

COSC 31093 -Enterprise Software Design and Architecture

Course Project Assignment

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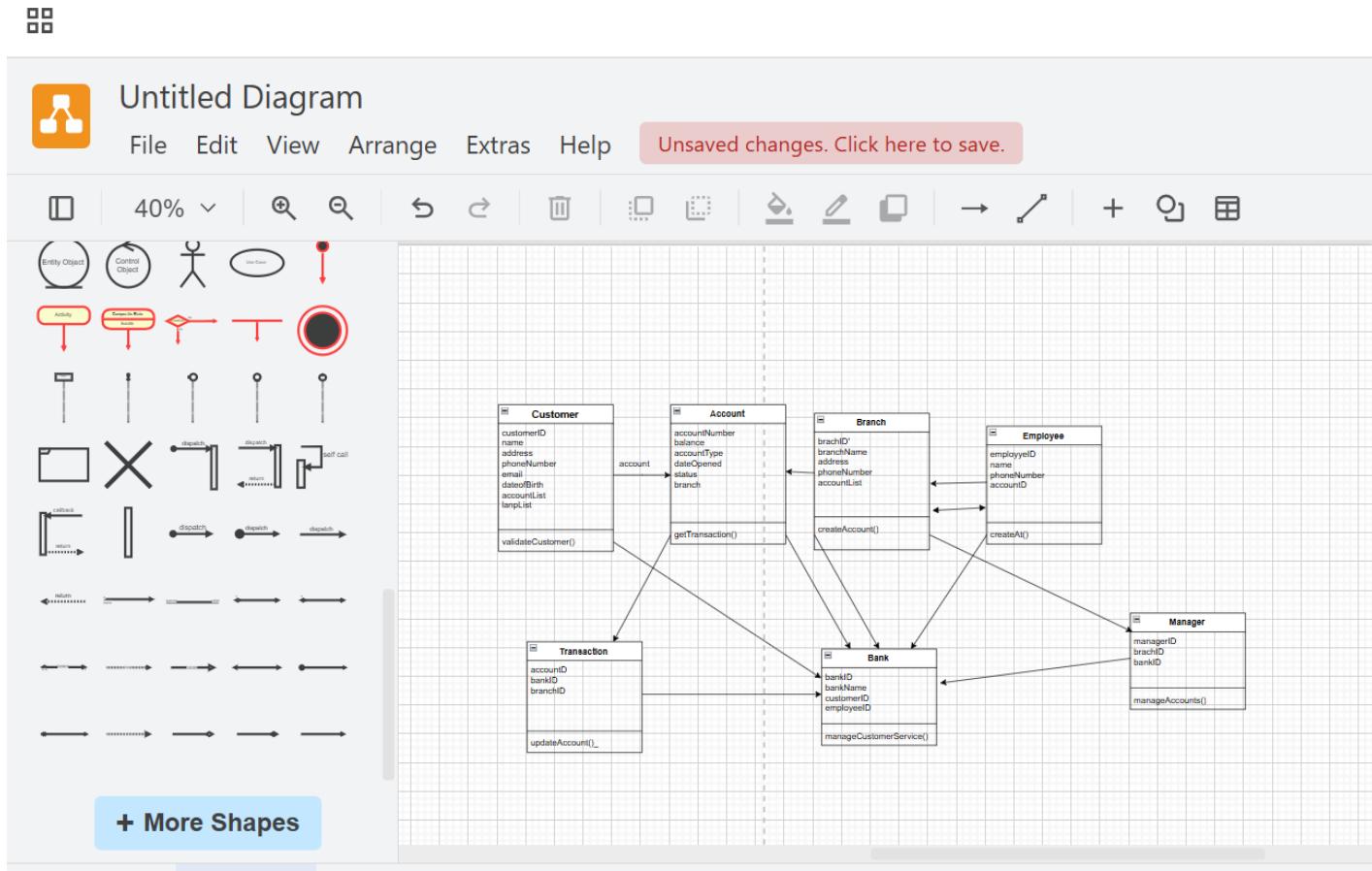
Project Proposal: Bank Management System

The purpose of the Bank Management System application is to streamline and automate the core banking operations such as managing customer accounts, processing transactions, handling loans, and monitoring branch operations. This application aims to enhance operational efficiency, minimize errors, and provide secure, real-time access to banking services.

