2023-24

Computer Science
PROJECT

Prepared by :

Pulkit Verma,
Rahul Puri,
Mohammed Aqib

Prepared for :
Mr. Sanjay Rudra

Contents

Preface

Welcome to our cutting-edge banking system project—a technological marvel designed to redefine the user experience in financial management. This project encompasses essential banking functionalities, including opening savings accounts, withdrawing and depositing money, and exploring fixed deposit options.

Our goal is to provide a secure, efficient, and user-friendly platform that aligns with the demands of modern banking. As we present this project, we invite you to discover its seamless architecture, innovative features, and commitment to elevating the standards of digital banking. Join us in exploring a future where banking is not just a transaction but an unparalleled experience.

Acknowledgment

We would like to express our heartfelt gratitude to those who played a pivotal role in the preparation of this computer science project. Our deepest thanks go to Mr. Sanjay Rudra, whose expert guidance and constructive feedback shaped the project's trajectory. We are also appreciative of Delhi Public School, Bhilai for providing essential resources and a conducive environment.

We extend our acknowledgment to our academic advisors and peers whose insights and collaboration enhanced the project. Additionally, our sincere thanks go to our family and friends for their unwavering support and encouragement throughout this endeavor.

This project reflects the collective efforts of a supportive network, and we are truly grateful for each contribution.

Pulkit Verma, Rahul Puri, Mohammed Aqib

Certificate

This is to certify that Pulkit Verma, Rahul Puri, Mohammed Aqib have successfully completed the computer science project under the guidance of Mr. Sanjay Rudra at Delhi Public School, Bhilai.

This project involved a banking system with functionalities of opening a savings account, depositing money, withdrawing money, fixed deposit options . The successful completion of this project demonstrates the dedication, hard work, and technical proficiency of Pulkit Verma, Rahul Puri, Mohammed Aqib.

Mr. Sanjay Rudra
Computer Science Teacher
Delhi Public School, Bhilai

Problem

A bank is a financial institution which is involved in borrowing and lending of money. With advancement in technology, online banking, also known as internet banking allows customers of a bank to conduct a range of financial transactions through the bank's website anytime, anywhere. As part of initial investigation you are suggested to:

- collect a bank's application form. After careful analysis of the form, identify the information required for opening a savings account. Also enquire about the rate of interest offered for a saving account.
- The basic two operations performed on an account are Deposit and Withdrawal. Write a menu driven program that accepts either of the two choices of Deposit and Withdrawal, then accepts an amount, performs the transaction and accordingly displays the balance. Remember, every bank has a requirement of minimum balance which needs to be taken care of during withdrawal operations. Enquire about the minimum balance required in your bank.
- Collect the interest rates for opening a fixed deposit in various slabs in a savings bank account. Remember, rates may be different for senior citizens.

Finally, write a menu driven program having the following options (use functions and appropriate data types):
- Open a savings bank account
- Deposit Money
- Withdraw money
- Take details, such as amount and period for a Fixed Deposit and display its maturity amount for a particular customer.-
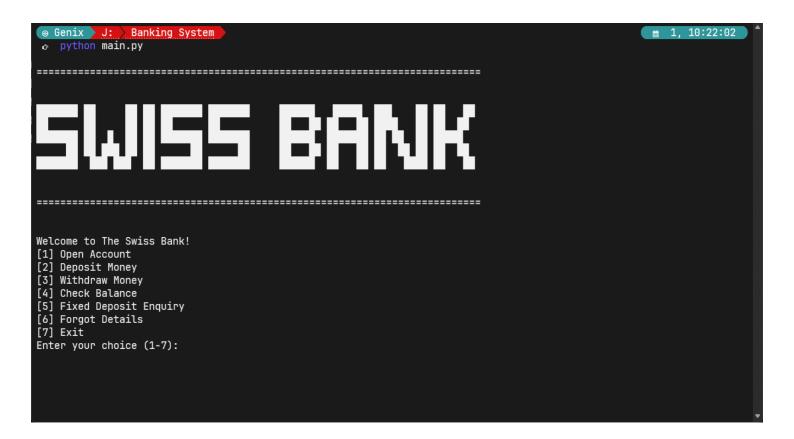
Concepts used

