When submitting your coding assignment, do not forget to do the following:

1. Upload your project directory (e.g. mysql-java) and all it's contents to a GitHub repository

```
package projects;
 import java.math.BigDecimal;
 import java.util.List;
 import java.util.Objects;
 import java.util.Scanner;
 import projects.entity.project;
 import projects.exception.DbException;
 import projects.service.ProjectService;



 /**
  * This class is a menu driven application that accepts user input
  * from the console. It then performs CRUD operations on the project tables.
  * @author zbekele
 * @param <project>
  *
  */

 public class ProjectsApp {
 	private Scanner scanner = new Scanner(System.in);
 	private projectService projectService = new projectService();



 	// @formatter: off
```

```
	private List<String> operations = List.of(
				"1) Add a project");
		// @formatter: on
		/**
		 * Entry point of java application
		 *  @param args unused.
		 */

@SuppressWarnings("rawtypes")
public static void main(String[] args) {
		new ProjectsApp().processUserSelections();

}

/**
 * This method prints operations, gets a user menu selection,
 * * and performs the required operation. It repeats until the user
 * * requests that the application terminate.
 */
private void processUserSelections() {
		boolean done = false;

	while(!done) {
		try {
		int selection = getUserSelection();

		switch(selection) {
		case -1:
			done = exitMenu();
```

```
                    break;


                case 1:
                    createProject();
                    break;


        default:
        System.out.println("\n" + selection + " is not a valid selection. Try again.");
        }
                }


        catch(Exception e) {
        System.out.println("\nError: " + e + "  Try again");
                    }
                }
        }


 /**
  * Gather user input a project row then call the project service to create the row.
  * */


//  * @return
//  */


/* Gather user input for a project row then call the project service to create the row.
 *
 */
private void createProject() {
        String projectName = getStringInput("Enter the project name");
```

```
		BigDecimal estimatedHours = getDecimalInput("Enter the estimated hours");
		BigDecimal actualHours = getDecimalInput("Enter the actual hours");
		Integer difficulty = getIntInput("Enter the project difficulty (1-5)");
		String notes = getStringInput("Enter the project notes");

		Project project = new Project();

		project.setProjectName(projectName);
		project.setEstimatedHours(estimatedHours);
		project.setActualHours(actualHours);
		project.setDifficulty(difficulty);
		project.setNotes(notes);

	Project dbProject = projectService.addProject(project);
	System.out.println("You have successfully created project:" + dbProject);

	}

private Integer getIntInput(String prompt) {
		String input = getStringInput(prompt);
		if(Objects.isNull(input)) {
			return null;
}
			try {
				return Integer.valueOf(input);
}
			catch(NumberFormatException e) {
			throw new DbException(input + " is not a valid number:");
		}
```

```
		}

private BigDecimal getDecimalInput(String prompt) {
		// TODO Auto-generated method stub
		String input = getStringInput(prompt);

		if(Objects.isNull(input)) {
		return null;
}
try {
		/* create the BigDecimal object and set it to two decimal places (the scale).*/
		return new BigDecimal(input).setScale(2);
}
catch(NumberFormatException e) {
throw new DbException(input + " is not a valid decimal number.");
}
}

/**
 * called when the user wants to exit the application. It prints a message and returns
 * {@code true} to terminate the app.
 */
 private boolean exitMenu() {
		System.out.println("Exiting the menu.");
		return true;
}

 /**
  * This method prints available selections. it then gets the user's
```

```
 *  menu selection from the console and converts it to an int.
 * @return
 */
private int getUserSelection() {
	// TODO Auto-generated method stub
	printOperations();
	Integer input = getIntInput("Enter a menu selection");
	return Objects.isNull(input) ? -1 : input;
}
/**
 * prints a prompt on the console and then gets the user's input from the console.
 * If the user enters nothing, {@code null} is returned. Otherwise, the trimmed input is returned.
 *
 * @param prompt the prompt to print
 * @return the user's input or {@code null}
 */
private String getStringInput(String prompt) {
	// TODO Auto-generated method stub
	System.out.print(prompt + " : ");
	String input = scanner.nextLine();
	return input.isBlank()? null : input.trim();
}
/**
 * print the menu selections, one per line.
 */
private void printOperations() {
	//The printOperations method does what it says.
	System.out.println("\n  you have successfull created menu project.These are the available selections.Press the Enter key to quit:");
```

```
 /* with lambda expression */
            operations.forEach(line -> System.out.println("  " + line));

            /* with enhanced for loop*/
            // for (String line: operations) {
            // System.out.println(" " + line);
            //}
}
 }

package projects.dao;

import java.math.BigDecimal;
import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.sql.Statement;
import projects.Project;
import projects.exception.DbException;
import provided.util.DaoBase;

/**
 * This class uses JDBC to perform CRUD operationson the project tables.
 * @author zbekele
 *
 */
// HOST, PASSWORD, PORT, SCHEMA, and USER.
@SuppressWarnings("unused")
```

