

# Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE (CS)

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## 2024\_28\_III\_OOPS Using Java Lab

### REC\_2028\_OOPS using Java\_Week 11

Attempt : 1

Total Mark : 20

Marks Obtained : 0

#### **Section 1 : Project**

##### **1. Problem Statement**

In Café Central, the menu is cataloged and stored in a database.

To efficiently manage the restaurant's menu using Java and JDBC, you must build a Restaurant Management System that supports:

Adding new menu items

Updating menu item prices

Viewing details of a menu item

Displaying all menu items in sorted order

You are given two files:

File 1: MenuItem.java (POJO Class)

This class represents the MenuItem entity.

A MenuItem contains the following details:

Field Description

itemId Unique Menu Item ID (Integer)

name Item Name (String)

category Item Category (String)

price Item Price (Double)

Students must write code in the marked area:

```
class MenuItem {  
    private int itemId;  
    private String name;  
    private String category;  
    private double price;  
  
    public MenuItem() {}  
  
    public MenuItem(int itemId, String name, String category, double price) {  
        // write your code here  
    }  
  
    // Include getters and setters  
}
```

Expected in this part:

Assign parameter values to instance variables inside the constructor.

Add getters and setters for all attributes.

File 2: MenuItemDAO.java (Data Access Layer)

This class handles all database operations using JDBC.

Students must complete the missing JDBC logic in the following methods:

```
class MenuItemDAO {
```

```
    public void addMenuItem(Connection conn, MenuItem menuItem)  
throws SQLException {
```

```
        // write your code here
```

```
}
```

```
    public void updateItemPrice(Connection conn, int itemId, double  
newPrice) throws SQLException {
```

```
        // write your code here
```

```
}
```

```
    public void deleteMenuItem(Connection conn, int itemId) throws  
SQLException {
```

```
        // write your code here
```

```
}
```

```
    public MenuItem viewItemDetails(Connection conn, int itemId) throws  
SQLException {
```

```
        // write your code here
```

```
}
```

```
    public List<MenuItem> displayAllMenuItems(Connection conn) throws  
SQLException {
```

```
        // write your code here
```

```
}
```

```
    private MenuItem mapToMenuItem(ResultSet rs) throws SQLException {
```

```
        return new MenuItem(
```

```
        // write your code here  
    );  
}  
}
```

Expected in this part:

Write SQL queries for INSERT, UPDATE, DELETE, SELECT.

Execute queries using PreparedStatement or Statement.

Map ResultSet rows to MenuItem objects using mapToMenuItem().

Return a List<MenuItem> where required.

The system should connect to a MySQL database using the following default credentials:

DB URL: jdbc:mysql://localhost/ri\_db

USER: test

PWD: test123

The menu table has already been created with the following structure:

Table Name: menu

#### ***Input Format***

The first line of input consists of an integer choice, representing the operation to be performed (1 for Add Item, 2 for Restock item, 3 for reduce item, 4 for Display, 5 for Exit).

For choice 1 (Add Menu Item):

- The second line consists of an integer item\_id.
- The third line consists of a string name.
- The fourth line consists of a string category.
- The fifth line consists of a double price.

For choice 2 (Update Item Price):

- The second line consists of an integer item\_id.
- The third line consists of a double new\_price.

For choice 3 (View Item Details):

- The second line consists of an integer item\_id.

For choice 4 (Display All Menu Items):

- No additional inputs are required.

For choice 5 (Exit):

- No additional inputs are required.

#### ***Output Format***

For choice 1 (Add Menu Item):

- Print "Menu item added successfully" if the item was added.
- Print "Failed to add item." if the insertion failed.

For choice 2 (Update Item Price):

- Print "Item price updated successfully" if the price update was successful.
- Print "Item not found." if the specified item ID does not exist.

For choice 3 (View Item Details):

- Display the item details in the format:
- ID: [item\_id] | Name: [name] | Category: [category] | Price: [price]
- Print "Item not found." if the specified item ID does not exist.

For choice 4 (Display All Menu Items):

- Display each item on a new line in the format:
- ID | Name | Category | Price
- If no items are available, print nothing (or handle with an appropriate message if desired).

For choice 5 (Exit):

- Print "Exiting Restaurant Management System."

For invalid input:

- Print "Invalid choice. Please try again."

### **Sample Test Case**

Input: 1

11

Margherita Pizza

Main Course

12.99

4

5

Output: Menu item added successfully

ID | Name | Category | Price

11 | Margherita Pizza | Main Course | 12.99

Exiting Restaurant Management System.

### **Answer**

-

**Status :** Skipped

**Marks :** 0/10

## **2. Problem Statement**

Create a JDBC-based School Management System that handles runtime input to manage student records. The system should allow users to:

Add a new student (student ID, name, grade level, GPA).

Update a student's GPA, ensuring the GPA value is within the valid range (0.0 - 4.0).

View a specific student's record by student ID.

Display all students in the database.

Exit the application.

The system should connect to a MySQL database using the following

default credentials:

DB URL: jdbc:mysql://localhost/ri\_db

USER: test

PWD: test123

The students table has already been created with the following structure:

Table Name: students

#### *Input Format*

The first line of input consists of an integer choice, representing the operation to be performed:

(1 for Add Student, 2 for Update GPA, 3 for View Student Record, 4 for Display All Students, 5 for Exit)

For choice 1 (Add Student):

- The second line consists of an integer student\_id.
- The third line consists of a string name.
- The fourth line consists of a string grade\_level.
- The fifth line consists of a double gpa (must be between 0.0 and 4.0).

For choice 2 (Update GPA):

- The second line consists of an integer student\_id.
- The third line consists of a double new\_gpa (must be between 0.0 and 4.0).

For choice 3 (View Student Record):

- The second line consists of an integer student\_id.

For choice 4 (Display All Students):

- No additional inputs are required.

For choice 5 (Exit):

- No additional inputs are required.

#### ***Output Format***

The output displays:

For choice 1 (Add Student):

- Print "Student added successfully" if the student was added.
- Print "Failed to add student." if the insertion failed.

For choice 2 (Update GPA):

- Print "GPA updated successfully" if the GPA update was successful.
- Print "Student not found." if the specified student ID does not exist.
- Print "GPA must be between 0.0 and 4.0." if the provided GPA is out of the valid range.

For choice 3 (View Student Record):

- Display the student details in the format:
  - ID: [student\_id] | Name: [name] | Grade Level: [grade\_level] | GPA: [gpa]
- Print "Student not found." if the specified student ID does not exist.

For choice 4 (Display All Students):

- Display each student on a new line in the format:
  - ID | Name | Grade Level | GPA
- If there are no records, print nothing (or handle with an appropriate message if desired).

For choice 5 (Exit):

- Print "Exiting School Management System."

For invalid input:

- Print "Invalid choice. Please try again."

#### ***Sample Test Case***

Input: 1

101

Alice Johnson

10  
3.8  
5

Output: Student added successfully  
Exiting School Management System.

**Answer**

-

**Status :** Skipped

**Marks :** 0/10