BookOrder:

Usage: ./book <database file> <order file> <category file>

For this assignment, my program started by reading the categories into memory and creating a thread for each category. It also reads the database of customers into memory as a hash table so the correct operations can be performed on each customers information. Each consumer thread is held in a structure with a hash table so that my program can access it in order to call the threads when needed. My program then spawns a producer thread that takes in the order file as an argument. It then reads the orders file line by line in a loop and starts figuring out which consumer thread each order belongs to. It then takes that information and enqueues it into the corresponding consumer thread. The consumer thread is then constantly checking the queue of its corresponding category and when it finds that the queue is open and has an item, it process it and if it is a successful order, makes correct changes to the customer then enqueues a successful order to the customers information and if its a rejected order it just enqueues into the customers rejected orders. After all of this finishes, the program then reads through all the customers prints out their information along with their successful and rejected orders, and moves through the entire list until it is finished. After this, all dynamically allocated memory is free'd and the program exits.