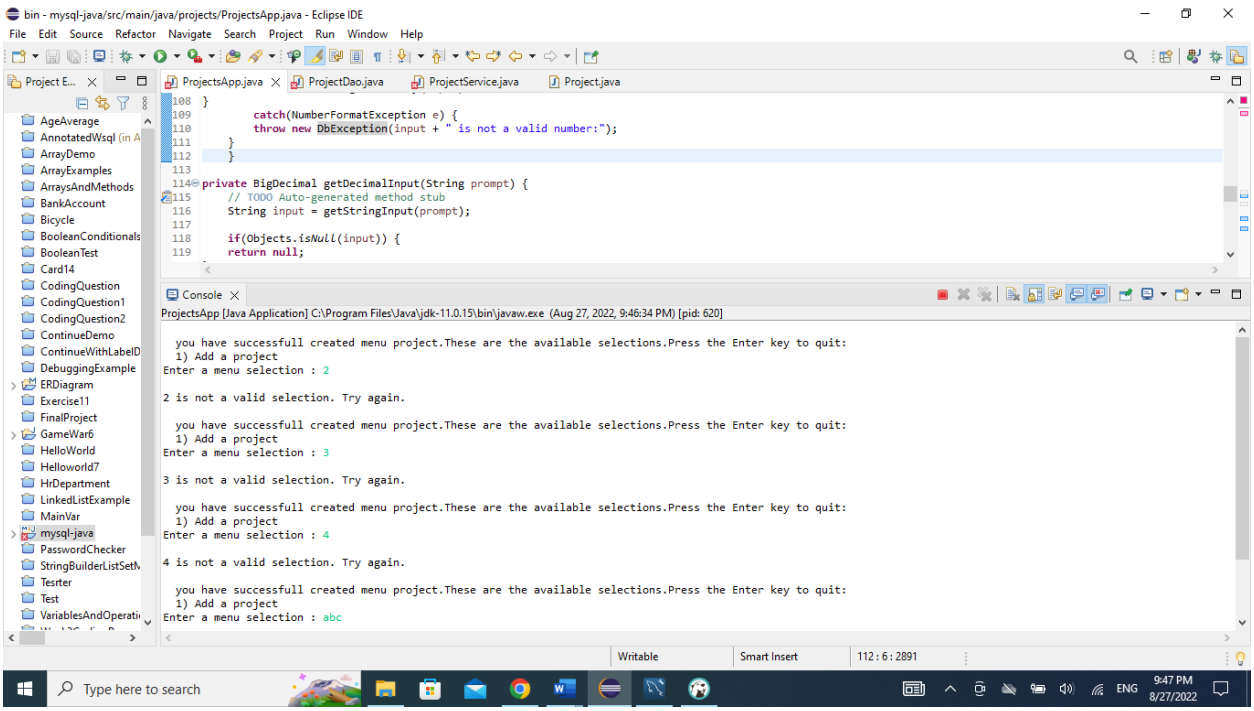
```
public class ProjectDao  extends DaoBase {

	private static final String CATEGORY_TABLE = "category";
	private static final String MATERIAL_TABLE= "material";
	private static final String PROJECT_TABLE="project";
	private static final String PROJECT_CATEGORY_TABLE= "project_category";
	private static final String STEP_TABLE = "step";
	private static final String conn = null;



public static Project insertProject(Project project) {

	// @formatter:off
	String sql = ""
		+ "INSERT INTO" + PROJECT_TABLE + " "
		+ "(project_name, estimated_hours, actual_hours, difficulty, notes)"
		+ "values"
		+ "(?,?,?,?,?)";
	// @formatter:on



Statement DbConnection;
try(Connection conn = DbConnection.getConnection()) {
	startTransaction(conn);

	try(PreparedStatement stmt = conn.prepareStatement(sql)) {
	setParameter(stmt, 1, project.getProjectName().String.class);
	setParameter(stmt, 2, project.getEstimatedHours(),BigDecimal.class);
	setParameter(stmt, 3, project.getActualHours(),BigDecimal.class);
```

