Crave Programmer's Manual

This manual attempts to detail the functionality of the most important Java classes used to create our restaurant menu database application and final project, Crave. This manual does not go into detail about the helper functions and classes created for convenience in development, only the necessities.

Backend

The classes that handle the backend include a database access class that handles all communication with the database and a query managing class that generates queries dynamically based on the user input. They are detailed below.

- `DBAccess` – This class houses all of the functions that query or update the database through JDBC protocol. Functions include creating a connection, checking if a username exists, retrieving the password for a given username, and executing a search query generated by the query manager.
- `QueryManager` – This class abstracts the concepts of writing a query from a search criteria. Utilizing a master query, the query manager accepts a string of arguments derived from user input and peels away the parts of the query that are not applicable, returning a `Query` object that contains the SQL query as a string. This object is then used by the database access class.

User Interfaces

The classes that make up the graphical user interface are described below.

- `CraveGUI` – This class is the only exception within the user interface related classes that does not require the two aforementioned functions. Its purpose is to serve as the top level interface manager that directs the opening and closing of subsequently opened windows in the interface. As such, it maintains the references to important classes like "`DBAccess`" and "`QueryManager`" that allow communication with the database.
- `LoginWindow` – This class is the first interface of the application and allows a user to login or open the registration interface if they do not have a username. Will notify user of invalid credentials when necessary.

- `RegWindow` – This class is the window in which a new user can register themselves in the database. It takes the user's full name, a username, and a password and attempts to add it to the database. If the credentials do not meet length minimums or if the username is taken, there is an error prompt. The login window is again reached through successful registration or the back button.

- `SearchWindow` – This class is the main interface of the application, and is where user's select search criteria and see the results of their searches. One side of the window houses different forms of input to narrow the search and the other side is a text box that is populated with clickable results. Clicking a result opens a window about the restaurant that serves it, decribed below.

- `RestaurantWindow` – This class is the detail window that opens upon clicking a result dish of a recent search. This window contains the serving restaurant's name, address, and phone number, as well as a dropdown menu containing all of the other dishes in the database that this restaurant serves. At the bottom, there is an option to rate the dish currently highlighted by that dropdown menu.

The user interface classes all extend the JFrame class in Java's Swing package, each making up a different interface of our application. These windows, with the exception of the `CraveGUI` class, all share a similar composition with two main functions:

1. `addComponentsToPane()` – This function abstracts the process of adding and arranging all Swing components to the window. This includes the organization of all labels, buttons, text boxes, and the like into JPanels, which are then added to the top level content pane before being made visible.

2. `actionPerformed(ActionEvent e)` – This function is necessary as part of all classes that implement the "`ActionListener`" class in order to respond to button clicks to open new windows and execute searches.