Key features/modules include customer account management, transaction processing, loan approval and tracking, employee and branch management, and interest calculation. The system is designed for bank staff such as managers, clerks, and loan officers, as well as customers who can view and manage their accounts. UML diagrams have been created using Draw.io to visualize the system's structure and behavior.

Diagram Descriptions

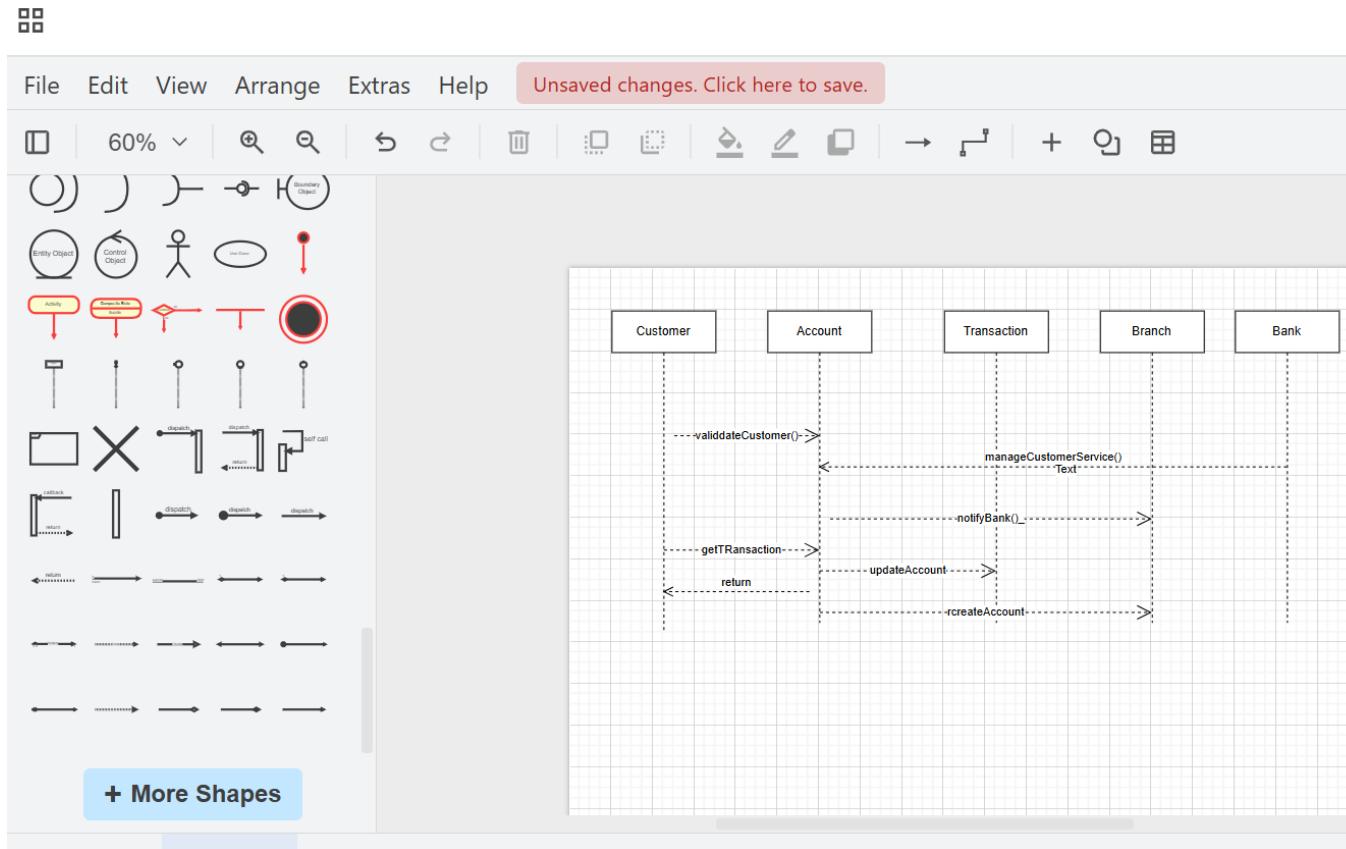
1. Class Diagram (Bank Management System)



