

## COMPETENCIES

### 4025.01.05 : Database and File Server Applications

The graduate produces database and file server applications using advanced Java programming language constructs to meet business requirements.

### 4025.01.06 : Lambda

The graduate incorporates lambda expressions in application development to meet business requirements more efficiently.

### 4025.01.07 : Collections

The graduate incorporates streams and filters in application development to manipulate data more efficiently.

### 4025.01.08 : Localization API and Date/Time API

The graduate applies the localization API and date/time API in application development to support end-users in various geographical regions.

### 4025.01.09 : Advanced Exception Control

The graduate incorporates advanced exception control mechanisms in application development for improving user experience and application stability.

## INTRODUCTION

Throughout your career in software design and development, you will be asked to create applications with various features and criteria based on a variety of business requirements. For this assessment, you will create your own GUI-based Java application with requirements that mirror those you will likely encounter in a real-world job assignment.

The skills you will showcase in this assessment are also directly relevant to technical interview questions for future employment. This application may become a portfolio piece for you to show to future employers.

Several attachments and links have been included to help you complete this task. The attached “Database ERD” shows the entity relationship diagram (ERD) for this database, which you can reference as you create your application.

For this task, you will use the Performance Assessment Lab Area accessed by the Performance Assessment Lab Area in the web link to access the virtual lab environment to complete this task. The preferred integrated development environment (IDE) for this assignment is IntelliJ IDEA (Community Edition). If you choose to use another IDE, you must export your project into NetBeans 11.1 or later, or IntelliJ format, or your submission will be returned. This assessment also requires the following software: the latest long term support (LTS) version of JDK, JavaFX SDK, and Scene Builder which are also available the Performance Assessment Lab Area.

Your submission should include a zip file with all the necessary code files to compile, support, and run your application. Your submission should also include an index.html file with reflective Javadoc comments in the .java files. The zip file submission must keep the project file and folder structure intact for the IDE.

In NetBeans, zip your file by going to File>Export Project>To ZIP and click Export. In IntelliJ Idea, go to File>Export to Zip File and click OK. If you try to zip your project files with an external program, it will include the build files and make the zip files too large for submission.

Note: You may receive an error message upon submitting your files because the automated plagiarism detectors at WGU will not be able to access a zipped file, but the evaluation team will run their checks manually when evaluating your submission.

#### SCENARIO

You are working for a software company that has been contracted to develop a GUI-based scheduling desktop application. The contract is with a global consulting organization that conducts business in multiple languages and has main offices in Phoenix, Arizona; White Plains, New York; Montreal, Canada; and London, England. The consulting organization has provided a MySQL database that the application must pull data from. The database is used for other systems, so its structure cannot be modified.

The organization outlined specific business requirements that must be met as part of the application. From these requirements, a system analyst at your company created solution statements for you to implement in developing the application. These statements are listed in the requirements section.

Your company acquires Country and First-Level-Division data from a third party that is updated once per year. These tables are prepopulated with read-only data. Please use the attachment “Locale Codes for Region and Language” to review division data. Your company also supplies a list of contacts, which are prepopulated in the Contacts table; however, administrative functions such as adding users are beyond the scope of the application and done by your company’s IT support staff. Your application should be organized logically using one or more design patterns and generously commented using Javadoc so your code can be read and maintained by other programmers.