

# Test Project Session 1

*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\_S1\_EN.pdf (Session 1 instructions)
2. Session1-MySQL.sql (SQL Script to create tables with data for MySQL)
3. Session1-MsSQL.sql (SQL Script to create tables with data for Microsoft SQL)

## Introduction

Kazan Neft has been expanding into new locations both inside Russia and abroad and as such expansions go, there's a growing need to organize its inventory and all the assets it owns and operates. The system in focus for this section of work mostly is there to identify all the assets in one database and create a complete catalogue.

Based on the preliminary survey into the administrative procedures and paper forms the company has acquired, the following functionalities are required for the asset management:

- Display list of assets and register new assets.
- The assignment of unique serial numbers and managing of asset locations.

## 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.
- Where applicable, use comments in code to have the code more programmer-readable.
- 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.
- 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 colors 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.
- The user interface of the current task needs to be implemented on the Android platform and will only be accepted on the mobile devices provided.
- As an industry standard, the company infrastructure is based on a remote database and the application should be designed to process all their data requests through a Web API. The company will provide all necessary specifications for you to model and deploy the data interface.



## Instructions to the Competitor

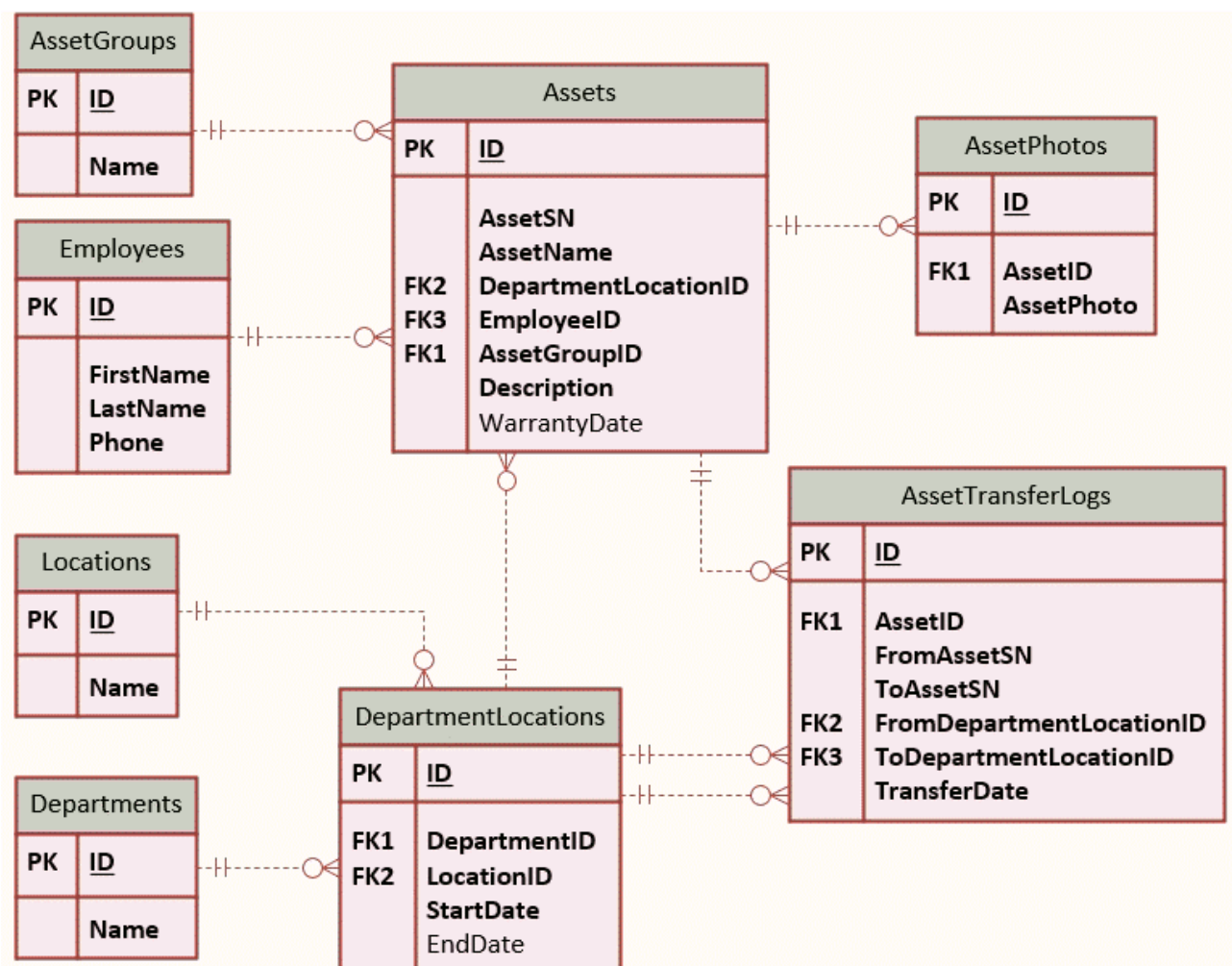
### 1.1 Connecting to the Database

Use a database by the name of "Session1" in your desired RDBMS Platform (MySQL or Microsoft SQL Server). This will be the main and only database you will use in this session.

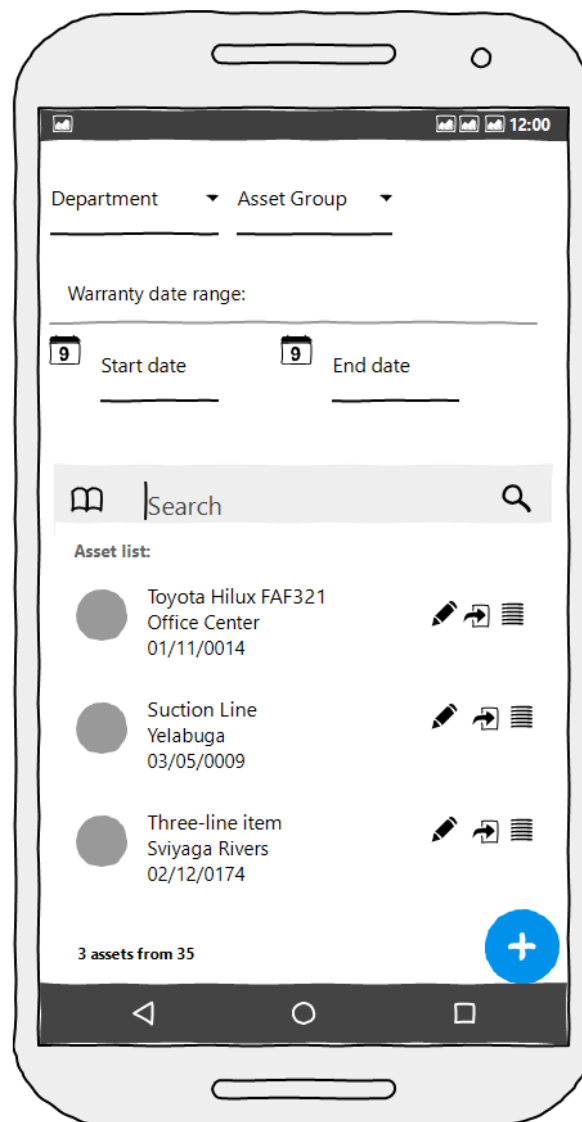
### 1.2 Importing Database structure

Depending on your preferred RDBMS platform, a SQL script 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 "Session1".

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.



