Operating Systems – Lab 5 – Report

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In the implementation and design of lab five (5) we wrote a multithreaded program to solve the Banker’s Algorithm. Our program uses several data structures used to keep track of customers and resources. These include the available amount of each resource, the maximum demand of each customer, the amount currently allocated to each customer, and the remaining needs for each customer. Additionally, the important functions in our program include functions for requesting resources, releasing resources, determining the systems state (safe/unsafe) and the customer thread functions. To control access and prevent race conditions we implemented mutex locks which allow for concurrent access to shared data.

Our program is executed by passing the 3 resources of each type on the command line and will print the bankers output any time a resource is requested or released. This output includes the thread making the request, the requested resources, the systems state, if the resources were successfully granted or not, and finally the resources released (if any).

The program should be run in a Windows environment on the Linux subsystem.