Mindtree Java 201: Build & Quality Lab Assignment

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Assignment

1. The main objectives of this assignment are to evaluate participant on his / her ability to:
    a. Setup Maven as build and release tool, create a Maven project and execute lifecycle commands like clean, package, install etc.
    b. Setup and configuring code quality tools (Sonar) and integrate those into a Continuous Integration tool (Jenkins)

Software Required:

Following are the software requirements for this assignment:

1. Java 1.7.xx or 1.8.xx should be installed (Both JRE and JDK need to be installed)
2. MySQL Community Server Version 5.5+ should be installed
    a. Root password should be a well known password and has to be given to each user
3. MySQL Workbench 5.2.xx should be installed
4. Eclipse Mars or Neon, JEE version should be installed
5. Maven 3.3.9 or above should be installed
6. Maven needs access to the Internet to download required jars. So all machines should have access to the Internet.
7. SonarCube latest 5.x
8. Apache Tomcat 8.0.xx
9. Jenkins 2.xy

Provided Artifacts:

Kindly ensure you have access to the following artifacts before you start your assignment:

1. OurBank_SourceCode.zip:
    a. This zip file contains all the required source code that can be used to build the OurBank web application.
    b. Contains all Java classes, db scripts and all the required presentation tier assets that are used in the application
2. OurBank_Dependencies.xlsx
    a. List of all the maven dependencies that the application requires
    b. List of exclusions of specific portions of dependencies, if any

Assignment:

1. Install and configure Maven
2. Create a Maven project (simple web app type) and copy the given code elements, from the OurBank_SourceCode.zip file, into the appropriate folder structure under the created project
3. Modify the generated pom file to include all the appropriate dependencies provided in the OurBank_Dependencies.xlsx
3. Running the apt maven command should produce an appropriate war file that can be deployed under Tomcat
4. Before deploying and running the built war file on Tomcat, ensure MySql database is setup with the schema that is provided in the source code
    a. The db schema script provided will create a schema called 'ourbank'.
    b. DO NOT change this schema name to anything else
5. Run the app and make sure it works
    a. You can use the following User Login Info to test the application:
        i. User-Name: mindtree
        ii. Password: mindtree
        iii. Bank-Id: 1234
    b. Ensure that the app works correctly
6. Run all appropriate lifecycle maven commands
7. Install and configure Sonar
8. Integrate the Maven project onto Sonar, so that we can do a static code analysis of the built project
9. Add JUnit dependency to the maven project and create appropriate unit tests for the given codebase
10. Ensure code coverage using corbertura is also run on the given application
11. Install and configure Jenkins
12. Create Jenkins jobs to run the Maven project at regular time intervals and then also integrate the build with Sonar.

Evaluation Criteria:

Evaluation criteria will consists of appropriate weightages for the different steps mentioned in the previous section. Refer to the MT_J201_BuildAndQualityLab_Assignment_EvaluationCriteria.xlxs for more details

What to Submit:

1. Create a zip file of new maven project that was created for this assignment.
2. But do ensure to delete the 'target' folder before creating the zip file
3. Create sub folders (one called sonar and the other called Jenkins) to place screen shots of Sonar and Jenkins, at the same level as src folder and the pom file
4. Take 3-4 screen shots of Sonar main dashboard, project dashboard, coverage and other sections and add them to the 'sonar' folder
5. Take 3-4 screen shots of Jenkins job configuration, job run console outputs with success messages and add them to the 'jenkins' folder
6. Name the zip file using the following convention:
    a. MT_J201_<MID>_<Name>_BuildAndQualityLabAssignment_v<x>.zip
    b. Where MID is your Mindtree ID, Name is your name
    c. <x> … corresponds to the version of your submission. First one will be 1 and later submissions will increment this value
    d. Some examples are given below….but use your MID and Name
    e. Correct: MT_J201_M95012345_AnilkumarGT_ BuildAndQualityLabAssignment _v1.zip
    f. Wrong Name: Anil Kumar GT_ BuildAndQualityLabAssignment.zip
    g. Wrong Name: MT_J201_M95012345_Anilkumar GT_BuildLab.zip