Karen Garcia Garza, Nolan Jaeger, Peyton McNany, Jacob Wettstein

Keyboard Warriors - Restaurant Aid Software

Project Plan Required Documents

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**Scope**

· Table Status

Ø Table status system that indicates whether the table is clean, dirty, occupied by patrons, or whether patrons have been served their order

Ø GUI that lays out tables in order of their number

Ø System that allows multiple users to interact with and view table statuses simultaneously

Ø Notification system that notifies wait staff when a new table is occupied and busboys when a new table is dirty

· Ordering System

Ø GUI with buttons for food items, drinks, and a combo button that puts entrées, sides, and drinks together for a meal

Ø Send button for a finished meal to be sent from the customer to the kitchen

Ø Separate tickets with previously input orders laid out for kitchen staff

Ø Finish button for kitchen staff to notify wait staff when a ticket is ready for pick-up and serving

Ø Database of every menu item and their price which is displayed for the customer

Ø Button to print check for orders that have been finished

· Archival System

Ø System that stores quantity of every item that is ordered

Ø Options for viewing quantity of items ordered in divisions of hour, day, week, month, business quarter, and year (serves as menu item popularity)

Ø System that displays net sales

Ø Options for viewing net sales per each day, week, month, business quarter, and year

Ø System that breaks down net sales into sales for each menu item and displays, both, their amount in sales and percentage of net sales for the aforementioned intervals

Ø Efficiency System

§ Starts a timer when: a table becomes occupied, an order is sent to the kitchen, an order is confirmed finished by the kitchen, and when a table status becomes dirty

§ Stops the timer when: a table’s order is sent to the kitchen, an order is confirmed finished by the kitchen, an order is confirmed to have been served, and when a table status becomes clean (each of these aligns with the timer starting, respectively)

§ Times are then saved, organized based on which task they were timing, and calculated into an average for every hour of business

§ A timer is started from the moment a table becomes occupied and ends when said table becomes open again

§ This time is also saved and all of these times are used to produce an average for each hour

· These hour averages are then used to calculate an average for a given day

§ All of these times are organized into said time intervals and available to view within the archival system

· Personnel System

Ø Database where employee information is kept

§ Stored items include: first and last name, availability, job title/positions, wage, clearance level

Ø A clearance level for each employee which determines which parts of the archival system can be accessed

§ Levels:

· 1: Employee can’t access archival system

· 2: Employee can access menu item popularity (quantity of ordered menu item) and current average prep time

· 3: Employee can access every part of the archival system

· 4: Employee can access archival system and personnel system

§ Separate Customer Level:

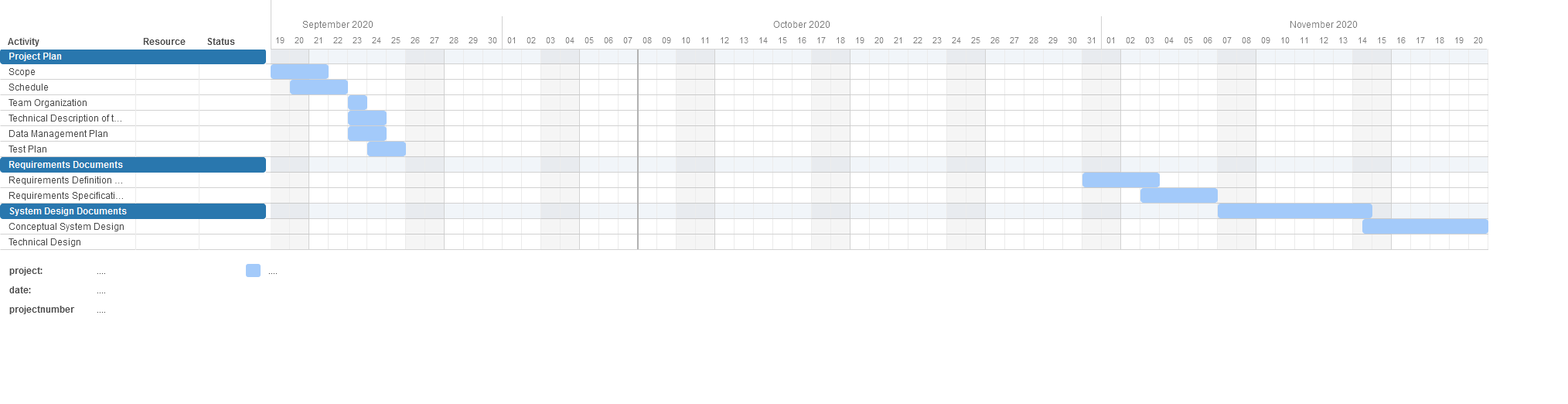
· Only allows users to navigate the menu, make their selections, and send it to the kitchen – as described before

