CQS Requirements

Team Members

John Steltzner
Colton Judy

Purpose

The Customer Queuing System(CQS) is designed to help stores minimize checkout traffic by utilizing queuing systems for available registers and self-checkouts. The CQS will be run through a kiosk implemented within the store. The system will be configured to the available checkout POSs specific to each store, taking the types of POSs, acceptable payment, and if it is an express checkout into account. The CQS will take in input from individual customers, and the input will be used in the system to direct them to the most desirable POS to meet their needs. The system will also make recommendations for the second-best desirable POS should all the most desirable POSs be full, and store staff will be made aware that more registers/self-checkouts may need to be available to accommodate customer traffic. Details of checkout information can be collected after the kiosk closes for the store day.

Requirements

1. **Name:** configure_registers
   Type: functional
   Summary: Store manager or company designated associate shall declare the number of registers the queuing system will account for. These registers will have cashiers. The statuses of the registers shall be processed by the queuing system.

2. **Name:** configure_SCOs
   Type: functional
   Summary: Store manager or company designated associate shall declare the number of self-checkout POSs the queuing system will account for. The statuses of the SCOs shall be processed by the queuing system.

3. **Name:** add_POS
   Type: functional
   Summary: Shall add POS to the list of POSs alongside the payment type, checkout type, and if the POS is an express lane.

4. **Name:** add_customer_info
   Type: functional

Summary: Shall ask customers how they are paying, if they would like a cashier or checkout by themself, and if they are expressly viable. This customer information shall be grouped together and utilized by other functions.

5. **Name:** check_POS
   Type: functional
   Summary: Shall take into account all the open POSs and prioritize these POSs first. Delayed POSs shall be taken into account if and only if all other open POSs are full. Shall ignore closed POSs. Checks the available open POSs and finds the best match to the current customer.

6. **Name:** declare_best_POS
   Type: functional
   Summary: Shall set the best POS in place for the customer from the checked POSs based on the given input from the immediate customer.

7. **Name:** direct_customer
   Type: functional
   Summary: Shall display the POS that meets the customer's needs and instruct them to go to that POS.

8. **Name:** recommend_next_best_POS
   Type: functional
   Summary: Should display a secondary POS with single change to customer's needs if every POS that matches customer's needs is full.

9. **Name:** alert_associates
   Type: functional
   Summary: Should signal store associates with notification that more registers or SCOs may need to be opened to accommodate customer needs.

10. **Name:** collect_stats
    Type: functional
    Summary: Should display the stats for how many paid cash, paid card, went to SCO, went to cashier, and shopped express.

11. **Name:** platform_os
    Type: constraint
    Summary: The target platform operating system is Windows 10 or above.

12. **Name:** kiosk_platform_os
    Type: constraint
    Summary: The kiosks integrated within the store will be capable of running Windows 10 or above.

13. **Name:** development_framework
    Type: constraint
    Summary: This project will be developed using C# and the WPF Framework.

14. **Name:** POS_connection
    Type: constraint
    Summary: The client will be able to integrate the software into the POS terminals.

15. **Name:** CQS_setup
    Type: constraint
    Summary: The project will be designed in such a way that the store manager will be able to set up the system at the kiosk with limited technical knowledge.

16. **Name:** kiosk_runtime
    Type: constraint
    Summary: The kiosk will not be required to run throughout the entire day. The primary focus is the middle of the day and other times where there are rushes and high customer activity.

17. **Name:** customer_respondwell
    Type: risk
    Summary: The customer should respond well to the new system.

18. **Name:** project_development_time
    Type: risk
    Summary: The project should be fully developed and implementable by April 22, 2024.