IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)
An International Open Access, Peer-reviewed, Refereed Journal

SVR Smart Bank: An Innovative Approach to Bank Management System.

[1]Amit Dhondiram Pawar, [2]Devendra Thombal, [3]Prof Rajana Singh

[1] (B.Tech Final Year Student), Dept. of Information Technology in Data Science, [2](B.Tech Final Year Student), Dept. of Information Technology in Data Science, [3]((Professor)Dept. of ,Information Technology in Data Science
[1]Dept. of Information Technology in Data Science,
[1]Ajeenkya D.Y Patil University , Pune, India

Abstract: With the objective to improve banking operations and user experience, this paper introduces SVR Bank, a digital bank management system. Key functions including account administration, transaction processing, and a password recovery system via name and cell phone number are all included in SVR Bank, which prioritizes security, scalability, and user-friendliness. The dark- themed user interface of the system is contemporary, visually appealing, and functionally optimized. In order to address the difficulties in putting important banking functions into practice while maintaining a safe and user-friendly platform, this study investigates the system's architecture and development. SVR Bank provides both users and administrators with a smooth and effective digital banking experience, acting as a comprehensive solution for contemporary banking environments.

Index Terms - Digital Banking ,Bank Management System

I. INTRODUCTION

The banking industry has seen substantial change as a result of the emergence of digital technologies, leading to a move toward safer and more effective management methods. By providing a cutting-edge, scalable system that incorporates crucial banking features like account administration, transactions, and secure authentication, the SVR Bank administration System seeks to address these issues. This system's user-friendly interface, strong security measures, and automation are intended to improve user experience and expedite banking procedures. SVR Bank meets the changing needs of financial institutions and their clients by emphasizing security and efficiency. This essay examines the creation and application of the SVR Bank Management System, providing details on its main features, design, and possible effects on the banking sector.

II. LITERATURE REVIEW

A growing demand for digital banking systems that can effectively handle essential financial functions while upholding strict security and user experience criteria is highlighted by recent studies. Smith (2020) asserts that combining automation with mobile- based authentication is essential to guaranteeing banking services' effectiveness and security. In order to increase customer happiness, Kumar (2021) emphasizes the significance of user interfaces that are easy to use. According to research by Johnson & Lee (2022), strong security measures are essential for defending private client information against online attacks. Furthermore, it has been demonstrated that a move toward dark-themed user interfaces improves usability, especially in low-light conditions (Davis, 2023). By combining these ideas, SVR Bank Management System provides a safe, automated, and intuitive banking solution that complies with the most recent developments in the financial technology industry.

III. NEED OF STUDY

Traditional banking systems frequently find it difficult to satisfy the increasing demands for security, efficiency, and user-centric design as a result of the quick expansion of digital banking. Advanced bank management systems that not only simplify operations but also offer users safe and seamless experiences are desperately needed. Numerous outdated systems have ineffective transaction processing, outdated interfaces, and password recovery features, which causes user annoyance and delays in business operations. These issues are resolved by the **SVR Bank Management System** with the integration of mobile-based recovery tools, user- friendly interfaces, and secure login procedures. To investigate the creation of such a system, evaluate its efficacy, and show how contemporary technology can be used to create a banking solution that satisfies present and future demands, this study is crucial.

IV. RESEARCH AND METHODOLOGY

Analysing the shortcomings of conventional banking systems and the rising need for safe, automated, and user-friendly digital banking platforms are the main goals of the study. Modern systems must include strong security, user-friendly interfaces, and effective processing due to rising cyber threats, consumer expectations, and the requirement for 24/7 accessibility. By creating the SVR Bank Management System, which combines basic banking functions with improved features including mobile-based password recovery and a dark-themed user interface, this project seeks to address these problems. To learn about current trends and best practices, scholarly articles and digital banking systems were reviewed. The study investigates how contemporary design concepts and technology can be successfully integrated to enhance data security, operational effectiveness, and customer experience in banking settings.

The Software Development Life Cycle (SDLC), which includes planning, analysis, design, implementation, and testing, was followed in the creation of the SVR Bank Management System. Python was chosen for the system's development because to its ease of use and adaptability, and Tkinter was used as the GUI framework to produce a contemporary, interactive desktop interface. MongoDB was chosen for data storage and retrieval because of its scalability and flexibility when working with non- relational data. Visual Studio Code (VS Code), which provides an effective and developer-friendly environment, was used for development. Modules for registration, login, deposits, withdrawals, transaction histories, and password recovery are all included in the system. The visual experience is improved by an interface with a dark theme. To verify system accuracy, security, and dependability across all essential components, functional testing methodologies were used.

The SVR Bank Management System was created using an organized Software Development Life Cycle (SDLC) methodology to guarantee the application's scalability, maintainability, and quality. The following phases are part of the approved SDLC framework: planning, analysis, design, implementation, and testing.

4.1 Proposed System

A safe and intuitive desktop program, our suggested SVR Bank Management System is made to simplify basic banking tasks like user registration, login, deposit, withdrawal, transaction history, and password recovery. The system, which was created with Tkinter for a contemporary graphical user interface and Python for backend functionality, guarantees an engaging and interactive experience. Scalable and effective data management is achieved with Mongo DB. The program has a dark appearance, rigorous input validation, including mobile number verification, and PIN-based authentication. Future scalability and simple maintenance are made possible by a modular construction. To improve user comfort, the system additionally facilitates password recovery using cell phone and name verification. The system's accuracy, dependability, and seamless operation across all features were tested functionally to make sure it was appropriate for small to medium-sized banking operations.

