**Bank of Python: Detailed Project Documentation (with logging)**

This document offers a comprehensive reference for students, covering all modules and how each integrates with newly introduced logging system. The goal is to help students see the end -to-end structure of banking application, from onboarding to transactions, with a focus on robust logging for traceability.

1.**Introduction**

Bank of python is a project that stimulate basic banking services. By reviewing the document student will understand:

1. **Application and architecture:** How modules are organized to handle onboarding, user authentication, operations and services.
2. **Loggin implementation:** Each module records important events. e.g. sign-in attempts, onboarding steps, transactions, into dedicated log system
3. **Data persistence:** The system uses JSON files to store user data, credentials, and transactions, sensitive fields are AES-encrypted.
4. **Security measures:** OTP verification, account blocking upon repeated failures, forced password changes after a certain login attempt.

**2. Core Modules**

**2.1 Main Module**

**Purpose:**

* Acts as the entry point for the application
* Provides a text-based menu for sign-in for existing user or sign-up for new users
* Orchestrates the flow after successful sign-in, directing the user to banking operations or banking services

**Key responsibilities:**

1. **Greetings:** Show welcome message to the user
2. **Sign In/ Sign Up choice:**
   1. If the user selects the sign-up, it invokes customer\_onboarding
   2. If sign in, it calls the sing In class
3. **Post-login operations:** Prompting users to choose banking operations or banking services
4. **Logging integration:**
   1. Log each session

**2.2 customer\_onboarding**

**Purpose:**

1. Handles registration of new customers, ensuring they meet the age and pin code requirements.
2. Validate email and mobile number using otp process
3. Creates an encrypted account password and initializes user data in json file

**Detailed workflow:**

1. **Form:**
   1. Collects salutation, full name, date of birth(age must be 18-65), address, pincode(MH, TS, KN)
   2. If any validation failed the process aborts
2. **Account number generator:**
   1. Creating an 11 digit random number
3. **Contact updates:**
   1. Optionally updates email/mobile number before otp checks
4. **OTP verification:**
   1. Each mode has 3 attempts
   2. Failure triggers the system to delete the partially created account data
5. **Default password:**
   1. Generates 12 character complex password
6. **Data persistence:**
   1. Writes user info to account\_details.json, credentials to credentials.json and initialize transaction.json with zero balance
7. **Welcome Email:**
   1. Send account number and password to the user’s email.

**Logging:**

1. Onboarding start
2. Form data
3. OTP trials
4. Account Creation