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Student Kit

Interest Calculation System for Retail Bank

Objective

The aim is to develop an automated system for calculating daily interest for customer accounts. The system will compute interest daily for accounts with a balance greater than zero, track cumulative interest, and credit the customer's account monthly.

Requirements Specification (RS) :-

Sr No.	Requirement	Essential/Desirable	Description	Remarks
RS1	Account Registration	Essential	Allow users to create new accounts with details such as balance, interest rate, and personal info.	
RS2	Daily Interest Calculation	Essential	Automatically calculate interest daily for each account having a balance greater than zero.	Cumulative interest updated daily
RS3	Update Account Balance	Essential	Enable users to deposit and withdraw money. Interest is calculated based on the updated balance.	
RS4	Cumulative Interest Calculation	Essential	Store daily calculated interest in a cumulative table, which is updated daily.	
RS5	Monthly Interest Credit	Essential	Credit the cumulative interest to the customer's account at the end of each month.	
RS6	Interest Rate Management	Essential	Allow admin users to set and modify interest rates for different types of accounts.	

			Allow users to view account	
RS7	View Account Statement	Desirable	details, daily balance changes, and interest earned.	
RS8	Notification System	Desirable	Notify customers about interest credited to their account at the end of the month.	

Database Fields Specification :-

Customer Account Table

No.	Field Name	Range of Valid Values for the Field	Remarks
1	Account_ID	Unique Identifier	Primary field
2	Customer_Name	Up to 30 characters in length	
3	Balance	Decimal non-negative values	
4	Interest_Rate	Decimal non-negative values	
5	Last_Interest_Calculated	Date	Date when the last interest was calculated
6	Cumulative_Interest	Decimal non-negative values	Accumulated interest to be credited monthly
7	Account_Creation_Date	Date	Date when the account was created
8	Account_Status	Enum (e.g., Active, Inactive, Closed)	Status of the account

High Level/Detailed Design (HLD/DD)

Overview of the system

- **Customer User:**
    - Account Registration
    - Daily Interest Calculation
    - View Account Details
    - Balance Management (Deposit/Withdraw)
    - Interest Credit Notification
    - Monthly Statement Generation
    - Logout
- **Bank Admin:**
    - Admin Login
    - Manage Customer Accounts
    - Update Interest Rates
    - Generate Monthly Reports
    - View Cumulative Interest Data
    - Logout

Test Plan (TP) :-

Se No.	Test Case Title	Description	Expected Result	Requirement in RS Table	Results
1	Account Registration	Test the account registration process for new customers.	User can successfully create a new account.	RS_1	Passed
2	Daily Interest Calculation	Test the daily calculation of interest for accounts with a positive balance.	Interest is calculated and updated daily.	RS_2	Passed
3	Balance Update	Test updating account balance after deposits/withdrawals.	The updated balance is reflected correctly.	RS_3	Passed
4	Cumulative Interest Storage	Test the storage of daily calculated interest in a cumulative table.	Interest is correctly stored and accumulated.	RS_4	Passed

5	Monthly Interest Credit	Test monthly interest crediting process to customer accounts.	The cumulative interest is credited monthly.	RS_5	Passed
6	Interest Rate Update	Test the process of updating interest rates by admin users.	Interest rates are successfully updated.	RS_6	Passed
7	Statement Generation	Test viewing of account details, balance, and interest earned by the user.	User can view detailed account information.	RS_7	Passed
8	Notification System	Test the notification system for monthly interest credit.	Customers receive notifications correctly.	RS_8	Passed