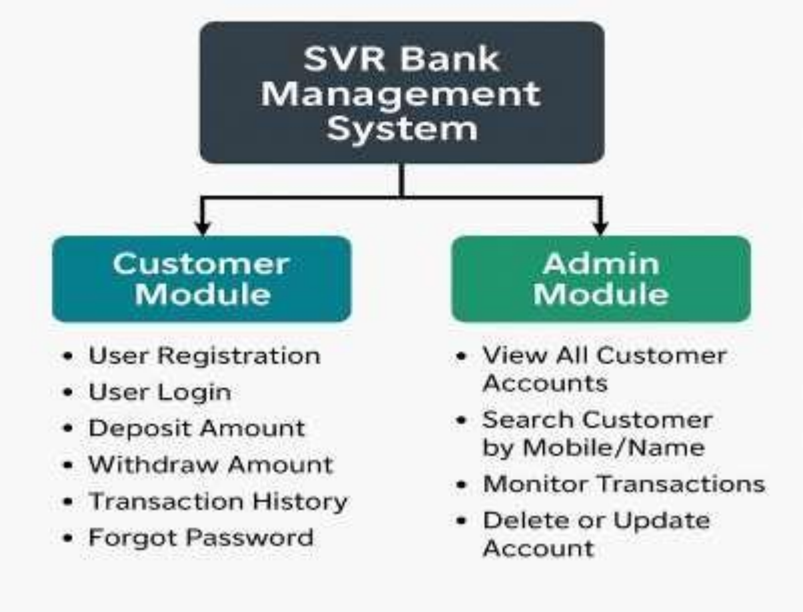
4.2 Functional Requirments

The Admin Module and the Customer Module are the two main modules of the SVR Bank Management System, and each has certain functional needs.

Users can register by entering their personal information (name, last name, mobile number, and PIN) in the Customer Module. PIN security and mobile number uniqueness are checked. Customers can use their name and PIN to log in after

successfully registering. They can access transaction history, make deposits and withdrawals (as long as the amount is within their balance), and check their account balance. Customers can reset their PIN by using a password recovery function that verifies their mobile number for extra security.

Administrators are able to see, edit, and remove user accounts using the Admin Module. By examining the state of the MongoDB database, administrators may keep an eye on all user transactions, create reports on system activity, and guarantee system health. The module makes thorough oversight possible, enabling administrators to efficiently administer the entire system.



4.2 System Flow

The Customer Module is where the SVR Bank Management System flow starts. By creating an account and entering basic information including their name, last name, mobile number, and PIN, a user starts the procedure. The system makes that the PIN satisfies security criteria and that the cellphone number is distinct. The customer is taken to the login page after successfully registering, where they must authenticate themselves with their name and PIN.

Customers can monitor their account balance, make deposits, and withdraw money (subject to balance availability) after logging in. For a thorough summary of their account activity, customers can also see their transaction history. Customers can reset their PIN using the supplied recovery method or use their mobile number if they can't remember it.

The administrator has access to a dashboard in the Admin Module that allows them to see, modify, and remove user accounts. Administrators can keep an eye on financial activities because they have complete access to customer transactions and account information. In order to make sure that the database is operating efficiently and that the system is safe and operational, they can also create reports and carry out system health checks. Administrators play an oversight role in maintaining the system's dependability and efficiency

