**Python ATM Interface – Project Report**

# Project Title:

Console-Based ATM Simulation in Python

# Submitted By:

Ayesha Naeem  
Bachelor of Business Information Technology (BBIT)  
University of Engineering and Technology (UET), Lahore

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# 1. Introduction

The ATM Interface project is a command-line based banking system developed using Python. It mimics the operations of a real ATM system, allowing users to securely log in and perform basic banking functions. This project enhances understanding of Python programming concepts including functions, conditional statements, loops, and dictionaries.

# 2. Objectives

* To simulate real-world ATM functionalities.
* To allow users to securely manage banking operations like balance check, deposit, withdrawal, etc.
* To practice object-free but clean, functional Python code.
* To handle data and sessions using Python dictionaries and lists.

# 3. Technologies Used

|  |  |
| --- | --- |
| Technology | Description |
| Python 3 | Core programming language |
| Datetime | To log transactions with timestamps |
| Command-line | User interface |

# 4. Key Features

|  |  |
| --- | --- |
| Feature | Description |
| User Login | PIN-based authentication system |
| Check Balance | View current account balance |
| Deposit Money | Add money to account |
| Withdraw Money | Withdraw funds with balance validation |
| Change PIN | Update PIN securely |
| Transfer Money | Send money to another registered user |
| Transaction History | View full history of transactions |
| Mini Statement | Shows the last 5 recent transactions |
| Exit System | Safely exit the session |

# 5. System Design

Users are stored in a dictionary where each user has:  
- A card number (as the key)  
- PIN  
- Account balance  
- List of transaction history  
  
Transactions are timestamped and stored per user. The 'current\_user' variable keeps track of the active user during the session.

# 6. Sample Output

===== Welcome to Python ATM =====  
Enter your card number: 1111  
Enter your PIN: 1234  
  
✅ Login successful!  
  
===== ATM Menu =====  
1. Check Balance  
2. Deposit Money  
3. Withdraw Money  
4. Change PIN  
5. Transfer Money  
6. Transaction History  
7. Mini Statement  
8. Exit

# 7. Learning Outcomes

* Handling user input/output
* Using dictionaries and lists for data storage
* Implementing simple financial logic
* Creating modular, reusable functions
* Adding timestamp-based activity logs
* Writing clean and structured code

# 8. Conclusion

This project successfully demonstrates how basic ATM operations can be simulated using Python. It is a great foundational project for beginners and can be extended into a more complex system involving databases, GUIs, and network integration.