

Scenario 1: Task: Importing Data from Text Files

Task: Implementing ImportData Feature

Objective:

Your task is to add a new feature called `DataLogging` to the DARTPlus system, specifically implementing the `ImportData` functionality. This feature will enable the system to read data from the text file `dartData.txt` containing information about employees, songs, games, and customers, and register them accordingly. Please note that employees and customers have dedicated array lists (employees and customers), whereas rentable items (songs and games) can be added to the same array list (i.e., items).

Integration Steps:

1. Feature Addition:

- Open the feature model of the DARTPlus system.
- Add a new feature called `DataLogging` to the feature model.
- Create two sub-features under `DataLogging` named `ImportData` and `ExportData`.

2. Code Implementation:

- Navigate to the `Manager` class in the `Persons` directory in the DARTPlus source code.
- Implement a method named `readFile()` within the `Manager` class.
- Design the method to read data from a txt file (called `dartData.txt`) and parse each line to extract relevant information about employees, songs, games, and customers.
- Register the Employees in array list **employees**, Songs and Games in **Items**, and Customers in the **customers**.

Help:

For file reading, you can use `BufferedReader`:

```
File dartData = new File("dartData.txt");
FileReader fr = new FileReader(dartData);
BufferedReader br = new BufferedReader(fr);
String line;
while((line = br.readLine()) != null) {
    String[] dartInfo = line.split(";");// parse data
    //register employees, songs, and games based on the first word of
    the line (employee, game, song)
    //For registering, use methods this.registerEmployee(),
    items.add(game or song), and customers.add()
}
```

A sample of `dartData.txt` would look like this:

```
Employee;Dwight Schrute;1989;Abc Street;2000;2500
Song;Wakka Wakka;Shakira;2;2020
Game;Mario Bros;Platform;3;2018
Customer;Creed Bratton;abc123
Employee;Michael Scott; 1990;Def Street;2100;2700
Song;Shape of You;Ed Sheeran;4; 2017
Game;The Legend of Zelda;Adventure;5;2017
Customer;Angela Martin;password123
Employee;Pam Beesly;1992;Ghi Street;2200;2800
Song;Despacito;Luis Fonsi; 6;2017
Game;Red Dead Redemption 2;Action-Adventure;7;2018
Employee;Jim Halpert;1995;Jkl Street;2300;2900
Customer;Kevin Malone;theoffice
Song;Old Town Road;Lil Nas X;8;2019
Game;The Witcher 3: Wild Hunt;RPG;9;2015
Employee;Stanley Hudson;1998;Mno Street;2400;3000
Song;Uptown Funk;Mark Ronson;10;2014
Customer;Kelly Kapoor;qwerty
Game;Overwatch;First-Person Shooter;11;2016
```

3. Menu Option Addition:

- Navigate the Controller class.
- Add a menu option for data importing in the manager's menu options within the Controller Class. For that, go to the `managerLoggedIn()` method in the `Controller` class, and add a print statement adding a new option (`System.out.println("\b. Import data from text file");`)
- Add a `Line Annotation` at the end of that line for the `ImportData` feature.
- Lastly, put a new case in the body of the `managerLoggedIn()` method that calls the `readFile` method().

4. Annotation:

- Annotate the implemented code with `begin` and `end` annotations to map the `ImportData` feature with the implemented functionality using the HANs tool.

Expected Outcome: By completing this task, you will enable the DARTPlus system to import data from the text file, enhancing its functionality and data management capabilities. Remember to annotate the code appropriately to maintain consistency between the feature model and codebase.

Scenario 2: Task: *Allowing Customers to also Rent Movies*

Objective:

Clone the `Song` class to create a `Movie` class in the DARTPlus system. Add a feature-to-file mapping for `RentItem` to `Movie.java` and implement the functionality of renting movies. Details written below.

Tasks:

1. Clone `Song` Class:

- Locate the `Song` class in the DARTPlus codebase.
- Clone the `Song` class to create a new class called `Movie` (in the same folder, i.e., `Items`).
- Within the `Movie` class, change what's necessary to allow movie rentals (e.g., replace `artist` by `director`).

2. Create Feature-to-File Mapping:

- Add a new `.feature-to-file` file in the `Items` directory of the DARTPlus system.
- Inside the `feature-to-file` file, add a feature for `RentItem` to include `Movie.java`, `Song.java` and `Game.java`.

3. Implement Movie Renting Functionality:

- Add a menu option for renting `Item` (movie) in the `customerLoggedIn` options within the `Controller` Class.
- Ensure that the implementation aligns with the existing rental functionality for `Games` and `Songs`. In the `feature model` view, right-click on the `RentItem` feature, click `Find Usages`, and update the existing feature implementation to accommodate movie rentals.

Expected Outcome:

- Feature-to-file mapping updated to include `Movie.java` for the `RentItem` feature.
- Implementation of movie rental functionality within the `Movie` class, allowing users to rent movies.