

CENG211 – Programming Fundamentals

Homework #4

In this homework you are expected to implement an “Customer Complaint App” in Java. You should fulfill the concepts of:

- Object Oriented Design
- UML Class Diagrams
- UML Sequence Diagrams
- UML Statechart Diagrams

In the Customer Complaint Application, you are expected to create an app which customers can add their complaints, and producers can monetarize and change the state of complaints. In the app, mentioned data will be stored in csv files. CSV files should be as below:

- **User.csv:**
UserID, Username, Password, DisplayedName, UserType
 - **Product.csv:**
ProductID, ProducerID, ProductName, ProductType
 - **Complaint.csv:**
ComplaintID, CustomerID, ProducerID, ProductID,
ComplaintTitle, Complaint, Status
-
- User.csv will include IDs of users, usernames, passwords, names of the users that are displayed in the application, and type of users. Type can be *Customer*, *Producer*, and *Admin*.
i.e.: 15, johndoe, password!127, John Doe, customer
i.e.: 8, lenovocom, pass454word, Lenovo, producer
 - Product.csv will include IDs of products, producers ID, names of the products, and types of the products.
i.e.: 23, 8, Computer, Electronic
 - Complaint.csv will include IDs of complaints, IDs of customers, IDs of producers, IDs of products, titles of the complaints, complaints themselves, and status of the complaints. Status can be *New*, *Seen*, *Working*, *Fixed*, *Deleted*
i.e.: 12, 15, 8, 23, fan noise, extreme rattling noise coming from the fan, working

Working of the app:

Firstly, the app should introduce a login or sign-up selection. Users should be able to login the system with their credentials or sign-up if they have not any registration. Users can sign-up as customer or producer; they cannot select to be an admin. (Define an admin user in your csv file with username: admin, password: password)

If the user is a customer, customers can add a complaint or see their previous complaints if there any.

If they choose to add a complaint, the steps should be as follow:

- Choose a producer from the producer list
- Choose a product type from the product type list
- Choose a product from the product list
- Add a complaint title and a complaint

If they choose to see their previous complaints, the steps should be as follow:

- Choose a complaint from the complaint list
- See the complaint and delete it if it is intended (deletion is not mandatory, customer may want to check the content of the complaint)

Notes:

- A complaint should be added with the status *New*.
- A complaint can be deleted if the status of the complaint is not *Fixed*.
- Deletion of the complaint should not be a deletion from the csv file, it should be a status change as *Deleted*.
- In the complaint list, content of the complaints should not be shown. In the list, displayed areas should be: Complaint ID, Producer name, Product, Complaint title, Complaint status. The complaints that have a status *Deleted* should not be displayed. Details of a complaint can be seen if the complaint is selected.

If the user is a producer, producers can add new product with related product type or see the complaints that are related to them.

If they choose to add a product, the steps should be as follow:

- Choose a product type if intended product type is in the product type list; if it is not in the list, add a new one
- Add a new product

If they choose to see the complaints that are related to them, the steps should be as follow:

- Choose a complaint from the complaint list
- If a complaint is opened, the status of the complaint should be changed to *Seen* automatically (If the status is *New*)

- Change the status of the complaint as *Working* or *Fixed* if it is intended (change is not mandatory, producer may want to check the content of the complaint)

Notes:

- The status of a complaint cannot be changed to *Seen*.
- Producers cannot delete a complaint.
- In the complaint list, content of the complaints should not be shown. In the list, displayed areas should be: Complaint ID, Customer name, Product, Complaint title, Complaint status. The complaints that have a status *Deleted* should not be displayed. Details of a complaint can be seen if the complaint is selected.

If the user is an admin, admins can see all the complaints in the system. They can change the status of the complaints as they want. Therefore, when they enter the system, all the complaints should be listed directly.

If they choose to see a complaint from the list, the steps should be as follow:

- Choose a complaint from the complaint list
- See the complaint and change the status of it if it is intended (change is not mandatory, admin may want to check the content of the complaint)

Notes:

- In the complaint list, content of the complaints should not be shown. In the list, displayed areas should be: Complaint ID, Customer name, Producer Name, Product, Complaint title, Complaint status. Even the complaints have a status *Deleted*, they should be displayed. Details of a complaint can be seen if the complaint is selected.

You are expected to satisfy object-oriented design guidelines.

You are expected to draw a **UML Class Diagram**, **UML Sequence Diagram**, and **UML Statechart Diagram** in the given scenario. For the UML Sequence Diagram, you should only draw *Adding A Complaint* part.

Please add your csv files and UML diagrams inside your project. To be tested easily, please fill your csv files with some entries by using your application.

Important Notes:

1. You are expected to write clean, readable, and tester-friendly code (e.g. make the selections with numbers). Please try to maximize reusability and prevent from redundancy in your methods.
2. You can use standard **java.io** packages to read files. Do NOT use other 3rd party libraries.
3. You should use relative paths (e.g. `Files/sample.csv`) instead of absolute paths (e.g. `C:\\user\\eclipse-workspace\\MyProject\\Files\\sample.csv`).
4. To support **Turkish characters** you may need to change your project's text file encoding to UTF8: Right click on your project (in package explorer) → Properties → Text file encoding → Other → UTF8 → Apply.

Assignment Rules:

1. In this lecture's homework, there are no cheating allowed. If any cheating has been detected, they will be graded as 0 and there will be no further discussion on this.
2. You are expected to submit your homework in groups. Therefore, only one of you will be sufficient to submit your homework.
3. Make sure you export your homework as an Eclipse project. You can use other IDEs as well, however, you must test if it supported by Eclipse.
4. Submit your homework through LMS.
5. Export your Java Project with your assigned group ID (which will be announced on LMS) as the given format below:

G05_CENG211_HW1.zip

6. Please be informed that your submissions may be anonymously used in software testing and maintenance research studies. Your names and student IDs will be replaced with non-identifying strings. If you do not want your submissions to be used in research studies, please inform the instructor (Dr. Tuglular) via e-mail.