Project Proposal
Self-Serve Dining System

CS157A
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Project Description

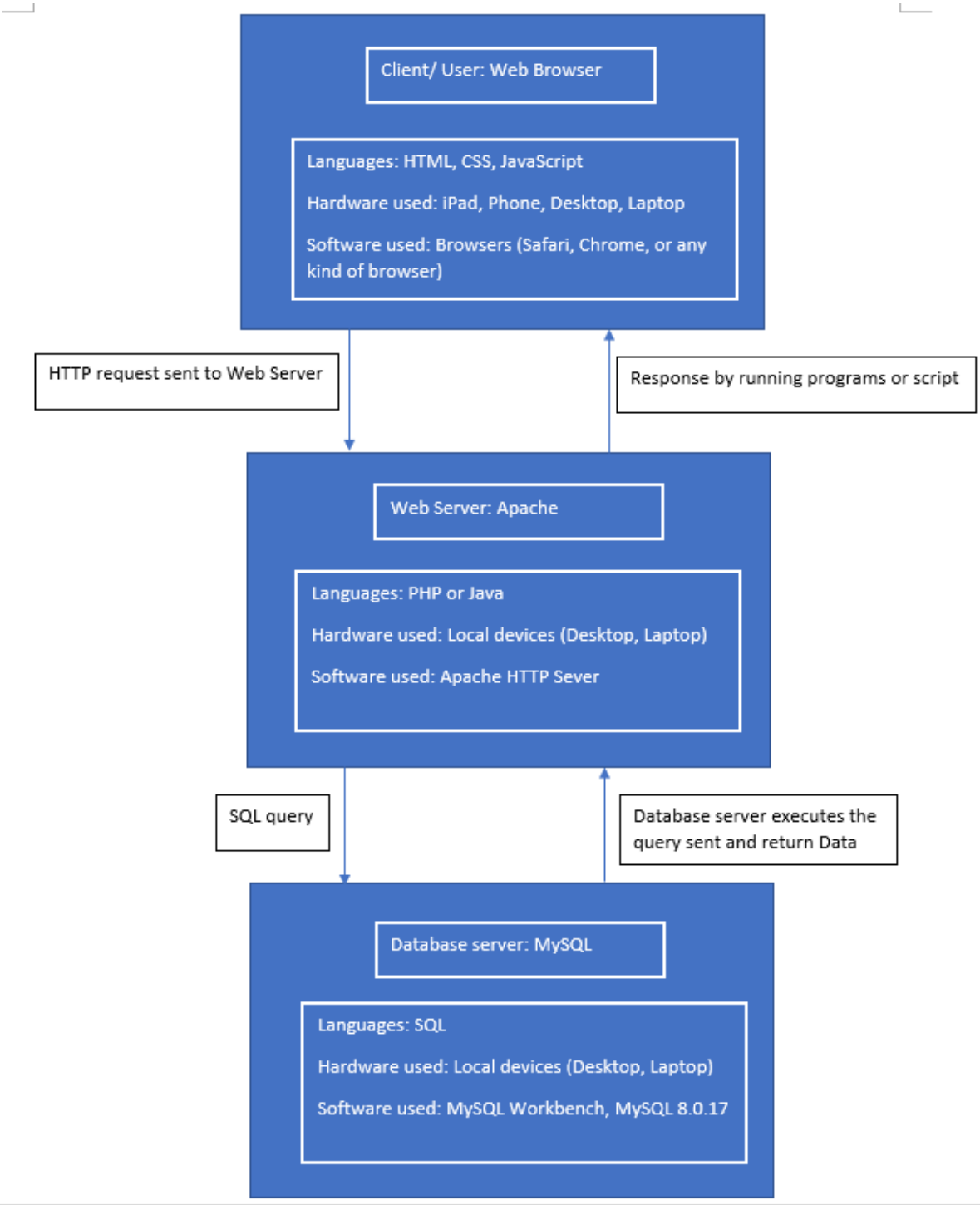
The primary objective of our Dining System is to accomplish self-ordering and checkout for customers in a restaurant. Therefore, there could be no waiters being involved during a meal in any restaurant by using our dining system. Once customers are in the restaurant, they can use a phone or any other device to log in to our Dining System. After that, a menu of all the food that is currently available to order will be displayed on the page, and customers can add or remove the dishes to the cart as needed. Once customers finish dining, they can also self-checking out on the Dining System before leaving. Another main deliverable of our project is the management function of the system. Owner/ manager can view the statistic of sales in the management side of the system. This will give them more information for ordering stock and making business decisions.

The use of self-serving devices will increase profits in the long-term since fewer workers will be needed to take orders and prepare checks for customers. There will still be a need for human workers, but rather than spending time taking customer orders, they can focus on improving customer experience, which will in turn, bring customers back into the restaurant more often. Customer satisfaction will be improved since workers can focus on keeping the restaurant clean, checking up on how customers are doing, and ensuring the quality of the food is up to standards. Not only will profits increase for investors, but the reputation of the company will be improved once people associate the company with quality experiences.

All member in the group is going to be the main internal stakeholder of the system. As member are involved in development process, all group member will affect the outcome of the project. Class instructor and teaching assistant are also stakeholders of the project. Their advice and feedback affect members development decision and thus they affect the outcome of the project.

