

## **Project 2**

Select Project 2A or 2B, or define your own. However, make sure it is comparable to 2A and 2B. Consult with me if you want to define your own project.

### **Requirements**

- (Weight: 20%) Write SQL statements that create the tables according to the given ER diagram. Your code should include constraints that enforce primary key, foreign key, and deletion rule constraints.
- (Weight: 5%) Write SQL statements that populate the tables according to the data mentioned in the description or your own made up data.
- (Weight: 15%) Design the interactive graphical user interface screens.
- (Weight: 60%) Implement the required functionality with Java code. Show error messages when they happen with the JOptionPane component.

### **Note**

- Feel free to assume other information that you feel is necessary for your solution as long as it is relevant to the problem.

## Project 1A – Advertisements Manager

Assume you are in charge of implementing the database of an advertisements manager application. Your job is to create and populate the database as well as implement the database driven application.

**ER Diagram:** Figure 1 shows the ER diagram of the application. The details of the entities are as follows:

- **Categories:** Categories allow you to classify the advertisements. Here is sample data for the categories table:

Category_ID	Name
CAT	Cars and Trucks
HOU	Housing
ELC	Electronics
CCA	Child Care

- **Statuses:** This table contains the possible values for an advertisement status. Here is sample data for the Statuses table:

Status_ID	Name
PN	Pending
AC	Active
DI	Disapproved

- **Users:** This table contains information about all users of the system including the moderators:

User_ID	UserFirst_Name	UserLast_Name
Jsmith	John	Smith
ajackson	Ann	Jackson
rkale	Rania	Kale
Sali	Samir	Ali

- **Moderators:** This table contains information about all moderators of the system

User_ID
Jsmith
ajackson

- **Advertisements:** This table contains advertisements information:

AdvTitle	AdvDetails	AdvDateTime	Price	Category_ID	User_ID	Moderator_ID	Status_ID
2010 Sedan Subaru	2010 sedan car in great shape for sale	2017-02-10	6000	CAT	rkale	jsmith	AC
Nice Office Desk	Nice office desk for sale	2017-02-15	50.25	HOU	rkale	jsmith	AC
Smart LG TV for \$200 ONLY	Smart LG TV 52 inches! Really cheap!	2017-03-15	200	ELC	sali	jsmith	AC
HD Tablet for \$25 only	Amazon Fire Tablet HD	2017-03-20	25	ELC	rkale	null	PN
Laptop for \$100	Amazing HP laptop for \$100	2017-03-20	100	ELC	rkale	null	PN

**User Interface:** When the application first runs, the system brings up the Login screen (Figure 2). The user can log in as a user or a moderator. If the user logs in as a user, the system verifies that the username is valid, and brings up the user screen (Figure 3). Initially the advertisements tab is chosen. The advertisements tab has a grid that shows information about all the currently active advertisements. The pending or disapproved ones aren't shown. The user can use the filters at the top to narrow down the advertisements they are looking for. The Categories combo box contains all the categories in the system besides "All". The Period combo box contains these values: Last 3 months, last 6 months, last 12 months, and life.

The "my advertisements" tab shows the advertisements created by the current user (Figure 4). To edit an ad, the user can select an ad, edit the information, and then hit edit to persist the edited information. The user can select an ad, and hit delete to delete the ad.

If the user presses the "Add advertisement" button, the system brings up the screen in Figure 5. After the user fills out the information and hits the "Add Advertisement" button, the system adds the ad to the database.

If the user signs in as a moderator, the system verifies that the moderator ID is valid, and brings up the moderator screen (Figure 6). Initially the system shows the unclaimed advertisements meaning the ads that don't have a moderator yet. The moderator can select an ad and then claim it. The "my advertisements" tab (Figure 7) shows the advertisements that are moderated by the current moderator. The moderator can select an ad, and decide what to do about it (either approve or disapprove it).

