Send Emergency Maintenance Request

2.4 Managing EM Requests by Accountable Party

The form pictured above will be made available to employees identified as "accountable party" after login. They can then use it to review their assets and the EM requested associated with them.

- The following information for each asset needs to be listed:
  - Asset SN, Asset Name, Last Closed EM, Number of EMs
- When a date is set under "EMEndDate" on the "EmergencyMaintenances" it specifies that the request has been completed on the said date.
- The assets with open requests (have not been completed) should be visually marked (different background color or other indicators).
- "Last Closed EM" displays the finishing date for the last completed task.
- The number of EM requests or work orders that have been completed for an asset should be displayed as "Number of EMs".
- By selecting an asset from the list and clicking on the "Send Emergency Maintenance Request" button at the bottom of the form, the employee can create a new EM request as described in the next section.

```
┌─────────────────────────────────────────────────────────────────────┐
│ Emergency Maintenance Request                                      ✕  │
│ ┌─Selected Asset─────────────────────────────────────────────────┐   │
│ │                                                                  │   │
│ │   Asset SN: 01/11/0014   Asset Name: Toyota Hilux FAF321   Department: Center Office │
│ │                                                                  │   │
│ └──────────────────────────────────────────────────────────────────┘   │
│ ┌─Request Report─────────────────────────────────────────────────┐   │
│ │  Priority: [──                          ▼]                       │   │
│ │  Description of Emergency:                                        │   │
│ │  ┌────────────────────────────────────────────────────────────┐ │   │
│ │  │                                                            │ │   │
│ │  └────────────────────────────────────────────────────────────┘ │   │
│ │  Other Considerations:                                           │   │
│ │  ┌────────────────────────────────────────────────────────────┐ │   │
│ │  │                                                            │ │   │
│ │  └────────────────────────────────────────────────────────────┘ │   │
│ └──────────────────────────────────────────────────────────────────┘   │
│              [ Send Request ]      [ Cancel ]                           │
└─────────────────────────────────────────────────────────────────────┘
```

2.5 Registering a New EM Request for an Asset

The company employee may use the designated button on the main form to create a new request. The details of the form are described here:

- The following items need to be displayed on the form as shown on the wireframe above:
  - Asset SN, Asset Name, Department, Priority, Description of Emergency, Other Considerations
- The data for Asset SN, Asset Name and Department are retrieved from the database and are not to be changed.
- The other fields are to be filled in by the employee in order to send the request and an appropriate message is to be shown to the client in case the requirements are not met.
- The user may only register a new EM request for an asset if there are no other open requests assotiated with it on the system.

Emergency Maintenance Management   ✕

List of Assets Requesting EM :

Asset SN	Asset Name	Request Date	Employee Full Name	Department
03/05/0015	Mooring System	1/2/2019	Omid Gaser	Yelabuga

Manage Request

2.6 Managing EM Requests by Maintenance Manager

The maintenance manager after logging onto the system, may use this form to view and manage open requests registered on the system by other personnel.

- The following information need to be shown for each of the requests:
  - Asset SN, Asset Name, Report Date, Employee Full Name, Department
- When a date is set under "EMEndDate" on the "EmergencyMaintenances" it specifies that the request has been completed on the said date.
- The open requests should be sorted according to the following criteria:
  - First by "priority" where "Very High" goes on the top followed by "High" and "Normal".
  - Then by the date registered where the oldest is displayed first.
- By selecting a request and using the button at the bottom of the form marked as "Manage Request", the user would be able to view and complete their information as described in the next section.

2.7 Emergency Maintenance Request Details

To view a request and to add further details, the maintenance manager needs to use this form. Here are the functionalities requested:

- The following data should be made available to the manager:
  - Asset SN, Asset Name, Department, Registered On, Completed On, Technician note, Part Name, Amount
- The data for Asset SN, Asset Name, and Department are retrieved from the database and are not to be changed.
- When a technician uses parts in the process, they manager should be able to add them as follows:
  - The part needs to be selected from the available parts list in the database.
  - Each part has an effective life (in days) in which they can be used before they would need to be retired. For example, the tire of a truck could have a service life of two years maximum.
  - In case a chosen part for the same asset has been replaced before as part of another EM request and the service life has not expired, the manager needs to be notified with an appropriate message.
  - The manager may have the option to remove any items from the list if needed.
  - The amount when adding parts to the request must be a positive number and can contain decimals.
  - The manager may choose not to add any parts to the request.
- The request work start date cannot be before the registration date for the request.
- When the completion date for the request is set, the manager will not be able to make any changes to the request.
- The start date for the request is required before the form can be submitted.
- The manager may only fill in the completion date when there's a technician note attached to it.