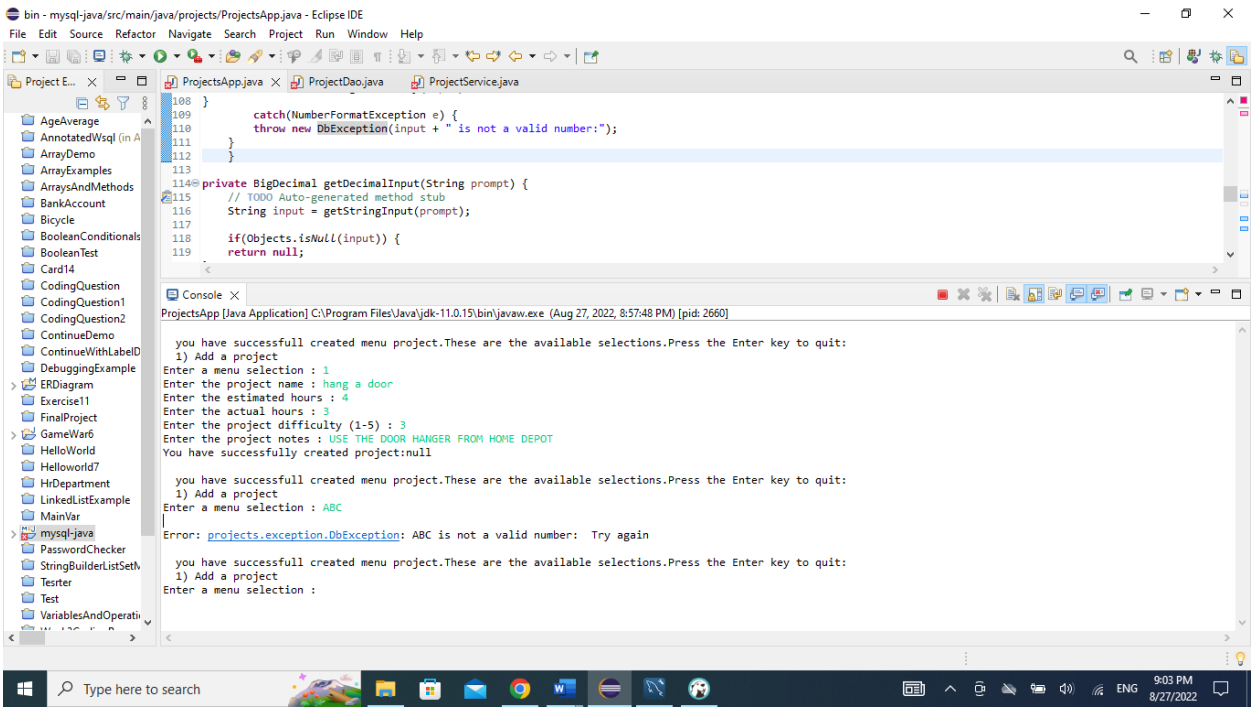
```
		setParameter(stmt, 4, project.getDifficulty(),Integer.class);
		setParameter(stmt, 5, project.getNotes(),String.class);


		stmt.executeUpdate();



		}
			catch(Exception e) {
			rollbackTransaction(conn);
			throw new DbException(e);
		}
		}
		catch(SQLException e) {
			throw new DbException(e);


		}
}



private static void setParameter(PreparedStatement stmt, int i, Object estimatedHours,
Class<BigDecimal> class1) {
		// TODO Auto-generated method stub


}



private static void startTransaction(Connection conn) {
		// TODO Auto-generated method stub
}
```

