# Industrial Internship Report on

# "Banking Information System"

# Prepared by

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| Executive Summary |
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| 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).<br><br>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.<br><br>My project was (Tell about ur Project)<br><br>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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# Industrial Internship Report on Banking Information System

## 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**.

## 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.

## 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.

## 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**.

## 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.

# 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**

```python
class Account:

    def __init__(self, account_holder, balance):

        self.account_holder = account_holder

        self.balance = balance
```

```python
        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}")
```

## 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/

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- **GitHub Repository Links**

- **ProjectCode**:

  https://github.com/Arunraj20012005/upskillcampus/blob/main/BankingInformationSystem.py

- **ProjectReport**:

  https://github.com/Arunraj20012005/upskillcampus/blob/main/BankingInformationSystem_Arunraj_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.