· This level gives customers ability to use the ordering system without looking at archived information

**Schedule:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Task ID | Work Breakdown Structure | Planned Start | Planned Finish | Workload- Planned | Workload-Actual | Progress  (% Complete) |
| 1 | Project Plan | 9/17/20 | 9/25/20 | 12 Hours |  | 79% |
| 1.1 | Scope | 9/17/20 | 9/21/20 | 2 Hours | 3 Hours | 100% |
| 1.2 | Schedule | 9/18/20 | 9/22/20 | 3 Hours | 4 Hours | 100% |
| 1.3 | Team Organization | 9/23/20 | 9/23/20 | 1 Hour | 1 Hour | 100% |
| 1.4 | Technical Description of the System | 9/23/20 | 9/24/20 | 2 Hours | 3 hours | 100% |
| 1.5 | Data Management Plan | 9/24/20 | 9/24/20 | 2 Hours |  | 100% |
| 1.6 | Test Plan | 9/24/20 | 9/25/20 | 2 Hours | 2 hours | 75% |
| 2 | Requirements Documents | 10/31/20 | 11/6/20 | 4 Hours |  | 0% |
| 2.1 | Requirements Definition Document | 10/31/20 | 11/3/20 | 2 Hours |  | 0% |
| 2.2 | Requirements Specification Document | 11/3/20 | 11/6/20 | 2 Hours |  | 0% |
| 3 | System Design Documents | 11/7/20 | 11/20/20 | 8 Hours |  | 0% |
| 3.1 | Conceptual System Design | 11/7/20 | 11/14/20 | 4 Hours |  | 0% |
| 3.2 | Technical Design | 11/14/20 | 11/20/20 | 4 Hours |  | 0% |

Gantt Chart:

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**Team Resumés**

Team Leader and Project Editor - Karen Garcia Garza

File Manager and Data Analyzer - Nolan Jaeger

Project Manager and Lead Document Writer- Peyton McNany

Technical and Graph Provider and Organizer- Jacob Wettstein

**Peyton McNany**

2709 Ashbury Point Lane 208.602.1309

Marietta GA, 30066 peytonadam@hotmail.com

**EDUCATION:**

Kennesaw State University, Marietta, GA (Currently Enrolled) May 2023

**Bachelor of Science in Computer Science GPA: 3.72**

**Relevant Coursework:**

Programming and Problem Solving I (Java), Programming and Problem Solving II (Java)

**RELEVANT SKILLS:**

**Languages:** Java

**Concepts:** Object-Oriented Programming

**Software:** Eclipse, MS Word, MS Power point, IntelliJ

**Platforms:** Windows, iOS

**WORK EXPERIENCE:**

**McDonalds,** Acworth, GA Feb. 2018 – June 2018

Team Member

**Arbys,** Acworth, GA Nov. 2018 – Feb. 2019

Team Member

**Subway,** Acworth, GA Feb. 2019 – Aug. 2019

Team Member

**Tropical Smoothie Café** Nov. 2019 - Present

Manager

· Training others, managing others during high-volume hours, leading shifts working any position

**LEADERSHIP POSITIONS:**

**Wolfpack Pride Marching Band**, North Paulding High School July 2015 – May 2019

*Band Captain, Member*

**Academic Team**, North Paulding High School Jan. 2018 – May 2019

*Director of Student Recreational Activities, Member*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Jacob*  *Wettstein* | |  |  | | --- | --- | | *121 Shepard Way Newnan, GA, 30265* |  | | *678-296-3902* |  | | *jacobwettstein01@gmail.com* |  | |

