

Banking System Website

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Abstract

This is a simple website developed in Python and Django Framework with implementing Tailwind CSS. The main goal of this project is to provide bank account holders with an online platform to make some transactions. The website allows the user to transfer the amount to others using the account numbers. It has a pleasant user interface using Tailwind CSS Framework and this website consists of user-friendly features and functionalities.

This banking system website requires the newly registered users to deposit money as the starting balance of their online account. Here, users can deposit a new amount to their account and withdraw from their current balance with the help of admin or staff. The system also lists all the transaction records of the users that were done using the website. On the Transaction Records page, users can view the records of his account transactions from beginning itself.

1. Introduction

The Online Banking System are been introduced in recent 2016. Banks have become a digital online service platform, allowing customers to perform transactions, check balances, and manage accounts. Several banks and financial institutions have developed online banking platforms to improve customer experience and reduce operational costs.

- **Core Banking Systems (CBS):** Used by major banks to connect branches and provide real-time transactions.
- **Mobile Banking Apps:** Platforms like Phone Pay, Google Pay, and Paytm allow users to make transactions without visiting a bank.

- **Internet Banking Portals:** Websites that provide services like fund transfers, bill payments, and loan applications[1-34].

2. Problem Statement

The banking systems won't able to display the transaction records in the online portal which later been retrieved physically by going through the banks officials only who can access the records of the particular individual account. By this the person cannot track the record of his banking records in easy way which will cost him a time usage to analysis his records for verification of his financial profit and loss of his monthly expenditures. The Online portals of the major banks focus on the advertising of their necessary policies and loans which are not needed for a common person who only uses the bank website to fetch his financial records related to his account. The banking portal doesn't have the secure transaction performance as compared to the private applications which are only used a specified task.

3. Literature Survey

Online Banking System: A web-based system for banking system (2021)

This website has been implemented using the simpler HTML and CSS and the operations of the logical calculations are performed with the java programming language. The oracle has been utilized to store the records related to the website operations. The website has been developed by the Eclipse IDE for the implementation of the project. The oracle will perform the backend operations of the online banking system. The online website is very simple and not more attractive to work in it. The data is not more secure and it can be duplicated as per previous records as stored in it and easy to manipulate it and mismatch the records from retrieving them.

Bank Management System (2022):

The System was developed by the Django framework which has been implemented for the categorizing of the account types and performing the other transaction operations. The frontend of this system is utilized the HTML, CSS3 and JavaScript. The system only used to perform the transactions based on targeted accounts with the help of the username. This

bank system was introduced to perform simpler task to reduce the tasks of the individual. The SQLite3 is been used to store the data. The website is been implemented as the basic need to perform the transactions but performed without unique ids. The account numbers are not consists of the bank id which will mislead the real-world financial reports for classification.

Simple Banking System (2021):

This website has been addressed with using of PHP which was executed on the server side. The PHP consists of the frontend development and generate the dynamic content of the system. The XAMPP was used to control the backend resources to manage the data storing of the performed actions in the website. The website was implemented to present transactions of the account the user and the deposits and withdraws. The website is categorized on the viewing types based on the user's level. The transactions history is been displayed to the user and the admin. The admin will perform the deposits and withdraws of the amount in the user account. The funds are been transferred to the required accounts through the account number of 6-digits. There is no unique transaction ids used in this system which leads to mismatch of the records for analysis.

4. Existing Websites

In the previous websites of banking system, the transactions of deposit and withdraw the money by himself self without any authorizer's permission. The website of previous banking will just use to register the user details with not much validations of personal information which is majorly needed to know about an individual in the society. The transactions of the banking system don't view the records to the user which are been stored in the databases. The records are only been in the operations of the development phase only. The history of the account user has difficult to be retrieved for the verifications. Account numbers are been in unique but doesn't consist of the Bank Id's to represent the particular bank which leads to duplications of the account numbers of the other banks. The user accessible frontend design is been implemented just simple and doesn't attract the user mind to utilize it to perform the online banking operations.

5. Problems Faced

Security is one of the biggest concerns in online banking. Some common threats include:

- **Phishing Attacks:** Cybercriminals attempt to steal user credentials through fake banking websites.
- **Data Breaches:** Unauthorized access to banking databases can expose sensitive customer information.
- **Identity Theft:** Hackers use stolen personal information to perform fraudulent transactions.
- **Session Hijacking:** Attackers exploit active user sessions to gain unauthorized access to accounts.

To address these risks, Django implements some middleware authentication methods, and password validators.

6. Proposed System

The proposed banking system website addresses the shot outcomes of previous existing bank websites. This website has been implemented using the Python and Django framework for easy performing of secure operations related to the banking system. The website uses the Tailwind CSS for user-friendly implementation of the frontend framework. The Administrator panel is access by only the admin of the website who can authorise the database for storing and retrieving of records. The user consists of the unique account number with the bank id and for every transaction the new unique transaction id is generated for easy retrieving of records related to a particular account. The user can have the access to the bank transaction details of his account which are been represented in the statements with date & time and related details to specify the particular transaction.

7. Project Modules

1. User Module
2. Transaction Module
3. Statements Module
4. Admin Module

8. Functionalities of every Module

1. User Module:

The user module consists of the registration and login pages which are been used to fetch the data of the user for validation and to provide a unique bank account number for performing the banking operations.

2. Transaction Module:

Make transactions and payments securely and perform in an efficient and fastest way and the transactions will be uniquely represented with their Id's which cannot be duplicated. The transactions are performed based on the account numbers of both sender and receiver.

3. Statements Module:

This module is used to present the history of bank account financial transactions with the particular date & time and Transaction IDs of an individual account. The transactions are been stored in the database which are been retrieved with their unique Id's.