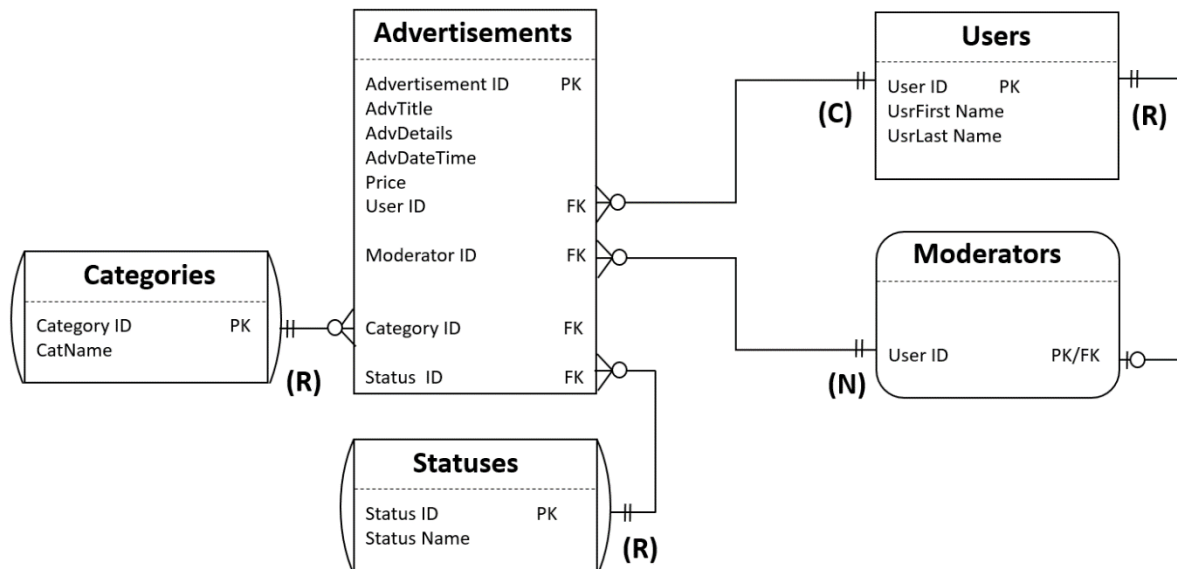


Figure 1: Advertisements Manager ER Diagram

The Login Screen is a window titled "Login" with a standard Windows-style title bar (minimize, maximize, close buttons). The interface is light gray and contains the following elements:

- Username:** A text input field.
- Type:** A dropdown menu currently showing "User".
- Login:** A blue button with white text.

Figure 2: Login Screen

Username: rkale

Add Advertisement

Advertisements My Advertisements

Category: All Period: Last 3 Months Title, Description: Go

Title	Description	Price	Date
2010 Sedan Subaru	2010 sedan car in...	6000.0	02/10/2017
Nice Office Desk	Nice office desk fo...	50.25	02/15/2017
Smart LG TV for \$...	Smart LG TV 52 in...	200.0	03/15/2017

Figure 3: User Application Screen (the all advertisements tab)

Username: rkale

Add Advertisement

Advertisements My Advertisements

Edit Delete

ID	Title	Description	Price	Status	Date
1	2010 Seda...	2010 seda...	6000.0	Active	02/10/2017
2	Nice Office ...	Nice office ...	50.25	Active	02/15/2017
4	HD Tablet f...	Amazon Fir...	25.0	Pending	03/20/2017
5	Laptop for ...	Amazing H...	100.0	Pending	03/20/2017

Figure 4: User Application Screen (the my advertisements tab)

Title:

Details:

Category: All ▼

Price:

Figure 5: The "Add Advertisement" screen

Moderator: jsmith

Unclaimed Advertisements My Advertisements

Category All ▼ Period Last 3 Months ▼ Title, Description:

ID	Title	Description	Price	Date	Username
4	HD Tablet for...	Amazon Fire ...	25.0	03/20/2017	rkale
5	Laptop for \$1...	Amazing HP I...	100.0	03/20/2017	rkale

Figure 6: Moderator Screen (Unclaimed advertisements)