*Seeking an entry-level position to get hands-on experience and advance my knowledge in technology with opportunity for growth and advancement.*

# ***Education***

### ***August 2015 - May 2019***

## ***High School Diploma / Landmark Christian School, Fairburn, GA***

*Dual Enrollment with Truett McConnell College*

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### ***In Progress - 2023***

## ***Bachelor of Science in Computer Science / Kennesaw State University, Kennesaw, GA***

*Currently enrolled as a Sophomore.*

# ***Experience***

### ***May 2020 – August 2020***

## ***Trackstriping Assistant / Athletic Marking Company***

*Responsibilities included following specific directions, calculating precise measurements, and tolerating long hours of physical labor, while working independently at times.*

*OCTOBER 2019 – MARCH 2020*

***Fuel Clerk / Kroger***

*Responsibilities included customer care, handling transactions, taking inventory, and entering fuel deliveries.*

# ***Relevant Courses***

|  |  |
| --- | --- |
| *· AP Computer Science (JAVA)*  *· Intro to Engineering*  *· Calculus BC*  *· Programming and Problem Solving I & II*  *· Technical Writing*  *· Intro to Database Systems* | *· Probability and Inference*  *· Software Engineering*  *· Economics*  *· Statistics*  *· General knowledge of HTML, JavaScript, C#, C++* |

# ***Involvement***

*· Captain of Varsity Basketball Team during Junior and Senior year*

*· Captain of Varsity Football Team during Senior year*

*· Served as a team leader in the Esports Club*

*· Recognized as an active member of the National Beta Club*

*· Volunteered to improve learning environment for lower income schools*

*· Participate in heart disease education and awareness*

*· Helped facilitate physical activities for disabled children in the community*

Karen Garcia Garza

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404-374-7446 | karen.l.garciagarza@gmail.com

**Education**

* Campbell High School (2015-2019)

Graduated with unweighted GPA of 3.56

* Kennesaw State University (2019-current)

**Bachelors of science in Computer Game Design and Development**

**Awards and Honors**

* International skills diploma seal in French
* Magnet program participation in county (Recognition for participation in International Baccalaureate program)
* Dean’s List (2020-current)
* 3rd place in Concours National De Francais (2017)
* 5th place in Concours National De Francais (2018)

**Skills:**

* Experience with team coordination and team communication
* Experience with presentation
* Coding knowledge in C#, C++, Java
* Intermediate proficiency in French

**Clubs/Activities:**

* French Honor Society (2017-2019)
* Fencing (2015-2017, 2018-2019)
* National Honor Society (2017-2019)
* Usher for parish (2015-current)
* Scripture reader for parish(2015-current)
* Sunday school teacher (2017-2019)
* Japanese Club at KSU (2020)

**Community service:**

* Haiti supply drive 2018
* Haiti supply drive 2019
* St. Joseph Catholic Church Kermes 2019
* St. Joseph Catholic Church Kermes 2018

|  |
| --- |
| **NJ** |

6787331985

NOLAN JAEGER nolan.jaeger2000@gmail.com

3079 Hidden Forest Ct.,

Marietta, GA 30066 United States

# **PROFESSIONAL SUMMARY**

Dedicated programmer focused on learning new skills and completing tasks above and beyond the expected outcome. Works well both independently and with others to achieve the company's goals. Quick learner eager to hone my career and advance my craft.

# **EXPERIENCE**

**Front Service Clerk**, **Publix Supermarkets**, Sep 2019 - Feb 2020, Marietta, GA

Shadowed expert IT personnel and listened in on client-associate interaction.

Prepared new client machines i.e. laptops, desktops, etc. for further professional use. This includes setting up and updating Windows OS, installing client monitoring software, and removal of non-essential software/malware.

Managed and assessed faulty programs on multiple servers that may have shut off for whatever reason.

Created time tickets for further documentation of the work that had been done.