This diagram illustrates the static structure of the system by showing classes such as Customer, Account, Transaction, Branch, and Employee. Each class includes attributes (customerID, accountNumber, interestRate) and methods (validateCustomer(), calculateFee()). Relationships between classes such as inheritance (Manager from Employee) and associations (Account belongs to Customer) define how components are interconnected.

2. Sequence Diagram (Bank Management System)

The sequence diagram depicts the dynamic interaction between objects over time. It shows how a Customer initiates account creation, how interest is applied to a savings account, and how a transaction is processed and assigned to an Employee. Further interactions involve Branches and the Manager for task execution, representing the typical flow of operations in the system.



Key Services

- i) Customer Management
- ii) Transaction Processing
- iii) Account Management

RESTful API Endpoints

Endpoint URL	HTTP Method	Description	Technology used
/api/customers	GET	Retrieve all customers	Node.js, Postman, MySQL

/api/customers/{id}	GET	Retrieve customer by ID	Node.js, Postman, MySQL
/api/customers	POST	Register a new	Node.js, Postman, MySQL
/api/transaction	POST	Make a deposit or withdrawal	Node js,Postman, MySQL
/api/accounts	POST	Create a bank account for a customer	Node js,Postman MySQL

The screenshot shows the Postman application interface. At the top, there's a navigation bar with 'Home', 'Workspaces', 'Explore', a search bar, and 'Sign In' and 'Create Account' buttons. Below the header, a message says 'You are using the Lightweight API Client, sign in or create an account to work with collections, environments and unlock all free features in Postman.' On the left, a 'History' sidebar lists recent requests: 'GET http://localhost:8080/api/...', 'PUT http://local...', 'POST http://local...', 'POST http://localhost:8080/api/Customer...', and 'POST http://localhost:8080/api/Customer...'. A 'Go beyond HTTP requests' section with a 'Got It' button is also visible. The main workspace shows a request to 'http://localhost:8080/api/Customer/1'. The 'Body' tab is selected, showing a JSON payload:

```

1 Body:[{"fullName": "Jhone",
2 "email": "jhone@gmail.com",
3 "nic": "20003456",
4 "Phone": "0710987654"}]

```

Below the body, the 'Pretty' tab is selected, showing the raw XML response:

```

1 <!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
2 <HTML>
3
4 <HEAD>
5 | <TITLE>401 Unauthorized</TITLE>
6 </HEAD>
7
8 <BODY>

```

The status bar at the bottom indicates '401 Unauthorized 125 ms 421 B | Save Response'.

You are using the Lightweight API Client, sign in or create an account to work with collections, environments and unlock all free features in Postman.

History New Import POST http://localhost:8080/api/Customer + ...

http://localhost:8080/api/Customer

POST http://localhost:8080/api/Customer

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies

Body (radio button selected)

none form-data x-www-form-urlencoded raw binary Text

```
1 Body: "fullName": "Ama Siriwardhana",  
2 "email": "ama@gmail.com",  
3 "nic" : "20001234";  
4 "Phone": "0713456678";  
5
```

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize

401 Unauthorized 127 ms 421 B Save Response

Create collections in Postman

Use collections to save your requests and share them with others.

Create a Collection

Activate Windows
Go to Settings to activate Windows.

You are using the Lightweight API Client, sign in or create an account to work with collections, environments and unlock all free features in Postman.

History

New Import

PUT http://localhost:8080/api/Customer/1

HTTP http://localhost:8080/api/Customer/1

Save

Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies

Body

none form-data x-www-form-urlencoded raw binary Text

1 Body:{"fullName": "Jhone";
2 "email": "jhone@gmail.com";
3 "nic": "20003456";
4 "Phone": "0710987654";
5 }

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize HTML

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