Project Report

Upskill Campus – UCT Core Java Internship

Project Title: Banking Information System

Intern Details

- Name: Utkarsh Goyal
- University: The NorthCap University
- Internship: Core Java Internship and Project
- Project Domain: Java & Python Development
- Mentor: [Instructor's Name if applicable]
- Project Dura on: [Insert dates]
- Report Date: [Insert date]

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1. Introduction

The Banking Informa on System is a console-based application developed using both Java and Python, as part of the Core Java Internship under Upskill Campus and UCT. The purpose of the project is to simulate core banking operations such as user registration, login, deposits, withdrawals, and balance inquiry.

This system demonstrates the use of object-oriented programming (OOP), user authentication, basic transaction logic, and menu-driven CLI interface in both Java and Python.

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2. Objective

To design and implement a Banking Management System that allows:

- Registration of new users
- Secure user login □ Viewing of account balance
- Depositing and withdrawing funds

Additionally, the objective includes implementing the same logic in two languages:

- Java: Core implementation with HashMap and OOP.
- Python: Equivalent implementation using class and dictionary.

This cross-language development strengthens understanding of logic portability, language syntax differences, and development best practices.

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3. Technology Stack

Component	Java Version	Python Version
Language	Java (Core Java)	Python 3.x
IDE/Tools	IntelliJ IDEA / VS Code	VS Code / Terminal
Concepts Used	Classes, HashMap, Loops, Scanner	Classes, Dictionaries, Input/Print
Version Control	Git, GitHub	Git, GitHub

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4. System Design and Structure

4.1 Modules (Common for Java and Python)

- User Class: Holds username, password, and balance.
- Main Banking Class: Controls registration, login, and transaction handling.
- CLI Menu: Offers deposit, withdrawal, and balance inquiry operations.

4.2 Code Snippet Comparison

Java

HashMap<String, User> users = new HashMap<>();

Python

self. Users = {}

This demonstrates how similar logic is mapped using language-specific data structures.

```
1. Register
2. Login
3. Exit
Choose an option: 1
Enter a username: nishant
Enter a password: 12345
User registered successfully.

1. Register
2. Login
3. Exit
Choose an option: 2
Enter username: nishant
Enter password: 12345
Login successful.

--- Account Menu ---
1. View Balance
2. Deposit Money
3. Withdraw Money
4. Logout
Choose an option: 1
Current Balance: ?0.0

--- Account Menu ---
1. View Balance
2. Deposit Money
3. Withdraw Money
4. Logout
Choose an option: ▮
```

5. Features Implemented (in both Java and Python)

Feature	Description
User Registration	Unique username and password creation
Login Authentication	Secure password verification
Deposit Money	Adds money to the balance
Withdraw Money	Subtracts from balance with validation
View Balance	Displays current balance
Menu Navigation	CLI-based user interface

. Challenges Faced

• Translating logic cleanly between Java and Python

- Handling CLI input and edge cases in both environments

- Avoiding repetitive code through modular class design

- Ensuring GitHub repo was updated and public

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9. Learnings and Outcomes

- Applied object-oriented design in two programming languages

- Strengthened knowledge of Java's HashMap and Python's dictionaries

- Practiced core programming concepts like control flow, input handling, and class structure

- Learned to manage source code on GitHub

- Improved adaptability by translating logic between Java and Python

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10. Future Enhancements

- Add persistent storage using files or databases (e.g., userdata.txt)

- Enable inter-user fund transfers

- Introduce account types (Savings, FD, etc.)

- Create a GUI version using Java Swing or Python

- Expand to web-based version using Flask or Spring Boot

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11. Conclusion

The Banking Informa on System project gave me the opportunity to reinforce programming skills in both Java and Python. Building the same system in two languages deepened my understanding of syntax, structure, and implementation strategies.

This internship project is a significant step toward real-world so ware development readiness and cross-platform programming expertise.

Signature

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