National University of Computer and Emerging Sciences, Lahore Campus

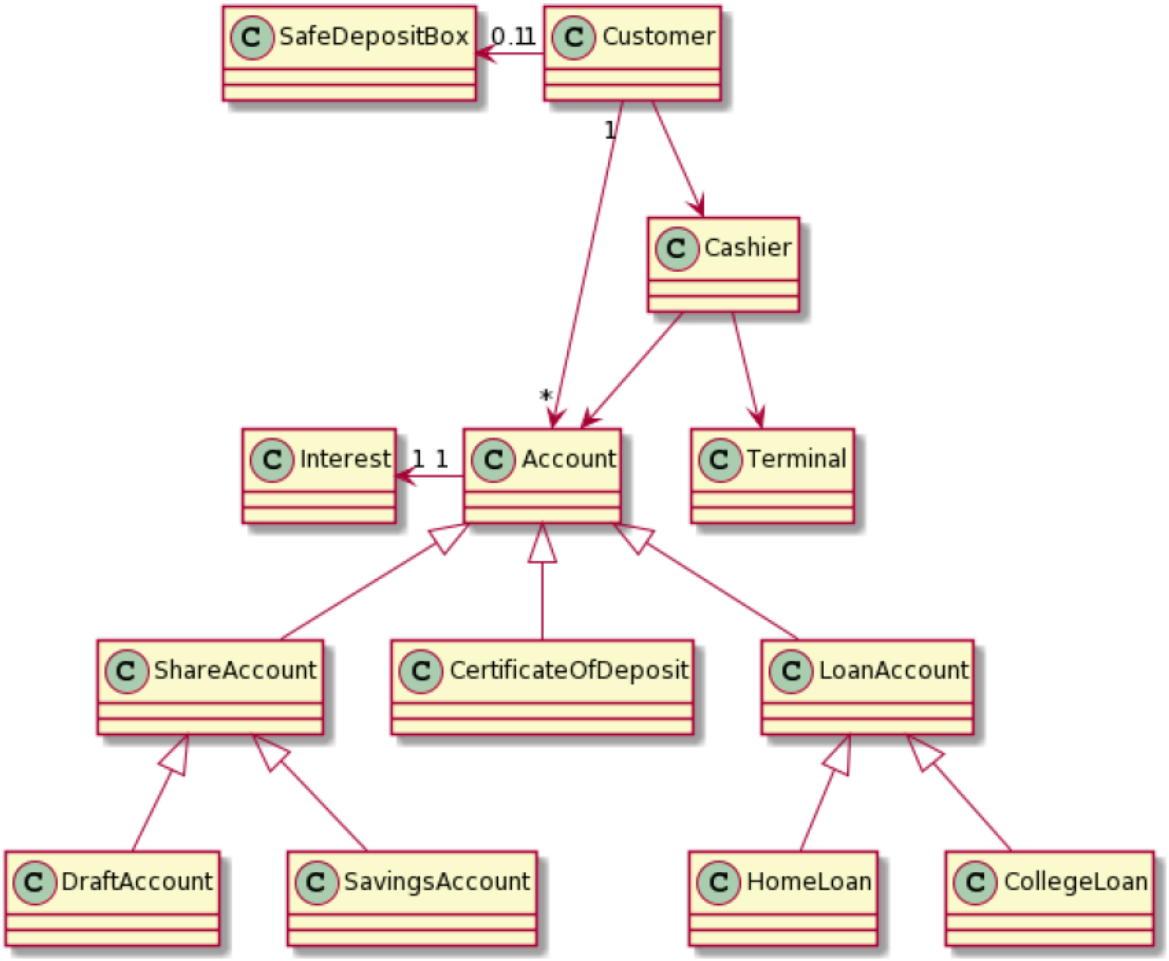
Course:	Software Design and Analysis	Course Code:	CS-3004
Program:	BS (Computer Science)	Semester:	Fall 2023
Duration:	30 Minutes	Total Marks:	15
Quiz Date:	20-Sep-23	Roll No.	
Section:	BCS-5K	Name:	

A bank needs a system to keep track of i) Customers ii) accounts and iii) safe deposit boxes.

Customers will maintain their accounts by making requests to cashiers, who then enter each transaction into a terminal. The cashiers are responsible for accepting or dispensing any money and provide access to safe deposit boxes.

A customer may have multiple accounts and may have a single safe deposit box. An account may be a 1) share account 2) certificate of deposit or 3) a loan account. All accounts generate interest at specific compounding intervals. Besides opening new accounts and closing old ones, customers may check the balance of any open account or request a transaction history. Share accounts must be either draft accounts, which allow customers to write, cancel, or order checks; or savings accounts, which only permit simple withdrawals. Certificates of deposit are meant to be redeemed at a specific maturity date and increase in value until then and they can be cashed out early at their current value, minus a redemption fee. Loans are of a specific amount and remain open until the entire principal owed is remitted in installments no less than the specified minimum payment. The bank tracks the accumulated interest paid and the outstanding balance, although the customer may be allowed to refinance the loan terms. Some loans are home mortgages, which can have variable interest rates, and must be guaranteed by a mortgage insurer. If the customer defaults, the bank may recoup its losses by repossessing the house for liquidation at its assessed value. The bank also offers college loans, whose terms can depend on various federal programs for which the customer may qualify.

- **For this case study, develop an Analysis Class Diagram. Mention attributes, relationships and multiplicity.**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Account
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ShareAccount
CertificateOfDeposit
LoanAccount
DraftAccount
SavingsAccount
HomeLoan
CollegeLoan