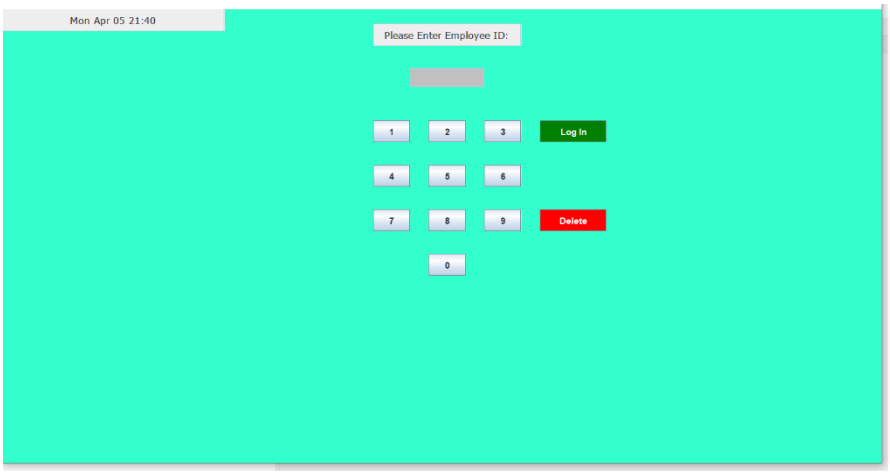
Project Milestone/ Deliverable 2-3
Team: Restaurant Automation

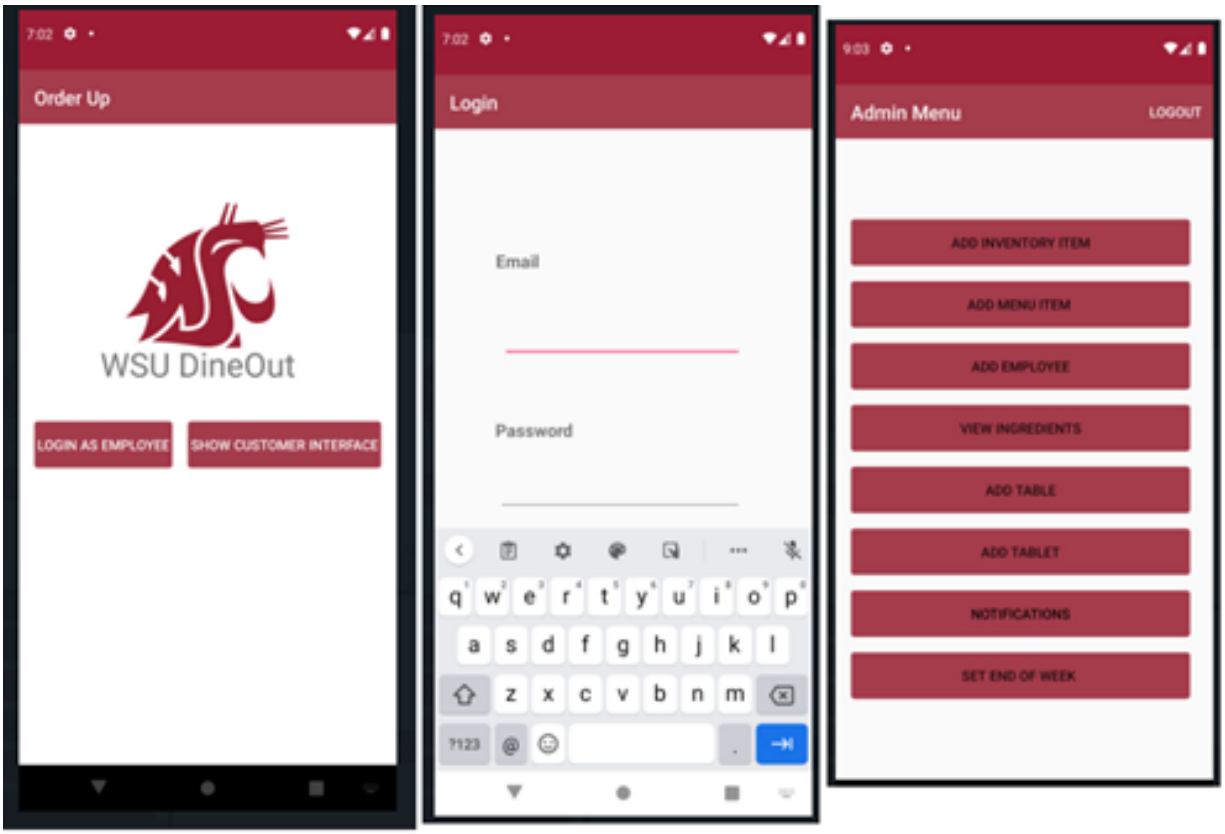
Fixed/Improved Analysis Design:

We started off initially with a desktop-based design for our software application. Initial design leading to the solution led us to incorporate modules such as config, login, manager operation and msgControl. The interface for this initial design lacked ease of use. Although developing the solution as a desktop application gave us advantage and more control over what we could do but at the cost of portability of the system and usability.