4. Admin Module:

The admin module will authorize the entire database entries which are been stored in a particular table for easy retrieving for analysis. The admin will be authority of the website actions to be performed based on the requests and will assigns the role for every entry of individual actions like staff or user.

9. Advantages

1. Convenience and Accessibility:

Customers can access their accounts anytime and anywhere without visiting a physical bank branch. It allows transactions, account management, and bill payments with easy accessibility.

2. Improved Efficiency:

Reduces the need for manual processing, making banking operations faster and more efficient. It automates the online transactions such as funds transfers, loan applications, and account updates.

3. Enhanced Security:

Implements security measures such as encryption, authentication, and fraud detection to protect customer data. It reduces the risk of unauthorized access and fraudulent activities.

4. Cost-Effective:

Lowers operational costs for banks by reducing the need for physical branches and manual processing. Minimizes paperwork and administrative expenses.

5. Real-Time Transactions:

Customers can transfer funds instantly and receive real-time transaction updates. It provides instant notifications and alerts for account activities.

6. User-Friendly Interface:

The website is designed with an intuitive and responsive interface for easy navigation. Customers can quickly check balances, transfer money, and perform other banking tasks.

7. Financial Management Tools:

Provides account statements, transaction history, and expense tracking features. Helps users manage their finances and monitor spending habits.

8. Scalability and Future Expansion:

Can be expanded with additional features such as mobile banking, AI-powered chatbots, and investment services. Easily integrates with other financial platforms and third-party services.

9. Customer Satisfaction and Retention:

Offers personalized banking experiences with customized notifications and services. Improves customer engagement and loyalty through efficient service delivery.

10. Regulatory Compliance and Record Keeping:

Ensures compliance with banking regulations and policies. Keeps digital records of transactions for auditing and legal purposes.

11. Future Work

The future development of the Banking System Development aims to provide the more advanced functionalities. To provide a dedicated mobile application and makes it easier to access the user from anywhere and anytime. The GPS Location access will be added to access the location of the user when the banking website is accessed and it is used to locate the unauthorized location to reduce the risk of the financial treats.

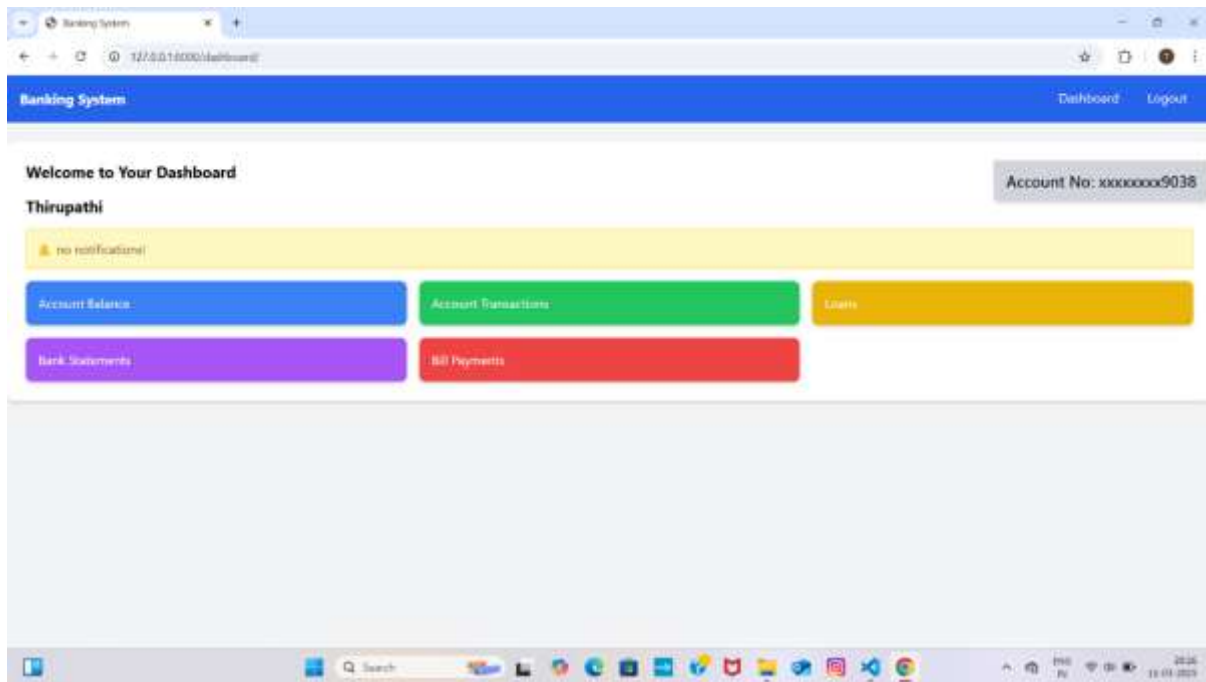
Adding another feature to be accessed is Loan Module. This module is used to provide to track loan application status and to apply a new loan application without the physical visiting of the bank and validating with the official Id proofs and other financial proofs provided by the government.

12. Conclusion

The Banking System Website will be the secure, efficient and user-friendly interactive platform for performing financial transactions and account details. It provides the secure User authentication, easy money transfer and a real-time account management. By Django as the backend framework, Python as middleware and Tailwind CSS for a responsive frontend, the system ensures effective performance and user experience.

With a well-structured design and a focus on security, this system aims to meet the needs of both users, staffs and admins, offering a solution for modern banking requirements. The Transaction Id's are been implemented in a sequential manner and unique account numbers ensures easy track of records.





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