

CS 2316

Homework 9b – Pizza

Due: Monday, April 8th, before 11:55 PM

Out of 100 points

Files to submit: 1. HW9b.py

This is a PAIR PROGRAMMING Assignment: Work with your partner!

For pair programming assignments, you and your partner should turn in identical assignments. List both partners names at the top. Your submission must not be substantially similar to another pairs' submission. Collaboration at a reasonable level will not result in substantially similar code. Students may only collaborate with fellow students currently taking CS 2316, the TA's and the lecturer. Collaboration means talking through problems, assisting with debugging, explaining a concept, etc. You should not exchange code or write code for others.

For Help:

- TA Helpdesk – Schedule posted on class website.
- Email TA's or use T-Square Forums

Notes:

- **Don't forget to include the required comments and collaboration statement (as outlined on the course syllabus).**
 - ***Do not wait until the last minute to do this assignment in case you run into problems.***
 - **Read the entire specifications document before starting this assignment.**
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Premise

This homework is part two of the previous GT Login assignment. You will add on to the login functionality that you built to create two more GUI pages that use a database to have the functionality of a simple online-ordering application.

Although this program does not require knowing much new information, it does test SQL query and insertion abilities as well as coding practices to create two more GUI pages that can be opened, closed, or updated at the click of a button. **This new information may take some understanding, so please do not wait until the last minute to begin this assignment.**

Database Format Information

The database for this part of the assignment only concerns a different table of orders, called PizzaOrders:

```
CREATE TABLE PizzaOrders
(OrderID      INTEGER      PRIMARY KEY AUTO_INCREMENT UNIQUE,
User          TEXT         NOT NULL,
Cheese        INTEGER      NOT NULL,
Pepperoni     INTEGER      NOT NULL,
Veggie        INTEGER      NOT NULL)
```

The code above was used to create the table. As can be seen, User and Order Details fields are NOT NULL, meaning you must insert something into each field. Note that the "User" field is the person's USERNAME (not the first or last name, which are stored in a different table).

Further Development

You will be writing on top of your already written Homework 9a. You and your partner may choose which of your HW part A code to use, but please use the same one. **Your old code is probably not perfect so feel free to update it if needed!**

The new code will create a "home" ordering page. On this page, users will be able to place an order. It will also create an Order History page and a Statistics page, if called upon by the respective buttons. These pages will be explained in detail later in the assignment description.



The screenshot shows a web browser window titled "GtPizza Homepage". The page content includes a welcome message "Welcome to GtPizza!". Below this, there are three columns of data for "Most Recent Order" and "New Order". The columns are labeled "Cheese:", "Pepperoni:", and "Veggie:". The "Most Recent Order" row shows values of 0 for each category. The "New Order" row shows input fields containing the value 0. At the bottom of the page, there are three buttons: "Statistics", "Place My Order", and "Logout".

| | Cheese: | Pepperoni: | Veggie: |
|--------------------|--------------------------------|--------------------------------|--------------------------------|
| Most Recent Order: | 0 | 0 | 0 |
| New Order: | <input type="text" value="0"/> | <input type="text" value="0"/> | <input type="text" value="0"/> |

Buttons: Statistics, Place My Order, Logout

Method Name: Homepage

This method is called to create a new homepage window. It should be called when you successfully login from the previous homework's login page. This method is responsible for arranging and initializing your GUI. You may generate this window however you wish, but it is *highly* suggested that you use the grid layout manager. Things to note about the GUI you see:

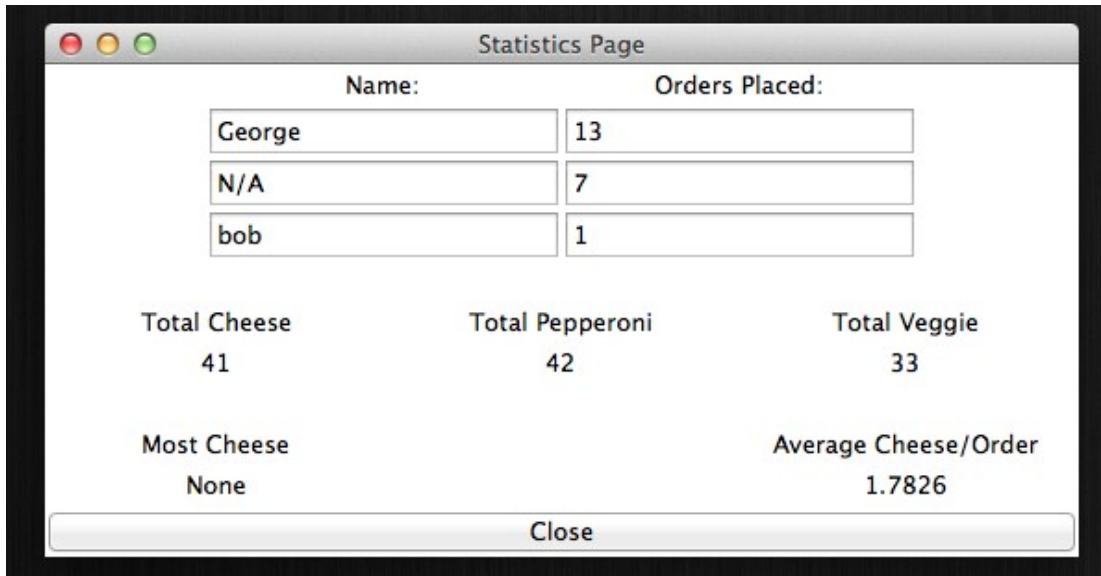
- The Homepage window has the title 'GtPizza Homepage'
- Centered is a label with sunken relief
- The values under Cheese, Pepperoni, and Veggie corresponding to the 'Most Recent Order' label are labels with text containing the last order the user placed. You will find this data by querying the database. Hint: You may find the 'OrderID' attribute helpful in finding the most recent order, and the SQL keyword 'LIMIT' useful in only extracting the most recent order.
- Each entry box corresponding to a new order is in the normal state with width 5. The boxes should be auto-populated with a '0' before the User changes them.
- The 'Statistics' and 'Place My Order' buttons call the StatPage and PlaceOrder functions respectively.
- The 'Logout' button closes the Homepage window and returns the user to the Login page. You may find it useful to utilize a helper function to carry out this functionality.