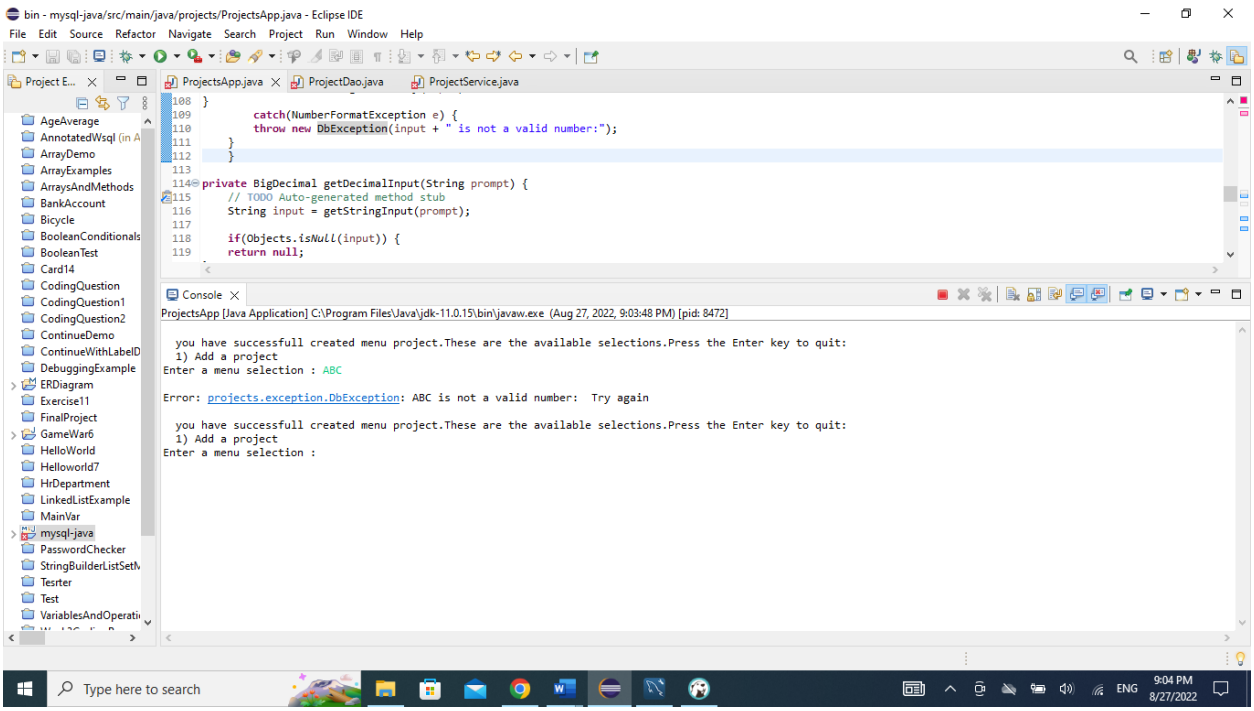
```
private static void rollbackTransaction(Connection conn) {
	// TODO Auto-generated method stub
}

	Integer project_ID = getLastInsertId(conn, PROJECT_TABLE);
	ProjectDao(conn);

	project.setproject_ID(project_ID);
	return project;

	}

	private Integer getLastInsertId(String conn2, String projectTable) {
		// TODO Auto-generated method stub
		return null;
	}
}

package projects.service;
import projects.Project;
import projects.dao.ProjectDao;

/**
 *
 * @author zbekele
 *
 */

public class ProjectService {
```

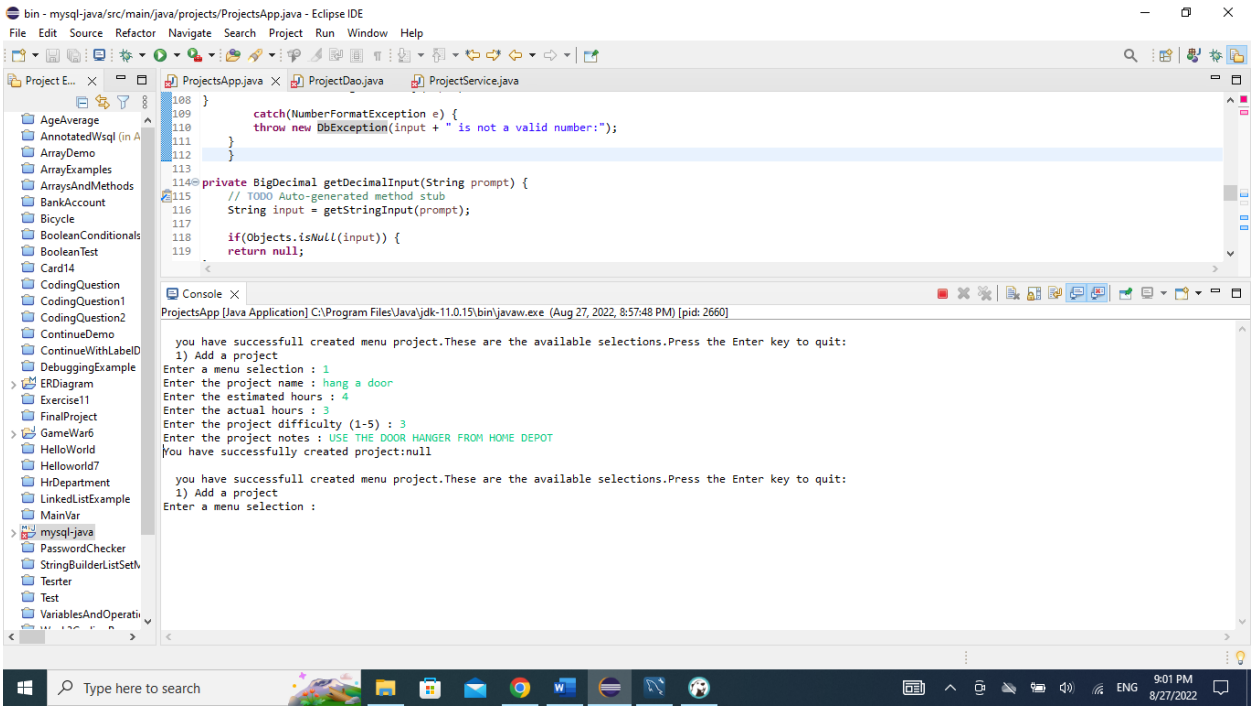
```
 private ProjectDao projectDao = new ProjectDao();


 /**
  * @param project The {@link Project} object.
  * @return the project object with newly generated primary key value.
  */
public Project addProject(Project project) {
 return ProjectDao.insertProject(project);
}

}
```