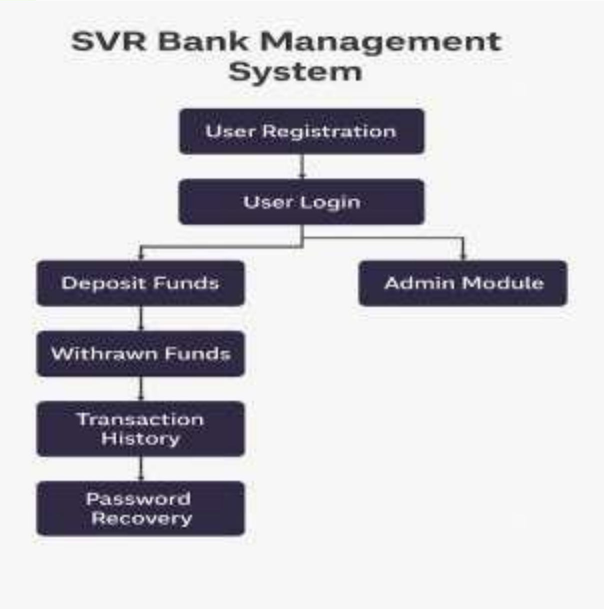


Fig:Flowchart

V Results

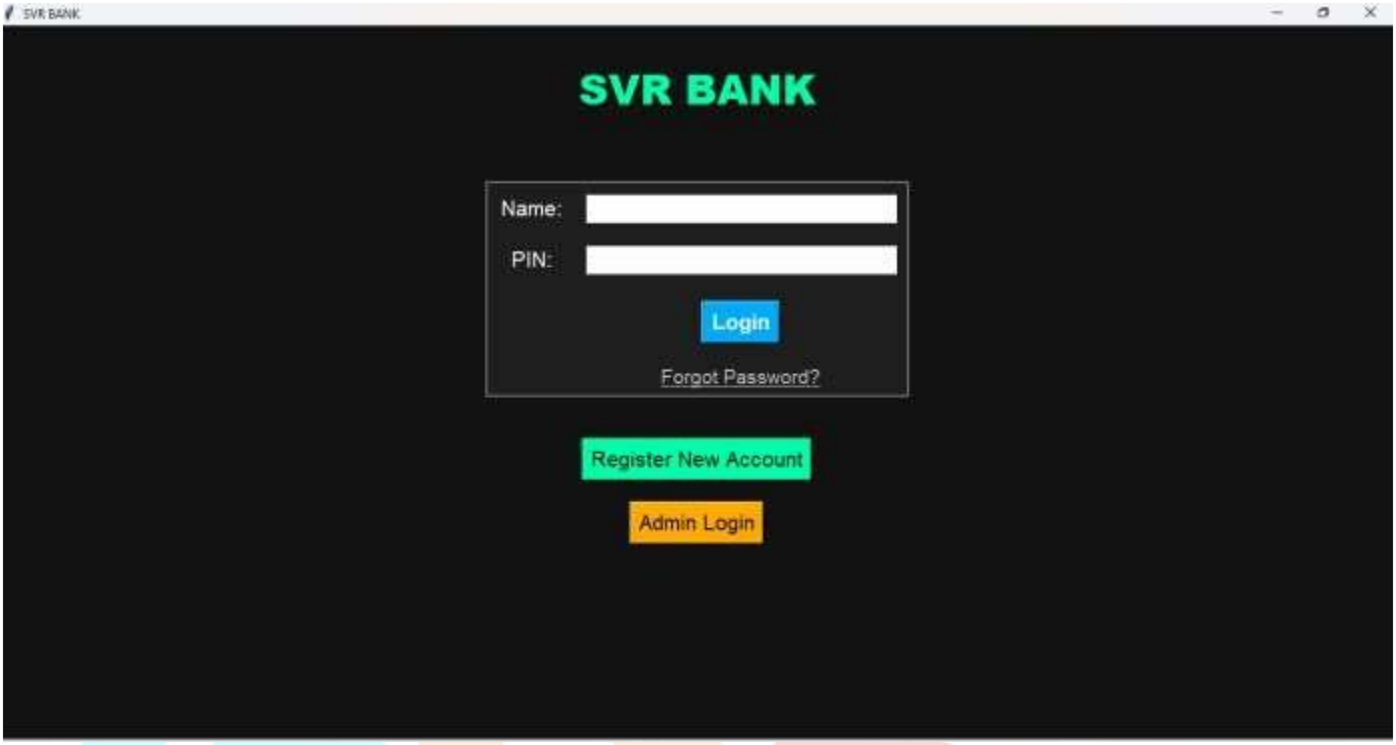


Fig: LOGIN PAGE

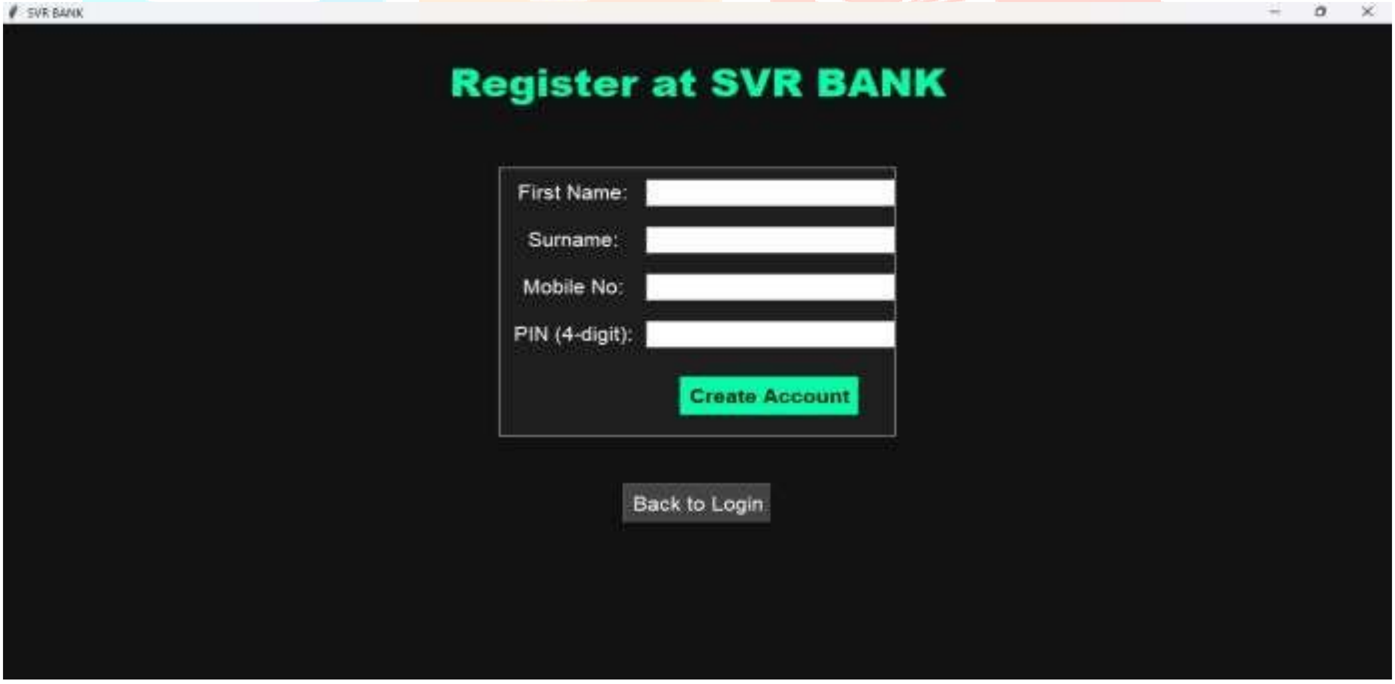
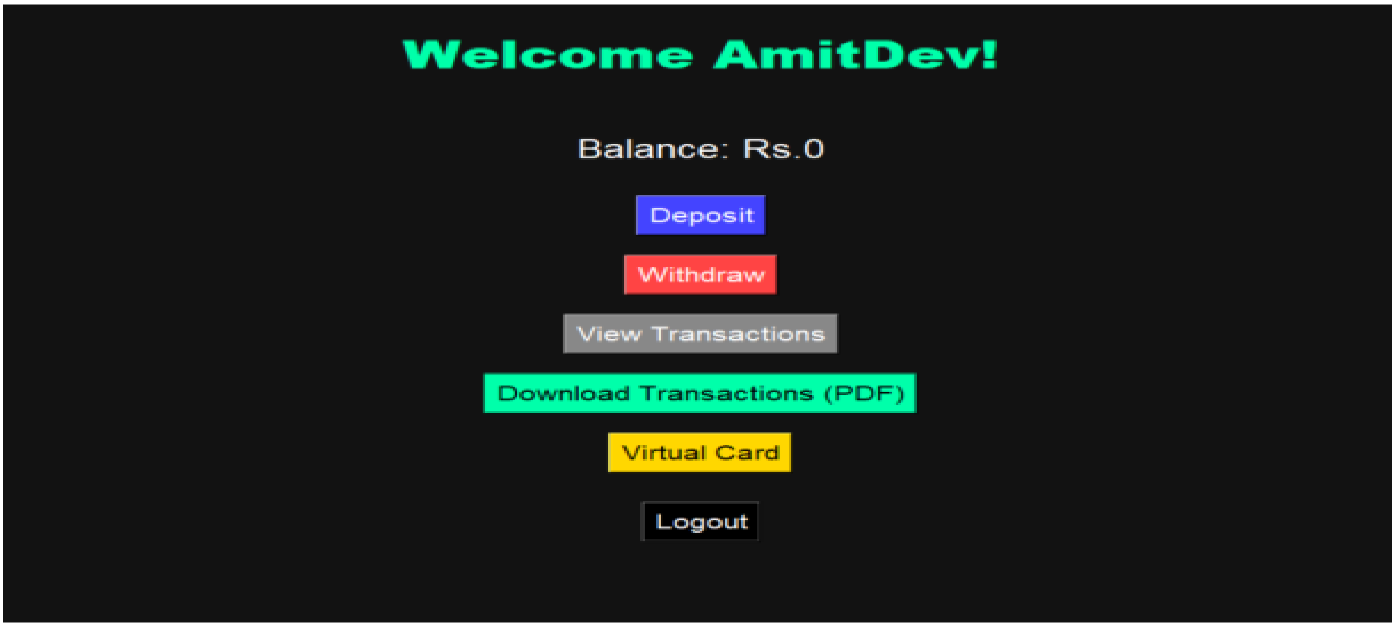


