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Data Structures & Algorithms 2

Project 2

Functional Decomposition

User-defined data structures used as parameters in the functions

typedef struct queueNode

{

int value;

struct Customer \* cust;

struct queueNode \* next;

} queueStruct;

struct Customer{

float arrivalTime;

float startOfServiceTime;

float departureTime;

struct Customer \* next;

};

struct Event{

int type;

struct Customer \* cust;

}

Files and Functions in the Program

/\*This file controls the execution of the project/simulation\*/

main.c

/\*This function processes the statistics derived from the simulation\*/

void processStatistics();

/\*This function processes the next event in the simulation\*/

void processNextEvent();

/\*This function controls the simulation execution\*/

/\*It returns an integer indicating a successful or failed completion\*/

int main();

/\*This file contains the implementations of the priority queue adt\*/

pQueue.c

/\*This function enqueues an Event structure into the priority queue\*/

void pEnqueue(struct Event \*tmp);

/\*This function dequeues an Event structure out of the priority queue & returns it\*/

struct Event \* pDequeue();

/\*This file contains the implementation of the queue adt\*/

Queue.c

/\*This function enqueues an integer value into a queue adt\*/

void enqueue(int value);

/\*This function dequeues a Customer structure from the queue adt\*/

struct Customer \* dequeue();

/\*This function determines if the queue adt is empty & returns a conditional status\*/

int isEmpty();