**Summer Intern**, **BECA, The IT Brain Power Company,** May 2019 - Aug 2019, Duluth, GA Collected admissions tickets, verifying their accuracy and authenticity before allowing guests to enter the facility for KS related events.

Managed and maintained premium seating areas for premium ticket holders. Directed lost people(s) to their designated seats and answered any other questions they might have had.

**Event Staff**, **Night Owl Productions**, Sep 2018 - Jan 2019, Marietta, GA

Collected admissions tickets, verifying their accuracy and authenticity before allowing guests to enter the facility for KSU related events.

Managed and maintained premium seating areas for premium ticket holders. Directed lost people(s) to their designated seats and answered any other questions they might have had.

# **EDUCATION**

Bachelor of Science, Computer Science Engineering May 2022

**Kennesaw State University** Marietta,GA

GPA 3.46.

Dean's List Honoree, 3 semesters.

Awarded Zell Miller 3 years in a row.

National Merit Scholar

Concentration in Software Development / Software Engineering.

# **ADDITIONAL INFORMATION**

Experience with Java, Python, SQL, and HTML

Marching band member for all 4 years of High School playing percussion

Latin Club member for 2 years of High School

Spent most of my life engaged in Boy Scouts

Proficient in Microsoft Word, PowerPoint, Excel, and some Access

**Technical Description**

The UI is to first show the logo of the company or restaurant when the screen first pops up, followed by a login screen in which the user enters their credentials. The credentials determine the functions for the user; depending on their level, the user has certain functions that they can access in order to accomplish their job. Managers, for instance, are the only ones who are able to fix and set table positions along with editing names, while busboys only have access to changing the status of a table from dirty to clean. The tables that appear on the screen have four different functions that are color-coded to make it easier for the user to identify the status of a table. Green is whena table is clean and unoccupied, grey if to be used for both when a table is occupied and for when it is being served, and red is when a table is dirty.

The customer will be able to select items from the menu in order to send the order directly to the kitchen by tapping on the menu, and alternatively if they have the clearance, they will be able to change the status of a table through a dropdown menu. Customers can continue adding items as part of an order until they click a “finished” button that will finalize and send the order. In the kitchen, there will be another “finished” button available to cooks that notifies wait staff that the order is ready.

Restaurant data will be available for managers to access in order to look at the trends of the hour, day, week, etc. While the data is to be calculated by internal timers, managers will be able to view the times, with explanations and highlights below them. This will allow for managers to generate higher profits by seeing what sells more, what sells less, what the trends are in sales during specific hours and seasons, etc. The archival system would have a button available below other functions that are exclusive to the role, such as the table setting. The button to access is to read “Restaurant Archives”.

Hardware should hold sufficient storage in order to hold localized data that may not be uploaded to the restaurant server. Specifics will be said once beta testing is complete in order to have an accurate estimate of what the minimum requirements should be. Hardware needs to allow for enough RAM to be able to send orders and receive them that will allow for a speedy communication between different locations in the restaurant. Waiting for eight-ten seconds for a response from the computer is a reasonable amount to know if the RAM and storage is enough for the program to run.

The software needs to allow for touchscreen handling and be compatible with microsoft GUI platform. The program needs to be able to handle and save the data that is loaded from orders, activity, users, etc. and then be able to analyze the data to be presentable to the user. The software needs to be able to store ongoing information on the table in order to be able to change the table status and store it. The software must also be able to load information about the restaurant on a certain hour, day, or week when looked into in order to help managers understand what the data is saying.

Development may be restricted in several different ways. The development team as a whole needs more experience with creating GUI interfaces in the real world as no one has experience with software development in the past. As part of this, bugs and errors may be more common in comparison to a more professional team that has more experience. Tools that are more steadily available and can be used better by more experienced workers will take longer to use due to the training that will have to be done in order to teach the team members how to use said tools. The development process will be significantly longer in comparison to other teams from the combination of the previously mentioned factors.