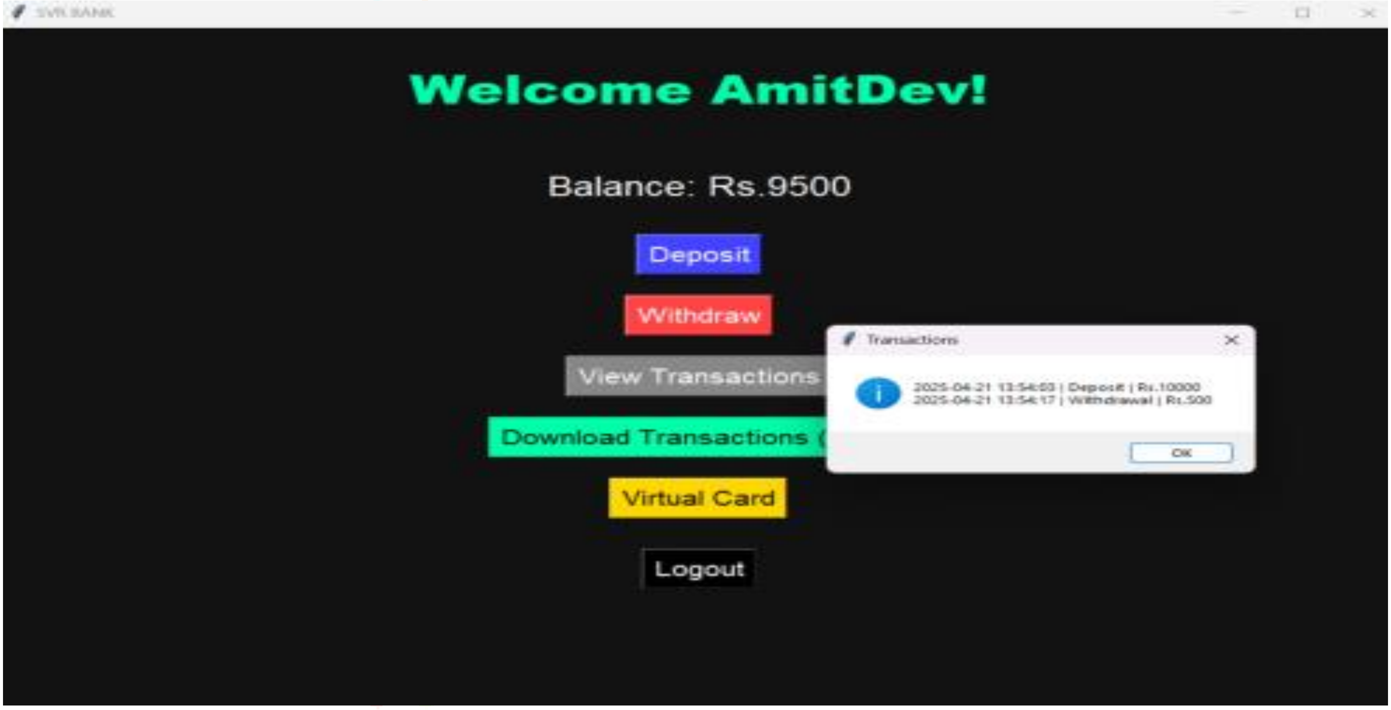
Fig: Registration Page



Welcome AmitDev!

