Industrial Internship Report on

”Banking Information System”

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Executive Summary
This report provides details of the Industrial Internship provided by upskill Campus and The IoT Academy in collaboration with Industrial Partner UniConverge Technologies Pvt Ltd (UCT). This internship was focused on a project/problem statement provided by UCT. We had to finish the project including the report in 6 weeks’ time. My project was (Tell about ur Project) This internship gave me a very good opportunity to get exposure to Industrial problems and design/implement solution for that. It was an overall great experience to have this internship.

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1.Preface

This report presents the **Banking Information System** project developed as part of the Industrial Internship provided by **Upskill Campus (USC) and The IoT Academy**, in collaboration with **UniConverge Technologies Pvt Ltd (UCT)**. The internship provided a valuable opportunity to work on real-world financial applications, improving problem-solving skills and technical expertise in **Python-based banking systems**.

This project simulates a **basic banking system** that enables users to perform operations such as **account creation, deposits, withdrawals, balance checks, and transaction history tracking**. The system ensures **data persistence using JSON storage** and follows a **modular object-oriented design**.

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1. Introduction

The Banking Information System is a simple yet effective financial application designed using Python. It enables users to perform essential

banking functions while ensuring data integrity and persistence. The system follows object-oriented programming principles, providing a structured and efficient approach to managing multiple user accounts, tracking transactions, and maintaining security.

- **Objectives**
- To develop a **user-friendly and secure banking system**.
- To implement **data persistence using JSON storage**.
- To **apply object-oriented programming (OOP) principles** in financial applications.
- To improve **problem-solving skills** through real-world application development.

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2. About UniConverge Technologies Pvt Ltd

UniConverge Technologies (UCT) is a leading provider of **digital transformation solutions** with expertise in **IoT, cybersecurity, cloud computing, and AI-based predictive maintenance**. UCT develops

scalable and sustainable industrial solutions, including smart factory automation, remote monitoring systems, and embedded systems.

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3. About Upskill Campus

Upskill Campus (USC) is a **career development platform** that offers industry-oriented training programs, internships, and projects. USC aims to **bridge the gap between academia and industry** by providing hands-on learning opportunities in **software development, data science, and cybersecurity**.

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4. Problem Statement

Traditional banking systems are often complex and require extensive resources. The goal of this project was to develop a **lightweight banking system** that supports:

- **Account Creation**
- **Deposit and Withdrawal Operations**
- **Balance Inquiry and Transaction History**

- **Data Storage Without a Database (Using JSON)**
- **User Authentication and Security Features**

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5. Existing and Proposed Solutions

- **Existing Solutions**

Many banking systems use **SQL databases, cloud storage, and third-party APIs**. However, they come with challenges like **high costs, dependency on external services, and security vulnerabilities**.

- **Proposed Solution**

This project provides a **simplified Python-based banking system** with the following advantages:

- **Lightweight and Fast** – No need for an external database.
- **Data Persistence** – Uses JSON to store account details securely.
- **Object-Oriented Structure** – Ensures modularity and reusability.
- **Security Measures** – Implements input validation to prevent invalid transactions.

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6. Proposed Design/Model

- **System Architecture**

  The system consists of:

- Account class: Manages individual user accounts.
- BankingSystem class: Handles transactions and data storage.
- JSON-based storage: Maintains account records persistently.
- **High-Level Design**
- User selects a banking operation.
- The system processes the request and updates account details.
- Transaction history is recorded.
- Data is stored in a JSON file for future access.
- **Code Implementation**

```
class Account:
    def __init__(self, account_holder, balance):
        self.account_holder = account_holder
        self.balance = balance
```

```
        self.transaction_history = [f"Account created with balance: ₹{balance}"]


    def deposit(self, amount):
        if amount > 0:
            self.balance += amount
            self.transaction_history.append(f"Deposited: ₹{amount}")


    def withdraw(self, amount):
        if amount > self.balance:
            print("Insufficient balance!")
        else:
            self.balance -= amount
            self.transaction_history.append(f"Withdrawn: ₹{amount}")
```

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7. Performance Test

- **Test Cases**

Test Scenario	Expected Outcome	Status
Create Account	Account successfully created	✅ Pass
Deposit Money	Amount added to balance	✅ Pass
Withdraw Money	Amount deducted if sufficient funds exist	✅ Pass
View Balance	Displays correct balance	✅ Pass
CheckTransaction History	Displays all past transactions	✅ Pass

- **Performance Outcome**
- The system performed efficiently for multiple transactions.
- Data persistence was verified after restarting the program.

8. My Learnings

This internship helped me gain hands-on experience in:

- **Python Object-Oriented Programming**.
- **Data Persistence and File Handling (JSON Storage)**.
- **Banking System Design and Implementation**.
- **Testing and Debugging Python Applications**.
- **Working on Real-World Financial Software**.

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9. Future Work Scope

Potential enhancements include:

- **GUI Implementation** – Developing a Tkinter-based interface.
- **Database Integration** – Using MySQL or MongoDB for scalable storage.
- **Multi-User Authentication** – Adding login features with secure passwords.

- **AI-Based Fraud Detection** – Implementing AI to detect fraudulent transactions.

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10. References

1. Python Official Documentation - https://docs.python.org/3/
2. JSON File Handling - https://realpython.com/python-json/
3. Object-Oriented Programming in Python - https://realpython.com/python3-object-oriented-programming/

- **GitHub Repository Links**
- **ProjectCode**: https://github.com/ASTharunVarshan/upskillcampus/blob/main/BankingInformationSystem.py
- **ProjectReport**:

  https://github.com/TharunVarshan/upskillcampus/blob/main/BankingInformationSystem_TharunVarshan_USC_UCT.pdf

- **Final Thoughts**

This internship experience has been **highly beneficial**, allowing me to gain practical experience in **developing and testing real-world software**. I am grateful to **Upskill Campus, The IoT Academy, and UCT** for providing this opportunity and guiding me throughout this learning journey.