

Project Instructions and Guidelines

Our Project will be a management system. For simplicity, we are limiting our projects within the followings:

- Library Management System.
- Bank Management System.
- Shop Management System.

General Requirements:

- Two types of users of the System.
 - Employee
 - Customer
- Login and Logout process for both type of users.
- All the GUIs MUST be connected.
- Logout option from all the pages.
- Database CRUD Operation. (INSERT, SELECT, UPDATE and DELETE operations)

Feature Requirements:

//You do not need to read the whole pdf. Just read about the project you will do. :D

- **Library Management System:**

Database Tables:

Login		
userId (VARCHAR, UNIQUE)	password (VARCHAR)	status (int) //Value 0 for Employee, 1 for Customer

Employee				
userId (VARCHAR, PRIMARY)	employeeName (VARCHAR)	phoneNumber (up to You)*	role (VARCHAR)	salary (double)

Customer			
userId (VARCHAR, PRIMARY)	customerName (VARCHAR)	phoneNumber (up to You)*	address (VARCHAR)

Book				
bookId (PRIMARY, VARCHAR)	bookTitle (VARCHAR)	authorName (VARCHAR)	publicationYear (int)	availableQuantity (int)

BorrowInfo				
borrowId (PRIMARY, VARCHAR)	bookId (VARCHAR)	userId (VARCHAR)	borrowDate (VARCHAR)	returnDate (VARCHAR)

- Employee can VIEW the information of a Book.
- Employee can VIEW the information* of a Customer.
- Employee can VIEW his own information and if the role of Employee is Manager, he can VIEW other Employee Information.
- All the Employees can ADD Books and if the role of the employee is Manager, he can ADD new Employee.
- All the Employee can UPDATE information of any Books. (bookTitle, authorName, publicationYear, availableQuantity). All the Employee can UPDATE their password, employeeName and phoneNumber. If the role of the employee is Manager, he can UPDATE the role and salary of other Employees.
- All the Employees can DELETE a book from the System.

- Customer can CREATE his Account (Sign up process).
- Customer can VIEW the information of a Book.
- Customer can VIEW his own information.
- Customer can VIEW which book he has borrowed.
- Customer can UPDATE his password, customerName, phoneNumber and address.
- Customer can DELETE his account. In this case the customer will be logged out from the system and will not be able to login further.

- Project Workflow:
 - ✓ A customer Creates his account.
 - ✓ A customer Logs In to the System.
 - ✓ A customer Searches a book in the System and if there is any availableQuantity he can borrow the book.
 - ✓ Employee Manages the Borrowing Process with necessary information.
 - ✓ For each successful borrowing of a book, the availableQuantity of that book will decrease by 1.
 - ✓ Customer goes to the Employee to return a borrowed book.
 - ✓ Employee Manages the Returning process.
 - ✓ For each successful returning of a book, the availableQuantity of that book will increase by 1.

- **Bank Management System:**

Database Tables:

Login		
userId (VARCHAR, UNIQUE)	password (VARCHAR)	status (int) //Value 0 for Employee, 1 for Customer

Employee				
userId (VARCHAR, PRIMARY)	employeeName (VARCHAR)	phoneNumber (up to You)*	role (VARCHAR)	salary (double)

Customer			
userId (VARCHAR, PRIMARY)	customerName (VARCHAR)	phoneNumber (up to You)*	accountNumber (VARCHAR, UNIQUE)

BankAccount	
accountNumber (PRIMARY, VARCHAR)	balance (double)

TransactionInfo				
transactionId (VARCHAR, PRIMARY)	accountNumber (VARCHAR)	transactionType (VARCHAR)	amount (double)	transactionDate (up to You)*

- Employee can VIEW the information of a BankAccount.
 - Employee can VIEW the information* of a Customer.
 - Employee can VIEW his own information and if the role of Employee is Manager, he can VIEW other Employee Information.
 - All the Employees can CREATE Customer and BankAccount and if the role of the employee is Manager, he can ADD new Employee.
 - All the Employee can UPDATE their password, employeeName and phoneNumber. If the role of the employee is Manager, he can UPDATE the role and salary of other Employees.
 - All the Employee can UPDATE BankAccount (balance).
 - If the role of an Employee is Manager, he can DELETE other employee accounts.

 - Customers can VIEW the information of his BankAccount.
 - Customer can VIEW his own information.
 - Customer can VIEW which was his last Transaction.
 - Customer can UPDATE his password, customerName and phoneNumber.

 - Project Workflow:
 - ✓ An Employee creates an Account for the Customer with necessary information.
 - ✓ A customer Logs In to the System.
 - ✓ A customer can check the balance of his account.
 - ✓ Customer goes to the Employee for any Transaction (Deposit, Withdraw and Transfer).
 - ✓ Employee Manages the Transaction Operations of a Customer.
 - ✓ Any amount can be deposited to an account.
 - ✓ A particular amount can be withdrawn from an account if there is sufficient balance.
 - ✓ A particular amount can be transferred from an account to another account if there is sufficient balance.
 - ✓ Information of any kind of transaction is inserted in the TransactionInfo.
- [Note: Transfer is not one Transaction, it is actually two transactions. For example, if \$1000 is being transferred from accountA to account, it means that \$1000 is being withdrawn from accountA and \$1000 is being deposited to accountB.]

- **Shop Management System:**

Database Tables:

Login		
userId (VARCHAR, UNIQUE)	password (VARCHAR)	status (int) //Value 0 for Employee, 1 for Customer

Employee				
userId (VARCHAR, PRIMARY)	employeeName (VARCHAR)	phoneNumber (up to You)*	role (VARCHAR)	salary (double)

Customer			
userId (VARCHAR, PRIMARY)	customerName (VARCHAR)	phoneNumber (up to You)*	address (VARCHAR)

Product			
productId (PRIMARY, VARCHAR)	productName (VARCHAR)	price (double)	availableQuantity (int)

PurchaseInfo					
purchaseId (PRIMARY, VARCHAR)	productId (VARCHAR)	userId (VARCHAR)	quantity (int)	amount (double)	purchaseDate (up to You)*

- Employee can VIEW the information of a Product.
- Employee can VIEW the information* of a Customer.
- Employee can VIEW his own information and if the role of Employee is Manager, he can VIEW other Employee Information.
- All the Employees can ADD Products and if the role of the employee is Manager, he can ADD new Employee.
- All the Employee can UPDATE information of any Products. (productName, price, availableQuantity). All the Employee can UPDATE their password, employeeName and phoneNumber. If the role of the employee is Manager, he can UPDATE the role and salary of other Employees.
- All the Employees can DELETE a product from the System.
- Customer can CREATE his Account (Sign up process).
- Customer can VIEW the information of a product.
- Customer can VIEW his own information.
- Customer can VIEW which product he has bought.
- Customer can UPDATE his password, customerName, phoneNumber and address.
- Customer can DELETE his account. In this case the customer will be logged out from the system and will not be able to login further.
- Project Workflow:
 - ✓ A customer Creates his account.

- ✓ A customer Logs In to the System.
- ✓ A customer Searches a product in the System and if there is any availableQuantity he can buy that product.
- ✓ Employee Manages the Buy-Sell Process with necessary information.
- ✓ For each successful Selling of a product, the availableQuantity of that book will decrease by the quantityPurchased and necessary information will be inserted in the PurchaseInfo table.

Note: I know a lot of you are thinking about many things that I missed in the requirements. You are always welcome to do as your own conception. I have just said a few things that should be in your Project. Feel Free to mail me whenever you are stuck or you need any clarification. I will show a common part of all the projects on Monday.