Method Name: PlaceOrder

This method is called by the 'Place My Order' button. This function will simply extract the number of pizzas of each type from the respective entry boxes and enter the order into the database. This function should check to make sure that not all values in the entry boxes are zero. If the order is not placed (for example, if all pizza entries are zero, or if the program is unable to connect to the database), display a messagebox telling the user that there was an error with their order. After successfully placing the order, this function should display a message saying that the order has been placed, reset all values in the entry boxes to 0, and update the most recent order labels on the Homepage.

Method Name: StatPage

This method will simply create a new GUI window for viewing the statistics page. **This will not close the Homepage window! This window opens in addition to the already open homepage.** The GUI should look something like this:



You may generate this window however you wish, but it is *highly* suggested that you use the grid layout manager. Things to note about this GUI:

- The title of this window is 'Statistics Page'
- There are three entry boxes (all set to readonly) under the Name and Orders Placed labels
- The three entry boxes will display the three users with the most total orders in the database. The 'Name' column will display the FIRST NAME of the respective user, if the value exists in the database. If the FirstName attribute is NULL, display 'N/A' as the user's name. The Orders Placed column will populate the entry box with the number of orders the user has placed.
- The Total Cheese, Total Pepperoni, and Total Veggie labels portray the total number of pizzas of each type that have been ordered. These values should be displayed as a label under the respective title.
- The Most Cheese value is the maximum number of cheese pizzas the user **currently logged in** has ordered in a single order. If the user has not placed any orders, display 'None'
- The Average Cheese/Order displays the average number of Cheese pizzas per order **for all users**
- The Close button exits the window. A helper function may be useful.

This method also contains the code to fill out the statistical information. The statistics obtained are from the three users who have placed the most orders. The user with the most orders appears at the top with the others following underneath. If two users have the same amount of orders, the users should be sorted alphabetically by username. The GROUP BY and ORDER BY mysql functions may be of use here, and remember that you can order by more than one field by separating the fields with a comma. In addition, to streamline query speed it may be useful to use the LIMIT mysql function to only gather the top 3 users. You may assume that at least 3 orders will be in the database. **This**

page does not need to be dynamically updated, but if you close it and then re-open it, new values should be calculated every time it is opened.

Grading:

You will earn points as follows for each piece of functionality that works correctly according to the specifications.

| | | |
|--|----|-----------|
| LoginPage GUI | | 5 |
| Login GUI works (as specified in previous HW) | 5 | |
| RegisterPage GUI | | 5 |
| Register Page works (as specified in previous HW) | 5 | |
| HomePage GUI | | 30 |
| GUI layout matches example exactly | 8 | |
| 'Most Recent Order' correct | 10 | |
| 'New Order' auto-populated with zeros | 2 | |
| Buttons all linked correctly | 5 | |
| Properly updates when 'Place My Order' button clicked | 5 | |
| StatPage GUI | | 40 |
| Does not close Chat/Opens separately | 5 | |
| GUI layout matches picture exactly | 5 | |
| Top users selected correctly | 5 | |
| Top users ordered correctly | 5 | |
| Displays 'Name' column correctly | 5 | |
| Displays correct totals | 5 | |
| Displays correct value for 'Most Cheese' | 5 | |
| Displays correct value for 'Average Cheese/Order' | 5 | |
| PlaceOrder() | | 5 |
| Properly inserts order into database | | |
| TopLevel/Window Management | | 15 |
| All buttons linked correctly and window management functions exactly as assignment describes | | |