Balance: Rs.0

Fig: Welcome Page

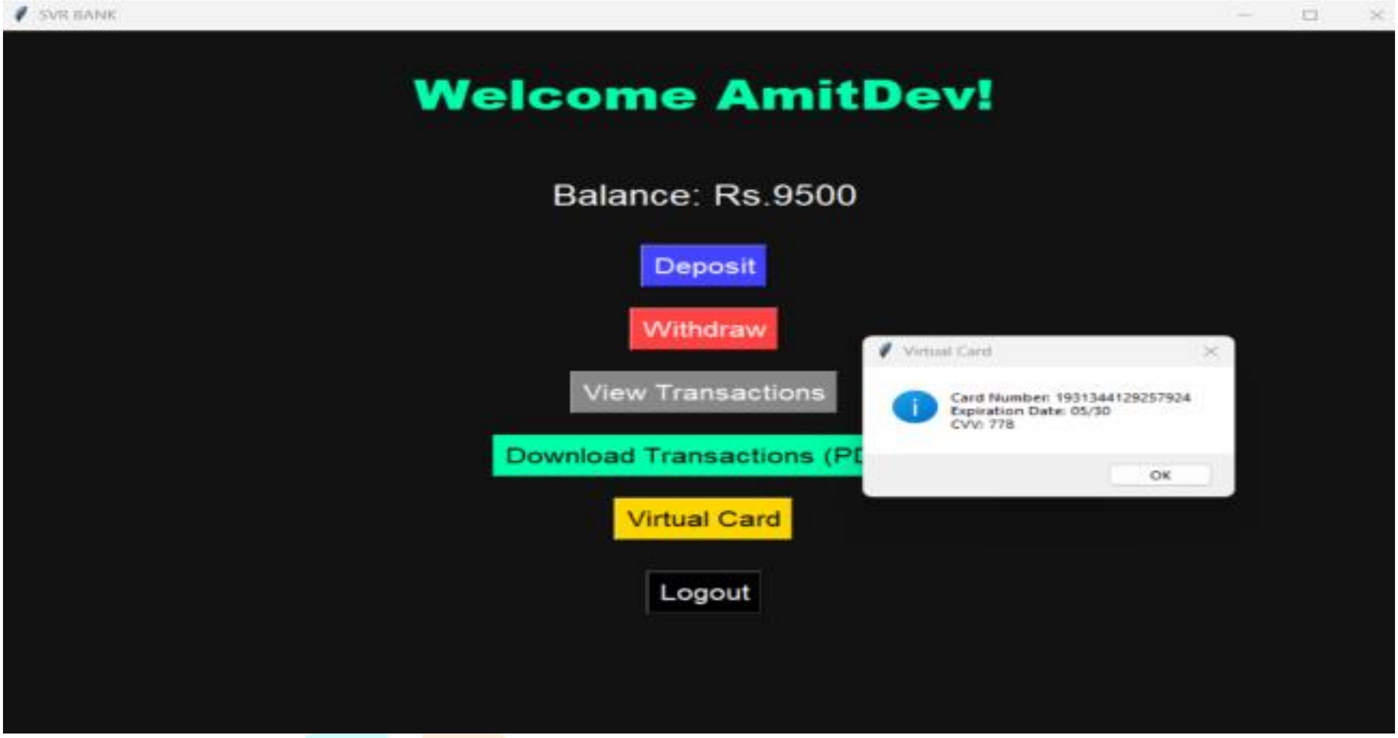


Welcome AmitDev!

Balance: Rs.9500

```
2025-04-21 13:54:03 | Deposit | Rs.10000
2025-04-21 13:54:17 | Withdrawal | Rs.500
```