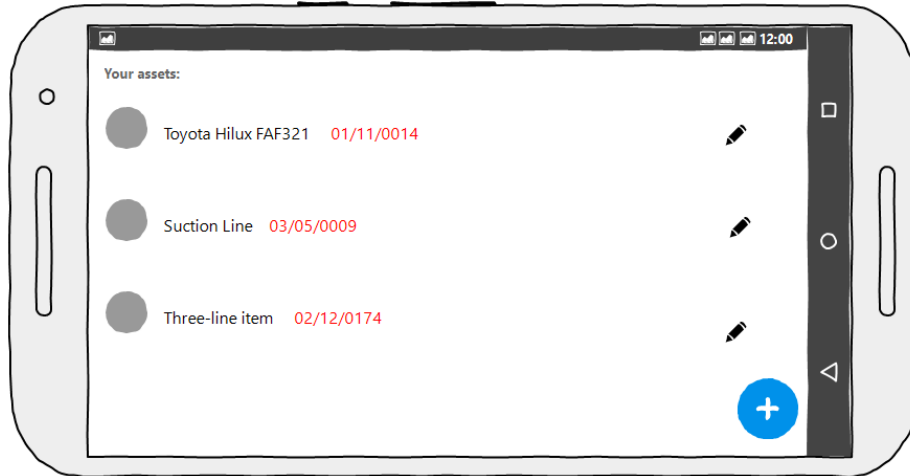
### 1.3 Asset Catalogue

The asset catalogue is the first form when the application opens. It provides a list of the current assets in the database and allows the manager some limited actions as described below:

- Each record consists of the following data fields which will be shown in an appropriate format:
  - Asset Name, Department name, Asset SN
- The search toolbar at the top of the form will help filter out the list in the following manner:
  - At the bottom of the search toolbar, a search box will help the client look for terms from the Asset SN and Asset Name fields.
    - Upon entering more than two letters in the search parameters of the said box, the asset list should automatically show the matched records from the database.
  - Four other search parameters are placed above the search field which will help the user filter the records to their own likings:
    - “Asset Group” and “Department” fields allow the client to choose from a list of available data already in the database.
    - Warranty Date Range will let the client choose to see the assets that have warranties expiring on the selected dates.
    - The search parameters described above will be applied once the field loses focus.



- The client may choose to mix and match any of the search parameters to their own preference.
- At the bottom of the form, the number of the returned records (based on the parameters aforementioned) and the total number of assets available in the database are displayed in one line.



- In case the mobile device is turned into landscape mode as pictured above, the client will only be able to see a list with Asset SN and Asset Name fields in a single line.
  - If there are any filters applied to the list, they should not change because of change in display orientation.
  - The user may only edit and add new assets in landscape viewing mode.
  - Proper layout and good use of white spaces to organize the information is vital.
  - Using colors to differentiate the fields are optional.



Asset Information Back

Asset Name

Department ▾ Location ▾

Asset Group ▾ Accountable Party ▾

Asset Description,  
Multi Line

9 Expired Warranty Asset SN: **dd/gg/nnnn**

Capture Image Browse


Front Picture 1

Back Picture 2

Picture 3

Submit CANCEL


## 1.4 Registering and Editing Assets

The New Asset Button (  ) placed in the main form will allow the client to register new assets in the database as described here:

- The data fields used are as follows:
  - Asset Name, Department, Location, Asset Group, Accountable Party, Asset Description, Expired Warranty, Pictures
- Department is a drop-down list retrieved and populated from the database.
- Location is also a drop-down list that displays all location available for the selected department.
- The system should prevent having two assets of the same name at the same location.
- The Asset SN field has a dynamic value which depends on the “Asset Group” and “Department” properties of the asset as described here:
  - The format for this field is in dd/gg/nnnn format:
    - dd is a double digit and refers directly to the department ID the asset is located at.
    - gg is also a double-digit numeral and directly references the ID of the asset group they are registered to.




- nnnn which is the last part of the serial number is an incremental four-digit number that is unique to the department and the asset group. An asset in a department within an asset group cannot share this number.
  - In case any of the three parts of the serial number do not have the required number of digits, the system should automatically add zeros in front of the number to comply with the requirements.
- The user may select and upload one or more pictures either using their device's camera or by selecting previously captured images stored on their device.
  - The "Back" button at the top and the "Submit" and "Cancel" button at the bottom will get the user back to the main menu. The "Submit" button stores the changes to the database and refreshes the main form to reflect the changes while the other two do not.

