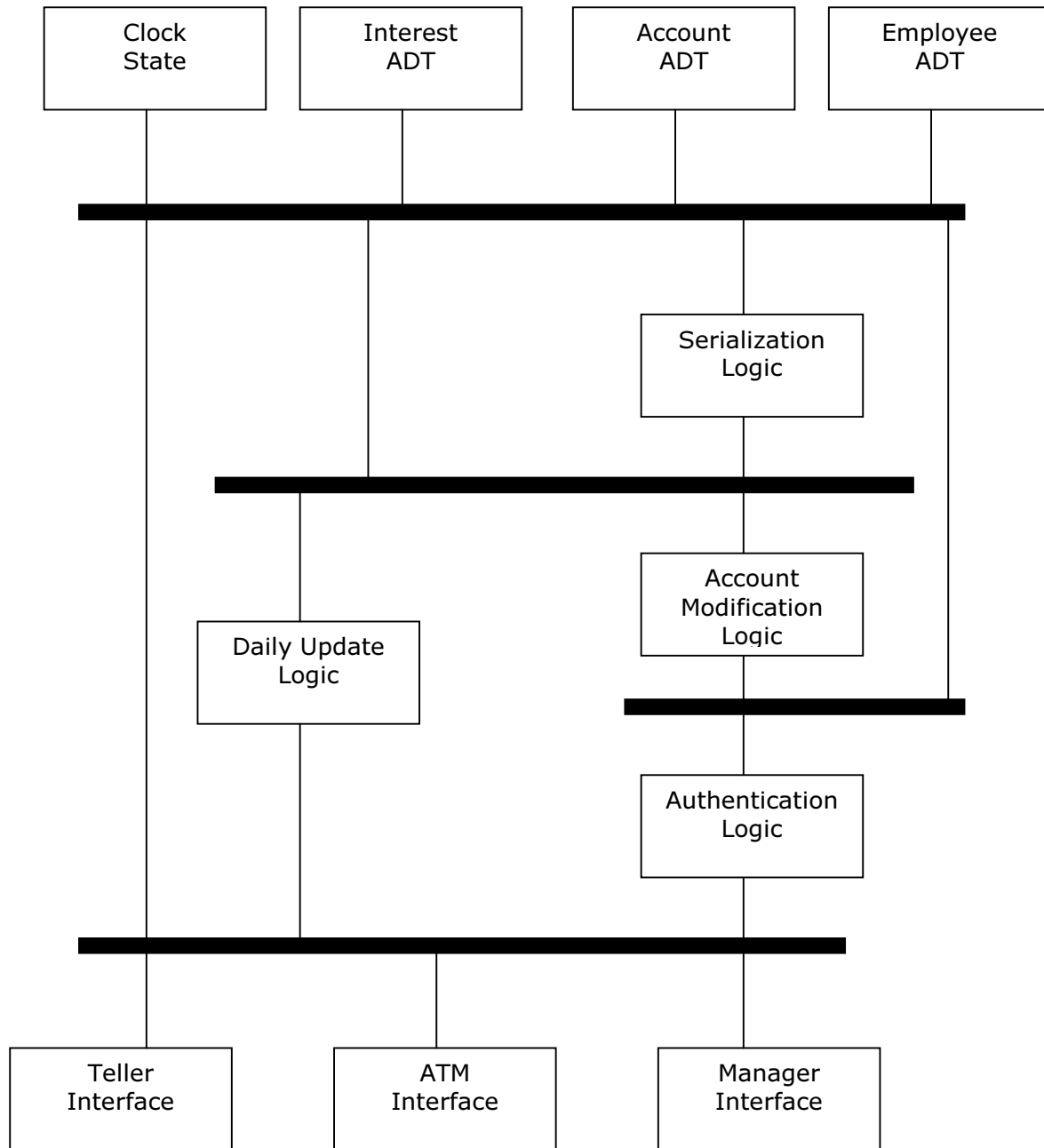


CSCI 612
Homework #3A
Sample Solution

The C2 architectural breakdown for the given banking system is as follows:



A brief description of each component follows:

- 1) Clock State:
 - This component signals events such as the start of a new business day, primarily for the daily update logic component
 - It communicates with some system source for the current time
- 2) Interest ADT:
 - This is an abstract data type that holds state for current interest values for various types of accounts
 - It interacts mainly with Manager interface and the Daily Update Logic
- 3) Account ADT:
 - This component holds state information for every account in the bank, includes properties like :
 - type of account (personal/business)
 - nature of account (savings/checking)
 - balance
 - name of holder(s)
 - any special instructions
 - etc
- 4) Employee ADT:
 - This data type holds information about bank employee's who interact with system.
 - This information includes authentication or pass codes the employees use, currently authorized employees, etc.
- 5) Serialization Logic:
 - This component implements serialization of access to the same account.
- 6) Account Modification Logic:
 - This component enforces the rules of account modification, such as establishes the identity of the modifier and checks to see if the individual has rights to access the given account.
 - It does not authenticate the claimed identity of a modifier
- 7) Daily Update Logic:
 - This component does daily update activities on events from the clock state
 - Its activities include adding interest to accounts, posting deposits made from ATM's, etc.
- 8) Authentication Logic:
 - This component authenticates all users to the system using the Employee ADT and the Account ADT
- 9) Teller Interface:
 - This is a graphical interface that the teller at the bank can use to modify accounts.
 - The interface also interacts with the Clock state component to ensure automatic logout after an hour of bank closing hours.
 - The interface also interacts with the authentication interface to authenticate the teller

10) ATM interface

- This interface interacts with the customer and allows them to modify their accounts by withdrawing and/or transferring funds as well as depositing checks and cash.
- It interacts with the authentication component to authenticate account users

11) Manager Interface:

- This interface is used by the bank manager to set the daily interest rate, to change the list of authorized employees, to access customer accounts, etc.
- It also authenticates the manager.