System Environment

<u>Structure of the System</u>



Hardware Used

- Desktop/ Server
- Desktop

- Phone
- Tablet

Software Used

- Browsers
- MySQL Workbench
- Visual Studio Code

RDBMS

- MySQL 8.0.17

Application Languages

- JavaScript
- HTML
- CSS
- SQL

Functional Requirement

How users interact with the application:

The four main types of users of this application are customers, customer service staff, management staff, and kitchen staff. Each type of user will have varying degrees of access to the database. For instance, customers will be able to create their own orders and view the menu. Both actions require access to searching the database and adding data to it. Customers can change their order prior to completing their order and then submitting their order once finished. Unlike customers, kitchen staff will only be able to view orders in chronological order, they only need to fulfill the orders of the customers. The restaurant also has customer service staff to man the self-ordering kiosks. In order to provide adequate service to customers, service staff must be able to delete and alter orders that have not yet been completed. Since management work at the restaurant, they are considered internal stakeholders. There are also external stakeholders who do not deal with the day-to-day activities of the restaurant. Both groups are under the administrative category, allowing them greater access to the database, which include querying and manipulating the database.

This is because admins need to be able to view sale statistics and change the menu to reflect currently available ingredients, and sale items that produce the greatest profit with the lowest margins. At the same time, management should still be able to view and change orders.

Customers will have the option of being registered while the other types of users must be registered. This requirement ensures that each type of user will get certain levels of access to the

database. Both registered and unregistered users can create orders, but those who are unregistered will not be able to view past orders.

Functions:

1. Browse the current menu:

- When users press on the menu button, they are presented with the “appetizers”, “entrée”, “dessert”, and “drinks” buttons.

- Depending on which button they choose, the window will show the items belonging to that particular category. The items will be listed in alphabetical order and will contain a corresponding price and a “add to order” button.

2. Display top five bestselling items:

- On the main menu page, there is also a button that users can click on to view which are the best-selling items in the past month.

- The items on the list will exclude items that are not currently available on the menu.

- This option helps users who are unsure of what to order, and to give them an idea of what is popular at the restaurant.

3. Create an order and paying for an order:

- An order is created when a user begins adding items to their cart.

- Once the user is finished choosing the items they wish to order, they can choose to “complete” their order.

- The system then calculates the total, presents the subtotal and total cost of their order, before having the customer pay.

4. View orders in chronological order

- Once logged-in, kitchen staff can view orders that must be finished for customers.

- As orders are finished, they are removed from the list of current orders by the chef (an admin).

- The orders should be in an order that is based on the time that the order was paid for by the customer.

5. Change the menu (adding/deleting/edit menu items)

- Staff can add and delete /edit menu items, if they are logged in as an administrative user.

- Deleting an item will ask the user to confirm that they do indeed want to go through with the deletion.

- When adding an item, the user will be asked to enter the name of the item, its ingredients, and its price.

7. Change employee profile (adding/deleting/edit employee)

- staff can add and delete/edit employee, if they are logged in as an staff user.
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- Deleting an employee will ask the user to confirm that they do indeed want to go through with the deletion.

8. Search for specific menu items

- After choosing to make an order, there will be a box where users can search up menu items that are currently being sold.

- The search result will display any menu items that contain the keyword they typed into the search box.

- Users can choose from the available results, which will then display the information for that item, or there will be an icon stating “don’t see what you are looking for?”

- If they don’t see the particular item, they are looking for by pressing on that button, there will be a message to explain that the item is not currently available either because ingredients are not available, or that it may be a seasonal item.

- There will be a “finish” icon they can click on, which will direct them back to the ordering menu page.

Non-functional requirement

Graphical user interface (GUI)

The user interface self-serve dining system is web-base in order to obtain higher compatibility for different hardware device. The main requirement to the graphic user interface is to be easy to use, clear and no confusion. Since there are multiple category of users, each type of user should have their own sub-page to divide functions that they can access to avoid confusion. To access to sub-interface besides the one for customers, there will be restriction such as passcode to allow access. Toolbar is place on top to allow user to switch their roles. For different sub-page, there are different domain of graphical needs. Customer sub-page is more image and graphic focus in order to appeal customers, and let customer have a better idea of the food. Two-column layout is applied to the design: one for showing menu item and one for showing the selected items. Toolbar is place to bottom to perform payment for next step. For management

and customer service staff interface, two column structure are also used to divide menu of operation and content of each operation. These two sub-pages will be more text focus to

obtain optimal functionality. For kitchen staff sub-page, there is also two-column on the GUI. One of it will be individual orders grouped by customers to show order of each customers. The other column will show the order by food item and quantity. This can give the kitchen staff a statistic of how much food they have to prepare.

Security

To protect the non-customer functions in the system, each staff, manager and owner will have their own account associate with unique ID and password. For example, functions like deleting or altering an existing order requires password input to proceed. Also, management functions are also password protected to avoid customer access. Finished order, altered and deleted order and stored in database to add security to the system in case of misuse or fraud to the business. In addition, devices used in this dining system should have its own private network to prevent intruder access.

Access control

Customer: In this self-ordering system, customers are only allowed to do the following function:

- Browse the current menu and details
- Display food information
- Create an order and paying for an order
- Search for specific menu items
- view top five bestselling items

Staff are allowed to do the following function:

- View orders in chronological order
- Set order status as finish
- adding / deleting menu items

- Create a new user(staff) account

- Display/disable top five bestselling items on menu

User passcode is required to access kitchen staff, customer service staff and management only function. Customer functions does not require any access authorization.