The software is to be developed using visual studios, using the C# language. C# language allows for easy GUI interface creation that the team has a understanding of already, speeding up the development process compared to other programming languages. Methods and functions are to be broken down based on the requirements that are asked of the team for the software. Within the programming there are two mini teams in order to break the programming process further for a faster development process. One team is to be in charge of the creation of the GUI while another team is tasked with providing the means of how the data is stored.

**Data Management**

**Overview:** We will produce new data in the format of order spreadsheets, table occupancy (in use or not in use), phone numbers, trend charts, menu item sales, operating costs, and productivity charts.

**Data Description:** We expected to see new data on order collection including order priority, order type, and transmission from table to kitchen. We also expect to collect to see better workflow and increased productivity in the transition time between when a table is in use and when that table is available again. We will analyze trends to better decrease operating cost and increase profitability.

**Existing Data:** We will be using already existing data from the restaurant already collected and in the system. This includes revenue information, menu item popularity, personnel efficiency, average turnaround time, and average preparation time.

**Expected Data #1:** Coordination of Work Activities: This data is a collective of table orders, take-out orders, delivery/online orders, etc. The way we would like to take table orders is by using a tablet type device to select the patron’s specific order from an electronic menu and then sent over to the Kitchen staff via the internet and displayed on monitors. Take-out orders and delivery/online orders will work in the same way, but they will be collected in a separate system as to not clutter the dine-in orders from the carry out or online orders. We would like to prioritize the dine-in guest and deal with the outside orders in a timely fashion. We hope to include some sort of priority system to identify which orders take precedence over others. Dine-in guests will take first priority, then larger events like catering (size dependent), and lastly online orders/ take-out orders. Deliveries, on the other hand, will be weighed differently depending on distance. Longer Distances will take priority over shorter distances.

**Expected Data #2:** Patron Traffic: This data will simply be a collective of logic data types. Each tablet will have a feature that states whether or not a table is in use, not ready, and ready then is sent over to the kitchen and displayed to the busboys so they know which table needs to be cleaned and set up. This information will also be sent over to the host, so they know as well which tables are open for use. In terms of high patron traffic, we will set up a phone messaging system to store the customer’s phone number so when their table becomes available, a “no-reply” text message is sent.

**Expected Data #3:** Trend Recognition: This data will consist of the revenue per menu item, menu item popularity, etc. This data will be collected by-the-day and by-the-hour, and it will be viewed and analyzed on a weekly basis. By viewing the trends of menu items on a weekly basis, we can determine which ingredients or foods we need more of *and* we can determine which ingredients/food/menu items we need to drop.

**Expected Data #4:** Operating Costs, Productivity, and Profits: Operating costs will go hand-in-hand with the trend recognition data. If we can identify dropping trends for a menu item, we can adjust our spending on that item to better decrease some of our operating costs. In terms of productivity, we will be using the data from both patron traffic and trend recognition to analyze the number of patrons entering the restaurant combined with menu item sales and the time in between when a table is not ready and when a table is ready. All this data, over time, will give us a good way to view and increase productivity. Profits will be viewed based on menu item revenue and the additional costs for making said menu items. We will use this data to then gauge our profits and see where we need to improve.

**Test Plan**

The table status function of the software will be tested by first determining if the GUI that displays tables in-order based on how the manager has set up a table layout. Anyone with a manager clearance level can create new tables and remove old ones by editing the table layout. Managers have the option to create or delete new tables, as well as edit their names. Once tables can be created, deleted, and edited on the table layout and the created tables appear where the manager tapped to create them, the GUI testing can be considered complete. Next statuses need to be tested to ensure they all display correctly and when prompted. Each status will be moved from one to the others by tapping on the table and selecting the new status from a drop down list. If the list properly lists all statuses, which are: clean, dirty, occupied, and served, and the table is able to show all statuses, then the test can be considered successful. The system should be able to display each status below the table number, which will color the table icon a color depending on its status. Colors will be green, red and grey for clean, dirty, and occupied, respectively. The served status will appear, but will share the same color as occupied. Once these statuses can be observed and consistently changed with no problem, the test can be considered complete. A notification sound will chime and show a small text box in the upper right hand corner for the bus boy(s) when a table turns dirty, and for wait staff when a table becomes occupied. Testing the notification system will also consist of changing from one table status to the next, ensuring that the chime and text box show up for wait staff and bus boy(s) using the software. Finally, the system will be tested to ensure that all users can simultaneously use the software, ensuring that the software will interact with and react to others using it in real time.

