In the final assignment for this module, you will be challenged to create and modify a database using the different types of database *containers* you have learned about in this module. Before you begin the assignment, view the submission instructions section below to ensure that you collect the required screenshots.

**To complete this activity, follow these steps:**

**Part 1**

1. Download the folder [Final\_Assignment\_Module\_12](https://classroom.emeritus.org/courses/10605/files/3007217/download). Provide a screenshot to show that you were able to open the folder in VS Code.

**Part 2**

1. In VS Code, navigate to Part 2 of the folder, which contains the starter file for this part of the assignment. Run the command to initialize the *driver*. Provide a screenshot to show that you successfully ran the command.
2. Open the `create.py` file and modify it to create a database with your choice of title. This database should contain at least three entries. The entries of the database can be about anything you want. They can include something that interests you or something related to your school or work background. Provide two screenshots. The first screenshot should include the code to show which data you defined. The second screenshot should show that you successfully ran the `create.py` file.
3. In a Terminal window, run the correct commands to insert your data in the database you created so that you can visualize your data correctly in the Terminal window. Provide a screenshot of your Terminal window after running the correct commands. You should see the correct entry in the database.
4. Following the steps in Video 12.4, create a Docker *container* named ‘final\_assignment’. Use port 3300. Provide a screenshot to show that you successfully created the *container* in Docker.

**Part 3**

1. In VS Code, navigate to Part 3 of the folder containing the starter file for this part of the assignment. Provide a screenshot to show that you successfully ran the command.
2. Use Redis to create a Docker *container*. Use port 6379 and name your *container* “final\_assignment\_part3”. Provide two screenshots: The first screenshot should show that you successfully ran the command to create the *container* in your Terminal window. The second screenshot should show that the *container* you just created is active on Docker.
3. Open the write.py file from the folder you downloaded. Use the Redis *method*, mset, to create a *dictionary*, r, with *keys* equal to “Milk” and “Bread” and corresponding values equal to “Lactose” and “Gluten”. Provide a screenshot of the code you wrote.
4. Run the write.py file in your Terminal window to show that your syntax does not contain any errors. Provide a screenshot.
5. Open the read.py file from the folder you downloaded. Use the Redis *method*, get, to read all values in r. Provide a screenshot of your updated code.
6. Run the read.py file in your Terminal window to show that your code prints the *dictionary* values correctly. Provide a screenshot.

**Part 4**

1. Open a Terminal window and navigate to Part 4 of the folder containing the starter file for this part of the assignment. Provide a screenshot to show that you successfully ran the command.
2. In your browser, navigate to [Firebase .](https://firebase.google.com/)
3. and create a new project called “Assignment-Module12”. Provide a screenshot to show that you completed this step successfully.
4. In Firebase, obtain permissions to write from Python to your database. Download your own private *key* and copy it into the serviceAccountKey.json file in VS Code. For this step, provide two screenshots: One screenshot should show that you navigated to the correct page in Firebase to obtain the private *key*, and one screenshot should show that you copied the file correctly in the serviceAccountKey.json file. Feel free to blur your private *key* in the screenshots.
5. Create an empty Realtime database for your project in Firebase. Provide a screenshot to show that you completed this step successfully.
6. Open the fire.py file in VS Code. Update the databaseURL field with the URL you copied. Provide a screenshot to show that you completed this step successfully.
7. Edit the fire.py file to update the two entries in your database. You are free to choose these entries as you wish. They can be about anything that interests you. Update the second entry by adding an extra field. Provide a screenshot to show that you completed this step successfully.
8. In a Terminal window, run the correct command to write to your database in Firebase. Provide a screenshot of your Terminal window to show that the command ran without errors.
9. Provide a screenshot from Firebase to show that your database has been written as expected.

**Submission Instructions:**

Your submission for this assignment should be a Word document that includes the following screenshots, each labeled for the step that the screenshot represents:

1. Provide a screenshot to show that you were able to open the Final\_Assignment\_Module\_12 folder in VS Code.
2. 1. Provide a screenshot to show that you successfully ran the command to initialize the *driver* for Part 2 in VS Code.
   2. Provide two screenshots. The first screenshot should show the code demonstrating which data you defined, including the required three entries. The second screenshot should show that you successfully ran the `create.py` file.
   3. Provide a screenshot of your Terminal window to show that your data is visualized correctly, that you ran the correct commands, and the correct entry is displayed.
   4. Provide a screenshot to show that you successfully created the *container* named ‘final\_assignment’ in Docker using port 3300.
3. 1. Provide a screenshot to show that you successfully ran the command to initialize the *driver* for Part 3 in VS Code.
   2. Provide two screenshots: The first screenshot should show that you successfully ran the command to create the “final\_assignment\_part3” *container* in your Terminal window. The second screenshot should show that the *container* you created is active on Docker.
   3. Provide a screenshot to show that you successfully used the Redis *method*, mset, to create a *dictionary*, r, with *keys* equal to “Milk” and “Bread” and corresponding values equal to “Lactose” and “Gluten”.
   4. Provide a screenshot of your Terminal window running the write.py file to show that your syntax does not contain any errors.
   5. Provide a screenshot of the read.py file to show your updated code after you used the Redis *method*, get, to read all values in r.
   6. Provide a screenshot of your Terminal window to show that your code prints the *dictionary* values correctly in the read.py file.
4. 1. Provide a screenshot to show that you successfully ran the command to open the starter file for Part 4.
   2. Provide a screenshot to show that you created a new project called “Assignment-Module12” in Firebase.
   3. Provide two screenshots: One screenshot should show that you navigated to the correct page in Firebase to obtain the private *key*, and one screenshot should show that you copied the private *key* file correctly into the serviceAccountKey.json file. Feel free to blur your private *key* in the screenshots.
   4. Provide a screenshot to show that you created an empty Realtime database for your project in Firebase.
   5. Provide a screenshot to show that you updated the databaseURL field in the fire.py file in VS Code with the URL that you copied.
   6. Provide a screenshot to show that you updated two entries in your database in the fire.py file.
   7. Provide a screenshot of your Terminal window to show that you ran the correct command to write to your database in Firebase.
   8. Provide a screenshot from Firebase to show that your database has been written as expected.