Since the application was going to be used by average employees with variable amounts of technology and systems knowledge. This thinking approach led us to think of a solution which was mobile based. This allowed us to design an easier touch interface for most of the employees to understand easily and work with. This was important because the work environment of a restaurant can get hectic for employees at rush hours. It would be hard to expect users of the system to efficiently work with a desktop system and not compromise on service.



Building further on this mobile application approach we decided to add even more functionality with modules like bills, halls, order, kitchen and reporting. This allowed all types of users to have their own mobile devices to use the application on. With this design change approach we hope to lessen confusion among the different types of users who can now use the system simultaneously to get work done more efficiently.



Quality Report

Goals Summary:

- Users are getting authorized with their unique identification
- Displaying the menu options as expected for user
- Tracking the number of hours
- Modifying menu items
- Allowing waiters to send food orders to the kitchen
- System is storing the data for the transactions
- Communication between the devices is working as expected
- interfaces of all screens is easy to understand and interact

Product quality metrics

The quality metrics below are listed as per priority to evaluate goals of our mobile app software:

1. Availability, Reliability.
2. Efficiency.
3. Usability, Learnability.
4. Robustness, Maintainability.
5. Security, Testability.
6. Portability-Only on android in restaurants.
7. Interoperability-managers can communicate with waiters
8. Security-protected by password

9.Scalability

Quality	Goal	Metric
Availability	System should work continuously	The system should be available 99% of the time on any given day.

Validation Results: We ran the system on an android phone for more than 16 hours. The application ran the whole time without a problem. The application was responsive and was functional throughout our testing time frame.

Quality	Goal	Metric
Reliability	The system should work accurately 99% of the time.	The system should not crash more than once on any given day

Validation Results: Even though we would have hoped for perfect results but experienced a few crashes when certain functionalities were used. We are trying our best to resolve all issues pertaining to this in due time.

Quality	Goal	Metric
Efficiency	The system should feel Responsive.	The system should be able to provide some feedback of any action in less than one second.

Validation Results: This system seems to be quite efficient. We did not observe a significant number of bugs in the functionalities. The build times for all processes and functionalities varied between 0.05 to 0.5 seconds. This was tested by checking various applications on the screen to validate our results.

Quality	Goal	Metric
Usability	The system should be user friendly.	All types of users should not report more than 5 complaints.

Validation Results: The system was designed with a very simplistic approach. The names of buttons are clearly labeled with words which intuitively describe the task it is designed to do. The system is designed to be used through a touch screen so no peripheral devices are required. We did not find any major functionality which the user would not be able to understand.

Quality	Goal	Metric
Learnability	It should be easy to learn how to use the system for any working age group.	A new user should be able to learn the system in just a couple of hours of training.

Validation results: All the functions in the system are easy to perform. We did not find any difficulty in learning the system. We ask a new user outside of the development team to use the application. It required less than an hour of training before this new user could use the functionalities of the app on their own.

Quality	Goal	Metric
Robustness	The system is able to handle inputs	There should be no errors in functions which require any type of input

Validation Results: All normal use of input worked well; the application did not show any distress in tackling inputs. Excessively large inputs did result in failures, but such inputs are not expected of users of this application.

Quality	Goal	Metric
Portability	To work well at one establishment.	The system can only work on an android system.

Validation Result: This application is designed specifically to be used at a restaurant. Although the system can easily be cloned to work similarly or with some tweaks at another restaurant establishment but cannot be used for any other purpose. The system worked without a problem at a designated location on an android system.

Quality	Goal	Metric
Interoperability	The system should be able to communicate with other systems on the same network	The system should be able to work with data management systems.

Validation results: This application uses the firebase data management system. All components of this system are developed on java and communicate well with each other.
Different users can communicate with other users on this system.

Quality	Goal	Metric
Security	The system should not be compromised	Regular audits should not report more than 1 security flaw.

Validation Results: Access to the application is password protected. Different users have different restrictions on the system. Java itself is equipped with its own security features so is firebase. There were no obvious vulnerabilities in our testing of the system.

Quality	Goal	Metric
Scalability	Abadaptable use of system pertaining to need	The system should be designed for variable use of the existing nature

Validation Results: The System is developed on android studio using java which is very scalable in nature. This system can be cloned easily to be used at another establishment catering to similar problems. It can be tweaked to a little for other types of restaurant or work as is for a similar type of restaurant.

Process Quality Metrics:

Quality	Goal	Metric
Maintainability	System should be easy to maintain	The source code should be readable and well-documented

Validation Results: The system is designed using Java which is a relatively well-known language hence it is easy to make any changes or corrections. There are no lexical or anti-patterns in this project. For correcting errors or making changes android studio is used. The IDE inspects the code for warnings or errors.

Quality	Goal	Metric
Testability	The system should be easy to test	Every class must have white box and black box testing done.

Validation Results: Android studio is used to test all functional and nonfunctional requirements of the system.