Question 2

Brief:

The main object in this design is the “Event” class. The Event class houses two string queues for the last names and the phone numbers and a string variable to hold a neat event name for client side viewing. The two queues are synchronised by their indexes.

The queues are from templates on the share drive modified by myself to add functionality. Namely the additional getLength() function which returns the number of elements currently in the queue; and findQueueMember() which scans the queue for a specified element.

Event has numerous functions add/find/remove Customer all call the relative functions in the queue class. A constructor where the parameter the event’s neat name. A function to retrieve the neat name. A getLength() function which calls the function of the same name in the queue class. And a clear function which iteratively removes queue elements until the queue is empty.

The main() function has three calls, the first function is populate(). This adds made up names and phone numbers to populate the Events objects. The second it header(). This creates the first bit of output the user sees; it is only run once at start-up and prints a nicely formatted introduction with a made up program name.

The third is mainMenu(). This is where the main functionality is: the list of events and the queue length is printed and the user is prompted to choose an event (1-5). The name is name of the event is discovered in a case statement and stored for formatted output in eSelect, a string variable, and the number in the integer eNumber for use in case statements later. The eventMenu() is now called.

The event menu provides options for editing the event waiting lists which can be accessed with the corresponding number:

1. Add a customer to waiting list.
2. Dispense available ticket.
3. Check position in waiting list.
4. Signal event completion.
5. Return to Main Menu.

Most are self-explanatory. Options 1 through 4 use a switch statement on eNumber to determine the target event and call addCustomer(), removeCustomer(),findQueueMember() and clear() respectively in the targeted Event object. Option 5 simply calls mainMenu().

Entering ‘q’ at the mainMenu() will prompt the program to exit.

Testing strategy

Results