Assumptions
I assume that you have access to JavaEE 7 Tutorial (https://docs.oracle.com/javaee/7/tutorial/index.html).

Aim
This lab aims to guide you through setting up several users on GlassFish server so that they can call the relevant methods as needed.

Software
To finish the lab, you may need the following software:
1.   NetBeans IDE version 8.2
2.   GlassFish Server Open Source Edition version 4.1.1 or later (or, GlassFish) [JavaDB is the database server that comes with GlassFish.]

Overview of the Tasks
In this Lab, you will learn how to add users to GlassFish Server for an enterprise app to access protected resources
LT1.   Run the Admin Console of GlassFish server
LT2.   Add users to GlassFish server
LT3.   Enable the "Default Principal to Role Mapping" option
LT4.   Restart GlassFish

Lab Tasks
<p align="center">This Lab should be run on MS Windows Platform</p>

LT1.   Run the Admin Console of GlassFish server using NetBeans
  LT1.1.   Start GlassFish server in NetBeans
  LT1.2.   Right click on "GlassFish Server 4.1.1" and select "View Domain Admin Console"
  Note: A browser will start and load the Admin Console page of GlassFish server.
  Note: There is no need to enter username and password because of the set up done in Lab 1. In case, GlassFish asks for the login credential, please enter the one that you used in Lab 1. Hope that you still remember the credentials or you can find it somewhere.

LT2.   Follow the instructions in "Section 47.5.2.1 To Add Users to GlassFish Server" (https://docs.oracle.com/javaee/7/tutorial/security-intro005.htm) to add the following users to GlassFish using "file realm" (i.e. ~ ->Realms -> file) because they are non-admin users of GlassFish.

User ID	Password (case-sensitive)	Group List
ed-none	ed-none	ED-NONE
ed-guest	ed-guest	ED-APP-GUEST
ed-user1	ed-user1	ED-APP-USERS
ed-user2	ed-user2	ED-APP-USERS
ed-admin1	ed-admin1	ED-APP-ADMIN
ed-admin2	ed-admin2	ED-APP-ADMIN

LT3.   Enable the "Default Principal To Role Mapping" option on GlassFish
  LT3.1.   Select "server-config" and then "Security" on the left pane of "Admin Console"
  LT3.2.   "Enable" the "Default Principal to Role Mapping" option on the right pane of "Security" page
  LT3.3.   Click "Save"

LT4.   Restart the "GlassFish" server for the settings to take effect