

CS 302

HW 4 Design Document

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Classes

queue.h

Queue interface

arrayqueue.h

Attributes: array storage

Functions: from Queue interface

arrayqueue.cpp

circular array

event.h

Attributes: time, duration, type

Functions: constructors, getters, setters, overloaded operators (<, >, <<, >>)

event.cpp

priorityarrayqueue.h

Attributes: inherited from ArrayQueue

Functions: override enqueue, the rest inherited from ArrayQueue

priorityarrayqueue.cpp

ordered insert

Main Driver

loadData()

Parameters: events priority queue

Output: none

Functionality: load events from file and adds to priority queue

processArrival()

Parameters: bool teller available, events priority queue, line queue

Output: none

Functionality: get event from events priority queue, decide if event should be processed, otherwise add to line queue. If event should be processed, create departure event and add it to events priority queue, teller is in use

processDeparture()

Parameters: bool teller available, events priority queue, line queue

Output: none

Functionality: get event from events priority queue, decide if there's a customer in line, otherwise teller is free. If there's a customer, create departure event and add it to events priority queue, teller is in use

main()

Parameters: none

Output: none

Functionality: create event bank queue, create event priority queue, create teller available bool, number of customers, wait time sum. While there are events in the priority queue, look at current event. Depending on the event type, process the arrival or departure. Update number of customers and wait time values. Output the final results.