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Project 2

Design

Semaphore Loaner = 1

* This semaphore will keep track of the loaner count to make sure that only 1 service request goes to loaner at a time. Its need is to keep count of the loaner so that customers don’t go to busy loaner.

Semaphore leave\_loaner = 0

* This semaphore will get triggered when user will leave the loaner so that loaner can make himself available again to the next customer. Its need is so that client can send a signal to loaner for when he has gathered all his documents and left the window.

Semaphore ProcessLoan = 0

* This semaphore will get triggered when user has requested for a loan and is waiting for a bank loaner to go ahead and process it. Its need is so that banker can know when all the information is gathered and process can be started for loan (information such as amount)

Semaphore reciept = 0

* This semaphore will get triggered when the bank has completed the process and is handing back the receipts to client. Its need is so that banker can send signal to client to let them know the transactions is compelte.

Semaphore Teller = 2

* This semaphore will keep track of the teller count to make sure that only 2 service request gets distributed out to tellers at a time since 2 tellers is the max amount. Its need is to keep count of the teller so that customers don’t go to busy teller.

Semaphore leave\_teller = 0

* This semaphore will get triggered when user will leave the teller so that teller can make himself available again to the next customer. Its need is so that client can send a signal to banker for when he has gathered all his documents and left the window.

Semaphore ready\_for\_teller = 0

* This semaphore will get triggered when user is next in line (already at the window) and is ready to be served by the teller. Its need is so that client can send a signal to banker to let them know they are next in line and just waiting for their “go ahead”.

Semaphore ready\_for\_customer = 0

* This semaphore will get triggered when the teller is ready for a client to start serving. Its need is so that banker can send a signal to customer to go up to the window.

Semaphore ProcessTransaction = 0

* This semaphore will get triggered when user has requested for a loan and is waiting for a bank loaner to go ahead and process it. Its need is so that client can send a signal to banker to start processing request.

void Customer()

{

Loan request:

wait(Bank.Loaner);

loan\_request();

signal(Bank.ProcessLoan);

wait(Bank.reciept);

get\_cash\_and\_reciept\_and\_leave();

signal(Bank.leave\_loaner);

Withdraw request:

enter\_in\_teller\_queue();

wait(Bank.Teller);

signal(Bank.ready\_for\_teller);

wait(Bank.ready\_for\_customer);

withdraw(GetRandomTransactionAmount());

signal(Bank.ProcessTransaction);

wait(Bank.reciept);

get\_cash\_and\_reciept\_and\_leave();

signal(Bank.leave\_teller);

Deposit request:

enter\_in\_teller\_queue();

wait(Bank.Teller);

signal(Bank.ready\_for\_teller);

wait(Bank.ready\_for\_customer);

deposit(GetRandomTransactionAmount());

signal(Bank.ProcessTransaction);

wait(Bank.reciept);

get\_reciept\_and\_leave();

signal(Bank.leave\_teller);

}

Void loaner()

{

wait(Bank.ProcessLoan);

process\_loan();

signal(Bank.reciept);

wait(Bank.leave\_loaner);

signal(Bank.Loaner);

}

Void teller()

{

wait(Bank.ready\_for\_teller);

prepareForCustomer();

signal(Bank.ready\_for\_customer);

wait(Bank.ProcessTransaction);

process\_transaction();

signal(Bank.reciept);

wait(Bank.leave\_teller);

signal(Bank.Teller);

}