2. Include the required screenshots in your Coding Assignment Document


bin - mysql-java/src/main/java/projects/ProjectsApp.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
ProjectsApp.java
ProjectDao.java
ProjectService.java
Project.java
catch(NumberFormatException e) {
throw new DbException(input + " is not a valid number:");
}
}
private BigDecimal getDecimalInput(String prompt) {
// TODO Auto-generated method stub
String input = getStringInput(prompt);
if(Objects.isNull(input)) {
return null;
Console
ProjectsApp [Java Application] C:\Program Files\Java\jdk-11.0.15\bin\javaw.exe (Aug 27, 2022, 9:46:34 PM) [pid: 620]
you have successfull created menu project.These are the available selections.Press the Enter key to quit:
1) Add a project
Enter a menu selection : 2
2 is not a valid selection. Try again.
you have successfull created menu project.These are the available selections.Press the Enter key to quit:
1) Add a project
Enter a menu selection : 3
3 is not a valid selection. Try again.
you have successfull created menu project.These are the available selections.Press the Enter key to quit:
1) Add a project
Enter a menu selection : 4
4 is not a valid selection. Try again.
you have successfull created menu project.These are the available selections.Press the Enter key to quit:
1) Add a project
Enter a menu selection : abc
Writable
Smart Insert
112 : 6 : 2891
Type here to search
ENG
9:47 PM
8/27/2022


bin - mysql-java/src/main/java/projects/ProjectsApp.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
ProjectsApp.java
ProjectDao.java
ProjectService.java
catch(NumberFormatException e) {
throw new DbException(input + " is not a valid number:");
}
}
private BigDecimal getDecimalInput(String prompt) {
// TODO Auto-generated method stub
String input = getStringInput(prompt);
if(Objects.isNull(input)) {
return null;
Console
ProjectsApp [Java Application] C:\Program Files\Java\jdk-11.0.15\bin\javaw.exe (Aug 27, 2022, 8:57:48 PM) [pid: 2660]
you have successfull created menu project.These are the available selections.Press the Enter key to quit:
1) Add a project
Enter a menu selection : 1
Enter the project name : hang a door
Enter the estimated hours : 4
Enter the actual hours : 3
Enter the project difficulty (1-5) : 3
Enter the project notes : USE THE DOOR HANGER FROM HOME DEPOT
You have successfully created project:null
you have successfull created menu project.These are the available selections.Press the Enter key to quit:
1) Add a project
Enter a menu selection : ABC
Error: projects.exception.DbException: ABC is not a valid number: Try again
you have successfull created menu project.These are the available selections.Press the Enter key to quit:
1) Add a project
Enter a menu selection :
Type here to search
ENG
9:03 PM
8/27/2022





3. Add the URL for the GitHub repo in your Coding assignment Document

[Upload files · Zbekele2022/Week-9-mySql--Java (github.com)]

4. Upload a PDF of your Coding Assignment Document to that same GitHub repo.

5. Submit the PDF of your Coding Assignment Document to the Submission title in the LMS.