The user can use the Edit Button (  ) placed besides each asset on the main form to view and modify their details. The following describes some of the functionalities requested:

- The "Location", "Department", and "Asset Group" entries are read only and cannot be altered in this form.
- The system should prevent having two assets of the same name in the same location.
- All the fields except for the warranty date range and images should be filled out before the form can be submitted.
- The "Back" button at the top and the "Submit" and "Cancel" button at the bottom will get the user back to the main menu. The "Submit" button stores the changes to the database and refreshes the main form to reflect the changes while the other two do not.
- The user may select and upload one or more pictures either using their device's camera or by selecting previously captured images stored on their device.



## 1.5 Asset Transfers

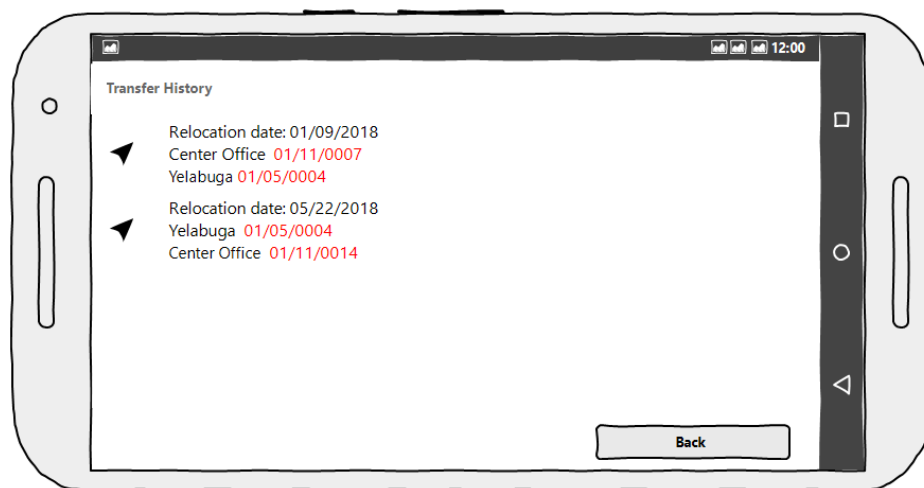
The user can use the Move Button (  ) placed besides each asset on the main form to transfer assets between warehouses. The following describes some of the functionalities requested:

- The “Asset Name”, “Current Department”, and “Asset SN” entries are located at the top and are read only and cannot be altered in this form.
- The required entries in order to complete a transfer are as follows:
  - “Destination Department” is a list populated from the database and should not contain the name of the department the asset currently resides in.
  - “Destination Location” is also a drop-down list that displays all location available for the selected department.
- “New Asset SN” is generated after the user selects destination department:
  - The format for this field is in dd/gg/nnnn format:
    - dd is a double digit and refers directly to the department ID the asset is located at.
    - gg is also a double-digit numeral and directly references the ID of the asset group they are registered to.






- nnnn which is the last part of the serial number is an incremental four-digit number that is unique to the department and the asset group. An asset in a department within an asset group cannot share this number.
- In case any of the three parts of the serial number do not have the required number of digits, the system should automatically add zeros in front of the number to comply with the requirements.
- If the asset has been previously located in the selected destination department, the same serial number should be assigned to this field and no new serial numbers would need to be generated.
- The “Back” button at the top and the “Submit” and “Cancel” button at the bottom will get the user back to the main menu. The “Submit” button stores the changes to the database and refreshes the main form to reflect the changes while the other two do not.



## 1.6 Transfer History

The user can use the “History Button” (  ) placed besides each asset on the main form to view a list of previous asset transfers:

- The following fields are to be displayed on this form:
  - Transfer date, Old Department, Old Asset SN, New Department, New Asset SN
- The list should be sorted to list the oldest transfers first.
- In case there are no recent transfers in the last twelve months as there are no records to show, an appropriate message should direct the user back to the main form.
- Proper layout and good use of white spaces to organize the information is vital.
- Using colors to differentiate the fields are optional.
- The “Back” button at the bottom gets the user back to the main menu.