Fig: Transaction Histroy

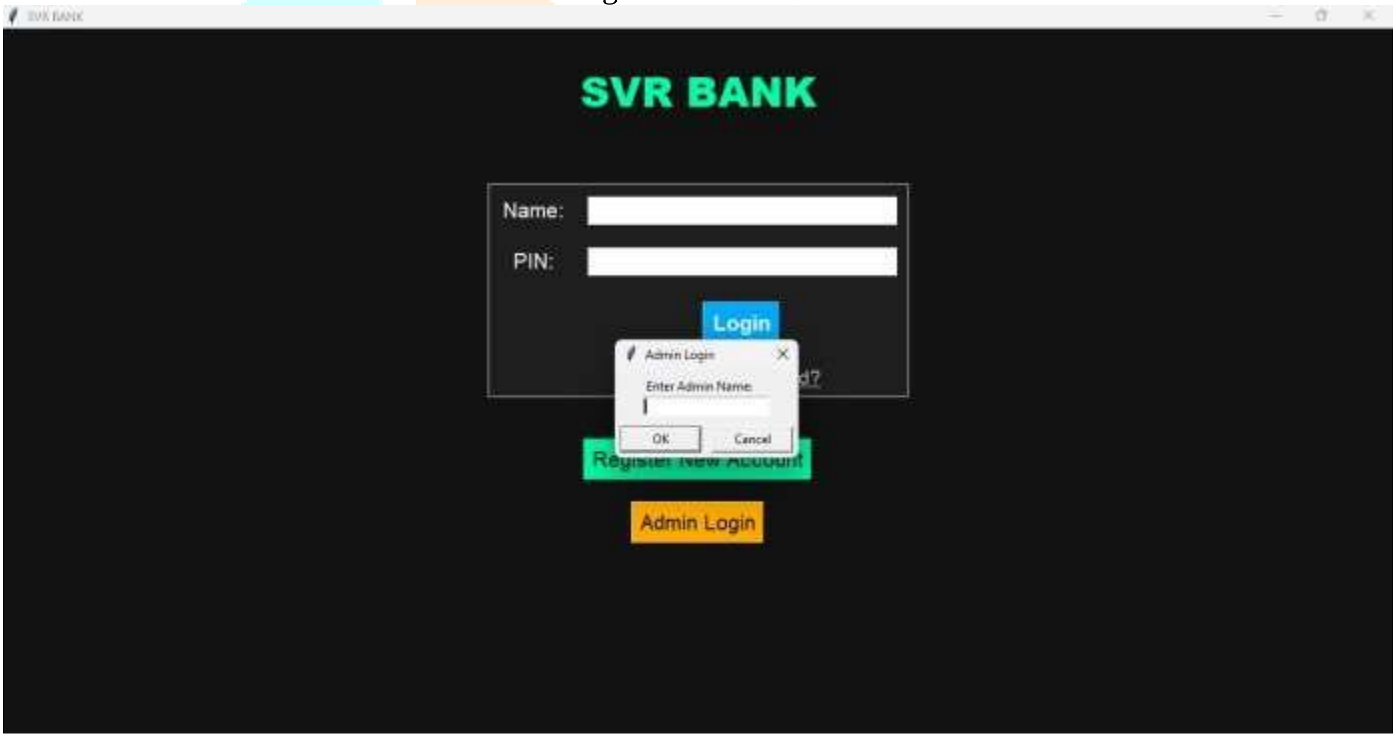


Welcome AmitDev!

Balance: Rs.9500

Card Number: 1931344129257924
Expiration Date: 05/30
CVV: 778

Fig: Virtual Card



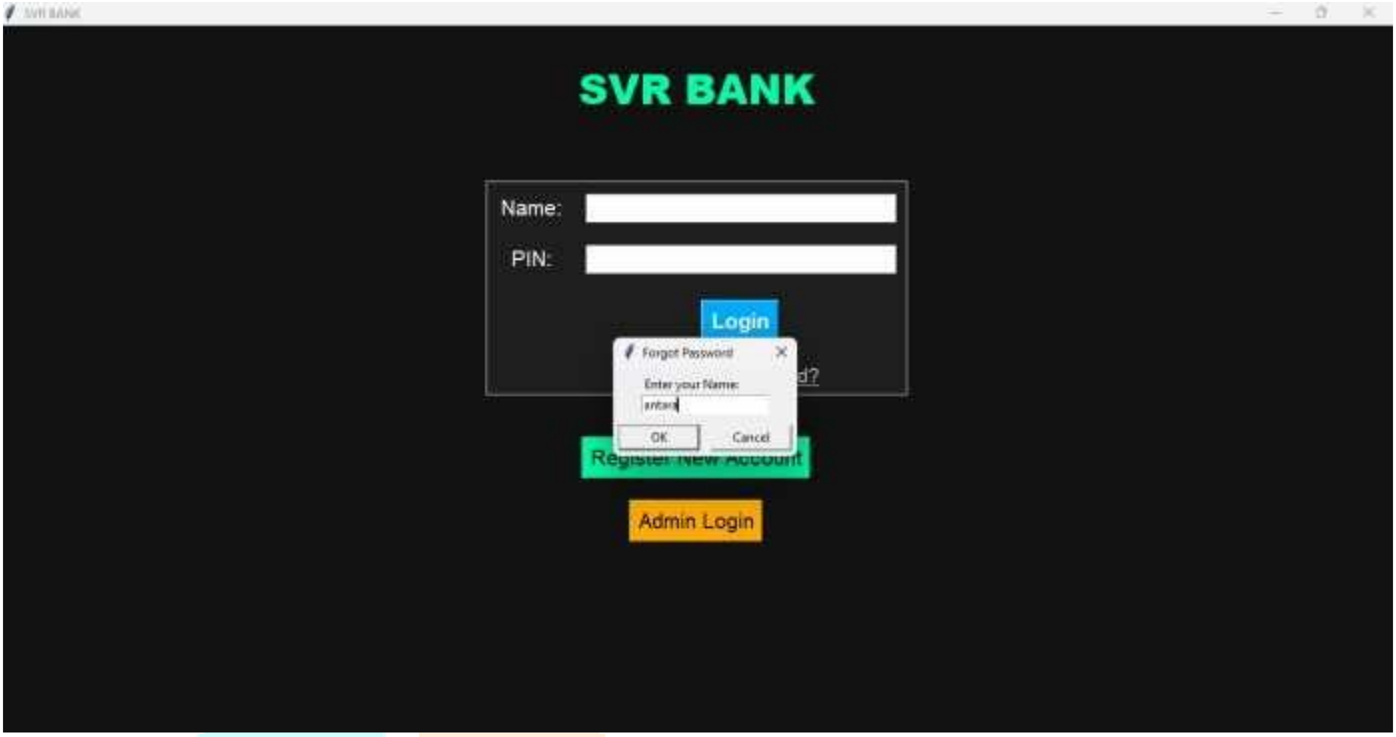
SVR BANK

Name:

PIN:

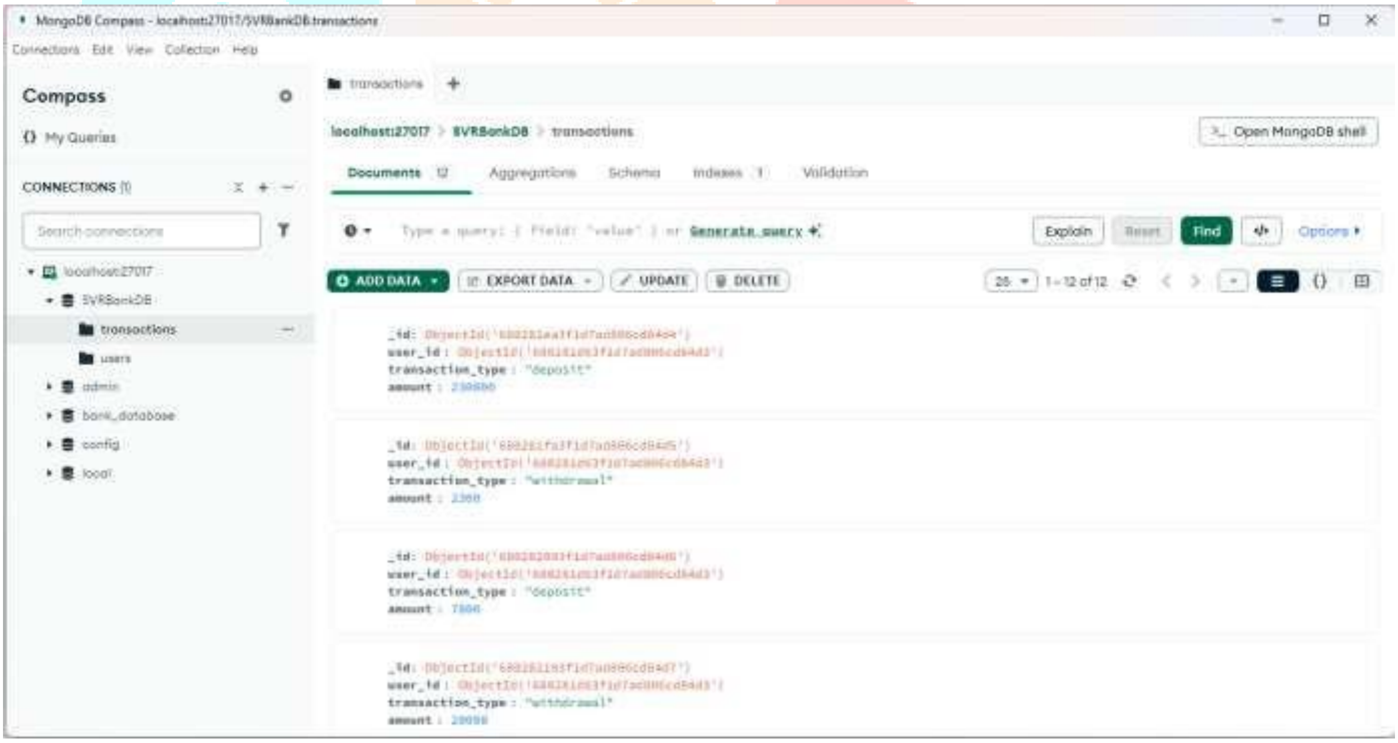
Enter Admin Name:

Fig:Admin Login



Enter your Name: antara

Fig: Forgot Password



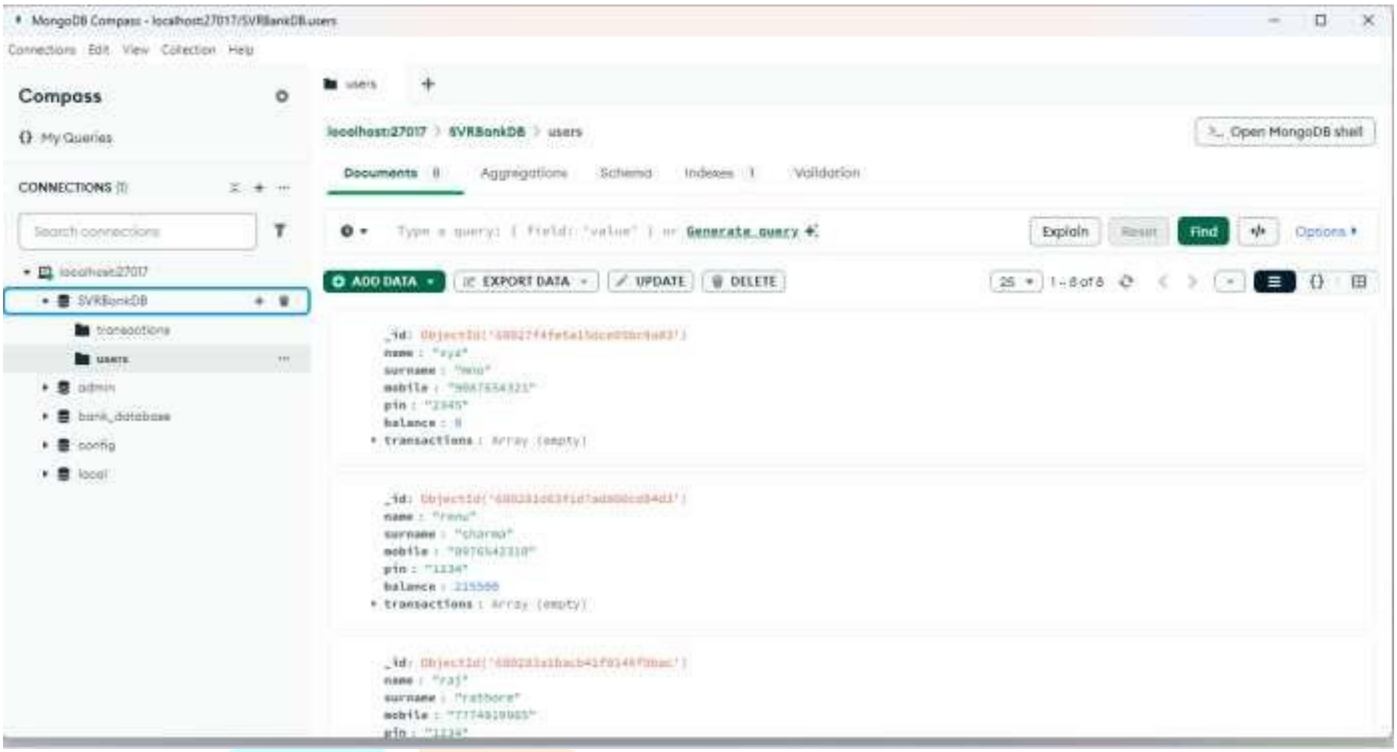
```
_id: ObjectId('[illegible]')
user_id : ObjectId('[illegible]')
transaction_type : "deposit"
amount : 230000

_id: ObjectId('[illegible]')
user_id : ObjectId('[illegible]')
transaction_type : "withdrawal"
amount : 2300

_id: ObjectId('[illegible]')
user_id : ObjectId('[illegible]')
transaction_type : "deposit"
amount : 7800

_id: ObjectId('[illegible]')
user_id : ObjectId('[illegible]')
transaction_type : "withdrawal"
amount : 20000
```