To complete testing, the table status system will need to display all changes from multiple users’ input in a period of one minute. User training will begin with showing managers how to create, delete, and edit tables in the table layout. Once the layout has been created, users will be shown how to change table statuses by tapping each table and selecting one of the four table statuses in the dropdown menu. Bus boy(s) and wait staff will be trained on where to look for notifications and what sounds to listen for while other users change table statuses. They will then be shown how to change statuses once they’ve finished cleaning and/or serving a table. As mentioned before, only managers will have access to editing the table layout. Also, bus boy(s) will only have access to seeing table status and changing it to clean, as it’s the only functionality they’ll need to access.

In order to test the ordering system of the application, first we will test the GUI seen by customers by testing the functionality of the buttons. This includes buttons for food items, drinks, combos, and a ‘finished’ button for once an order has been completed and the order can be sent from the customer to the kitchen. Then, the GUI for the staff will be tested which includes the layout of each ticket separated individually for the kitchen staff, a ‘Finished’ button for the kitchen staff to notify the wait staff when an order is ready, and a button for the wait staff to print out checks for finished orders. Lastly, the database will be tested for successfully storing the correct data. In order to terminate the testing process for this part of the application, the GUI must function correctly including all buttons and their functions. Staff members will be trained on how to operate the application during the company’s training program.

The archival system will be tested by first logging several menu items across each day of a week. Then, the archives will be checked to confirm that the quantities of said ordered items are correct and stored. Next, the time divisions will be tested for hour, day, week, month, quarter, and year. To do this, the system’s week that was previously filled out will be duplicated across 52 weeks to represent an entire year’s worth of orders. Then, in the archives, the test will be considered terminated if the correct quantity of each item shows up for each division of time. Further, each of these items will have a price assigned so net sales can be checked in the archives for time divisions of day, week, month, quarter, and year. Additionally, a percentage of the total net sales will be calculated for each menu item and displayed in the archives for the aforementioned intervals of time. If the percentages are calculated correctly by the system and the system can display all of the information mentioned above, the test will be considered complete. Training will consist of showing managers how to access the archive system and showing them where each piece of data can be found.

Within the archival system exists an efficiency subsystem, with the sole purpose of providing turnaround times and food preparation times. This is an automatic process of the system starting a timer when: a table becomes occupied, an order is sent to the kitchen, an order is confirmed finished by the kitchen, and a table’s status becomes dirty. The timer will end when: a table’s order is sent to the kitchen, an order is confirmed finished by the kitchen, an order is confirmed to have been served, and when a table status becomes clean (each of these aligns as the ending to the timer started for the above tasks, respectively). Then, each hour, these times are averaged and stored in the archive system to give averages for turnaround time and meal preparation time. Then, an average time for that day is shown in the archival system along with the hourly averages. This is to make any especially busy or slow hours apparent to the user. To test the timers themselves, multiple testers will activate tasks that begin the timers, allow various amounts of time from 1-5 minutes to elapse, and activate tasks that end the respective timers. Then, if the averages within the archive system align with the times that were calculated by the testers, the system’s test can be considered finished. The only training involved with this system is showing managers where to find the averages within the archive system, since the system is queueing the timer’s start and stop. Additionally, the managers should have the average times’ meanings explained to them.

The personnel system will be tested by first inputting several random “employees” each with their own job title and level of clearance, including any other pertinent information for that employee. Each individual employee will be tested on their ability to access other systems such as the archival system. For example, if a level 1 clearance employee is able to access the archival system, the test has failed. The test will be considered complete if each employee is able to access their permitted areas and unable to access areas that have been restricted to them. As for customer clearance, if a non-employee customer is able to access the basic menu, make their selection, and the kitchen receives the order, the test is complete and successful. However, if said customer is able to access the archival system or any other system besides the menu, the test will be considered failed.