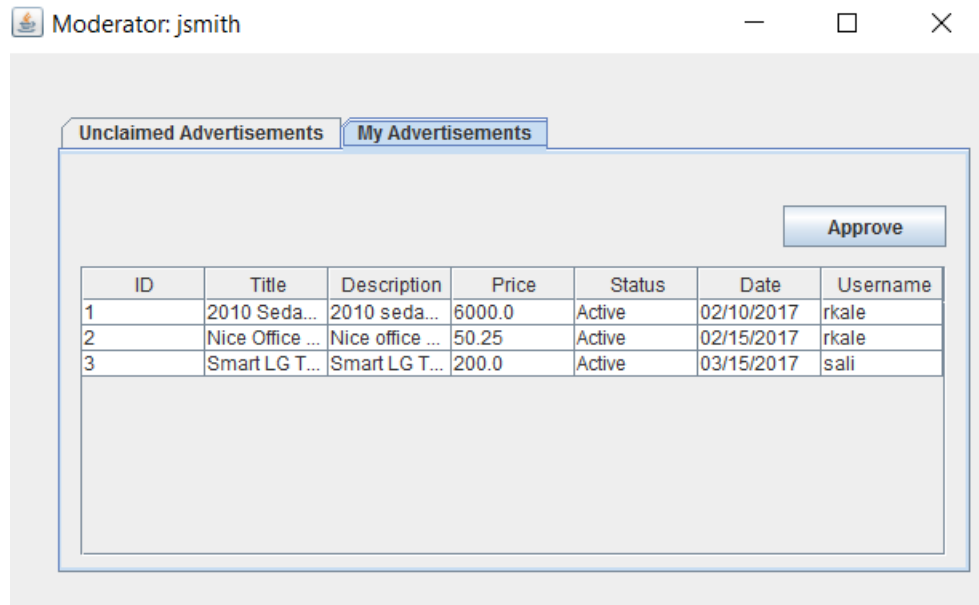


Figure 7: Moderator Screen (My Advertisements)

## Project 2B – Open Project - Meeting Organizer

You are in charge of implementing a meeting organizer application. The system should allow the employees to arrange meetings at specific rooms. The meeting organizer can invite other employees to the meeting. The invitees can accept or decline the meeting. The details of this project are left to the students, but the database should be implemented based on the following ER diagram.

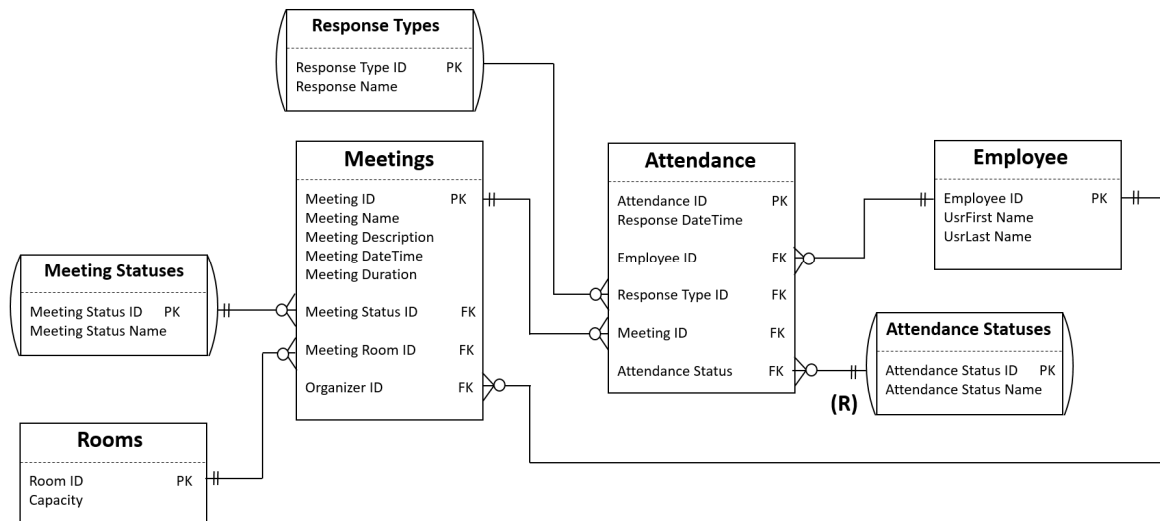


Figure 8: ER diagram of the meeting organizer application.