TDD & BDD
Lab Book

Document Revision History

Date	Revision No.	Author	Summary of Changes
May 2018	1.0	Anjulata T.	New course creation
March 2019	1.1	Shubhangi Bharti	Courseware revamped based on curriculum revision

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Getting Started

Overview

This lab book is a guided tour for learning BDD with Cucumber and Selenium. It comprises scenario based applications and 'To Do' assignments. Flow diagrams and screen snap shots are provided where necessary.

Setup Checklist for BDD

Here is what is expected on your machine in order for the lab to work.

Minimum System Requirements

- Intel Pentium 90 or higher (P166 recommended)
- Microsoft Windows 95, 98, or NT 4.0, 2k, XP.
- Memory: 32MB of RAM (64MB or more recommended)
- Java SE version 8
- Internet Explorer 6.0 or higher
- Connectivity to Oracle database

Software requirements:

- Internet Explorer 9.0 or higher
- JDK1.8 or above
- Spring Tool Suit 3.9 or higher
- Cucumber plugin for eclipse to be installed.

Instructions

- All lab assignments should refer coding standards.
- Create a directory by your name in drive <drive>. In this directory, create a subdirectory servlet_assgn. For each lab exercise create a directory as lab <lab number>.
  You may also look up the on-line help provided in JEE documentation

Problem Statement/ Case Study (If applicable)

Equipment Tracking System

About Application

Background

1. System - Equipments tracking system.
2. Most of the functionality available on Fat client and some on Web.
3. Module under test – Manage Equipments
4. Flow of the system.
   Purchase equipment → Manage Equipment → Track financials→Retire equipment
5. Manage equipment means – Install, Update and Move equipment.
6. There are different access rights for different users – (Browse and Edit.)

Note – The actual field names on the GUI screen can be different than the listed in the requirement.

Assumptions

1. Equipment entry is already in the system as Purchase phase is over.
2. Equipment 'Use status' can be 'In Use' if it is installed and assigned to some user/Department or it can be 'In stock' if it is not put in Use.

Requirements

1. Authorized users and systems must have the ability to record updates to equipment records
   1.1. The system must enforce requirements of the equipment Type properties while updation.
   1.2. Only valid Locations can be assigned to an equipment record when completing an update transaction. End Date has not expired
   1.3. Only valid Users can be assigned to an equipment record when completing an update transaction. End Date has not expired

2. The system must provide the ability to restrict which users may update equipment records.
   2.1. The authorized users are: Inventory personnel, equipment auditors, service personnel, maintenance personal and Equipment Tracking personnel

3. The system must provide the user with the capability to query for equipment records based on a predefined list of available data elements.
   3.1. Users must have the ability to query for an equipment by "Equipment Tag"
   3.2. The system must manipulate the barcode Equipment Tag for query and storage consistency
      3.2.1. Equipment Tag must be 10 characters
      3.2.2. Equipment Tag must be all numeric
      3.2.3. Equipment Tag will remove any blanks or dashes

3.2.4. The text 'AD' will be removed from Equipment Tag if found in position 1 and 2 of the character string
3.2.5. Equipment Tag will be padded with leading zeros if length is less than 10 characters
3.3. Users must have the ability to query for equipments by "Seq Number"
3.3.1. The system must manipulate the Seq number input for query and storage consistency
3.3.2. The system must use the most recent rules contained within the authorized document:
3.4. Users must have the ability to query for an equipment by "Machine Id"
3.5. Users must have the ability to query for equipments by "User Id"
3.6. Users must have the ability to query for equipments by "Location"
3.6.1. Users must select a valid Location from a list.

4. System should return a list of equipments matching the query criterion
4.1. The system must provide the ability to view the Equipment Tag for each equipment record returned in the list.
4.2. The system must provide the ability to view the Quantity for each equipment record returned in the list..
4.3. The system must provide the ability to view the Seq. Number for each equipment record returned in the list.
4.4. The system must provide the ability to view the User Id for each equipment record returned in the list.
4.5. The system must provide the ability to view the Location for each equipment record returned in the list.
4.6. The system must provide the ability to view the Equipment type for each equipment record returned in the list.

5. The system must provide the user with the ability to manually update specified data for a single equipment record.
5.1. Users are restricted to modifying equipment records only in within their state
5.2. Only comments can be updated for retired equipments
5.3. Any Unassociated equipments identified as "Spare Part" must be ‘In Stock’

6. The system must provide the user with the ability to manually update specified data for multiple equipment records simultaneously.

7. Following is the list of updatable fields depending on the use transactions and equipment status
7.1. Purchase Method - Required
7.2. Seq Number - Required based on the equipment type.
7.3. User ID - If allocated to user
7.4. Department ID - If allocated to department
7.5. Use Status – Required. If stock equipment then default to In-Stock
7.6. Cost Center –Required. If Use status is In-Stock default with Stock Location’s cost center ID
7.7. Install Date Required if Use Status is ‘In Use’

Default to actual Receipt Date if receiving done through automatic interface.
Default to Current Date if equipment is added into system manually.

7.8. Location- Required
7.9. Audit Indicator (Yes/No)
7.10. Audit Date - Default the Audit Date to the Receipt Date
7.11. comments
7.12. Stock Location - Required if use status is In-Stock

8. The system must provide the ability to update specified data in an equipment record from external systems.

9. System should allow printing the equipment's basic information using 'Print Label' functionality.
   9.1. Label should include
      9.1.1. Equipment code
      9.1.2. User ID
      9.1.3. Location ID
   9.2. System should receive automatic updates from the 'CompTrak' system for all the computer related fields on a regular basis.('CompTrak' is the network-based system that tracks all the computers in the network and collects data physically for all the computers. So this system is the Primary data holder for the computer specific fields)
      9.2.1. Computer Name
      9.2.2. Disk Capacity
      9.2.3. Total installed memory
      9.2.4. Network Card number
      9.2.5. Network Card Manufacturer
      9.2.6. Free space on 'C' Drive
      9.2.7. Operating system
      9.2.8. OS version

   9.3. Updations are done only if the last scan date for a stored in the 'Equipment tracking system' is lesser than the 'Last Scan date' stored in the 'CompTrak' system
   9.4. Errors would be generated if
      9.4.1. The equipment tag is not found in 'Equipment tracking system
      9.4.2. Last scan date for a stored in the 'Equipment tracking system' is greater than the 'Last Scan date' stored in the 'CompTrak' system

Lab 1. Gherkins

Goals	• Understanding Gherkin language
Time	5 Hour

1.1 Write the test cases in Gherkin language for the case study given.

Lab 2. Cucumber

Goals	• Understanding the Cucumber tool
Time	2.5 Hours

2.1: Create feature files containing test cases written in Lab 1.
2.2: Create the step definition file for the feature file created in Lab 2.1
2.3: Create the Test Runner file to run the step definition.

Lab 3. Selenium

Goals	• Writing the Selenium code in Cucumber step definition
Time	5 hrs.

3.1: Write the Selenium code in the step defition file created in Lab 2.3.

Lab 4. Implementation of Code

Goals	• Implementing the classes to pass the test
Time	5 hrs.

4.1: Write the actual code for the Case study to pass all test written in previous labs.