Fig:MongoDB Page Transactions



```
_id: ObjectId('[illegible]')
name : "xyz"
surname : "mno"
mobile : "9087654321"
pin : "2345"
balance : 0
▸ transactions : Array (empty)

_id: ObjectId('[illegible]')
name : "renu"
surname : "sharma"
mobile : "9876543210"
pin : "1234"
balance : 215500
▸ transactions : Array (empty)

_id: ObjectId('[illegible]')
name : "raj"
surname : "rathore"
mobile : "7774819985"
pin : "1234"
```

Fig:MongoDB Page Users

VI Future scope

Future revisions of the SVR Bank Management System could potentially improve it significantly. System security and user comfort can be improved by integrating biometric authentication, such as fingerprint or facial recognition. Through a specialized mobile app, the system can also be extended to accommodate online banking functions like fund transfers, utility bill payments, and mobile banking. Decision-making and security would be improved by integrating AI-powered fraud detection systems with data analytics dashboards for administrators and customers. Additionally, accessibility features and multilingual support can enhance the user experience for a wider audience. Future advancements might also involve integrating blockchain-based transaction records to guarantee transparency and immutability and connecting the system to national ID databases for real-time verification.

VII Conclusion

The SVR Bank Management System effectively illustrates a safe, intuitive, and effective banking solution created with MongoDB, Tkinter, and Python. The system offers robust backend support and a smooth user experience by incorporating essential banking features like registration, login, deposit, withdrawal, transaction history, and password recovery. A systematic approach was made possible by adhering to the Software Development Life Cycle (SDLC) paradigm, which made sure that every stage—from planning to testing—contributed to a dependable and expandable system. The application is appropriate for desktop-based banking systems because of its modern, dark-themed user interface, which improves accessibility and usability. All things considered, the project creates a solid basis for upcoming improvements like online services, smartphone integration, and AI- powered analytics, opening the door to a comprehensive digital banking solution.

VIII REFERENCES

[1] SOMMERVILLE, I. (2016). *SOFTWARE ENGINEERING* (10TH ED.). PEARSON EDUCATION.
(REFERENCE FOR SDLC CONCEPTS AND SOFTWARE DEVELOPMENT METHODOLOGY.)

[2]PYTHON SOFTWARE FOUNDATION. (2023). *PYTHON 3.12 DOCUMENTATION*. RETRIEVED FROM HTTPS://DOCS.PYTHON.ORG/3
(USED FOR PYTHON LANGUAGE IMPLEMENTATION.)

[3] MONGODB INC. (2023). *MONGODB MANUAL*. RETRIEVED FROM HTTPS://WWW.MONGODB.COM/DOCS/MANUAL
(REFERENCE FOR NOSQL DATABASE DESIGN AND OPERATIONS.)

[4] TKINTER DOCS – PYTHON INTERFACE TO TCL/TK. (2023). RETRIEVED FROM HTTPS://DOCS.PYTHON.ORG/3/LIBRARY/TKINTER.HTML
(REFERENCE FOR GUI DEVELOPMENT IN PYTHON.

[5] SATAPATHY, S. C., DAS, S., & UDGATA, S. K. (2017). *PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON DATA ENGINEERING AND COMMUNICATION TECHNOLOGY (ICDECT 2017)*. SPRINGER.
(FOR INSIGHTS ON SECURE AND SCALABLE BANKING APPLICATIONS.)

[6] BankBazaar. (2022). *How Core Banking Systems Work*. Retrieved from https://www.bankbazaar.com
(Reference for real-world banking system workflows.)

[7] Kaur, P., & Singh, M. (2019). “A Study on Banking Software and Management Systems.” *International Journal of Computer Applications*, 178(30), 25-30.
(Discusses features of banking software systems.)