1. User Input:
   - Concepts Used:
     - The input() function collects user input for various purposes, including account creation, financial transactions, and security question responses.
2. Random Number Generation:
   - Concepts Used:
     - The random module is used to generate random integers for creating unique account numbers and PINs.
     - Module Functions:
       - random.randint(a, b): Generates a random integer in the range [a, b].
3. Conditional Statements:
   - Concepts Used:
     - Conditional statements (if, elif, else) are employed to implement logic for PIN verification, fund availability checks, and age-based interest rate determination.
4. Data Persistence (File Handling):
   - Concepts Used:
     - The json module is used for reading from and writing to a JSON file (accounts.json).
     - Module Functions:
       - json.load(file): Reads JSON data from a file.
       - json.dump(obj, file, indent): Writes JSON data to a file with optional indentation.
5. Dictionary Usage:
   - Concepts Used:
     - User account details are stored and retrieved using a dictionary format.
     - Dictionary Operations:
       - Dictionary access and manipulation are performed to retrieve and modify user information.

Concepts used

6. Functions:
- Concepts Used:
    - Modularization is achieved through the use of functions, encapsulating specific banking operations.
    - Function Examples:
        - open_account(): Manages the process of creating a new account.
        - deposit_money(): Handles user deposits.
        - withdraw_money(): Manages user withdrawals.
        - check_balance(): Provides functionality to check account balances.
7. Looping (While Loop, For Loop):
- Concepts Used:
    - The while loop is used in the main() function to maintain a continuous user interface until the user chooses to exit. A for loop is employed during the account information retrieval process.
8. String Formatting (f-strings):
- Concepts Used:
    - F-strings are utilized for dynamic string formatting, incorporating variable values into output messages.
9. Time Module:
- Concepts Used:
    - The time module is used to introduce time delays (time.sleep()) for a smoother user experience, simulating real-time processing.
    - Module Function:
        - time.sleep(seconds): Pauses the execution of the program for the specified number of seconds.
10. Exception Handling:
- Concepts Used:
    - Exception handling with try, except, and raise statements is implemented to catch and handle exceptions during user input validation and data conversion.
    - Examples:
        - Input validation for dates, integers, and floating-point numbers is wrapped in try-except blocks to gracefully manage unexpected inputs.

Source Code

```
python main.py

==================================================================
```



```
==================================================================


Welcome to The Swiss Bank!
[1] Open Account
[2] Deposit Money
[3] Withdraw Money
[4] Check Balance
[5] Fixed Deposit Enquiry
[6] Forgot Details
[7] Exit
Enter your choice (1-7):
```

Menu

```
Enter your choice (1-7): 1
Hello! This is account management section.
You will get an interest rate of 2.70% on your savings account.
Do you still want to continue (y/n) : y
Enter account holder's name: Pulkit Verma
Are you individidual or HUF (Hindu United Family) : Individual
Enter your Date of Birth (DD/MM/YYYY) : 21/10/2006
What's your gender (M/F/T) : M
Enter your Status (Minor/Adult) : Minor
Enter your Mother's Name : Dipti Verma
Enter your Father's Name : Bhanu Pratap Verma
Enter your nationality : India
Enter your Pan number : 123456789
Enter your Aadhar number : 987654321
Enter your Address : Bhilai
Enter your Pin Code : 490006
Enter your Mobile number : 9981143743
Enter your Email address : pulkitv224@gmail.com
Enter your security question : High School name?
Enter your security answer : Delhi Public School
How much you want to deposit now : ₹50000
Please accept the following declaration
I hereby acknowledge that I have received and read the terms and conditions, agree to comply with the policies set forth by The Bank, and confirm that the information provided is accurate to the best of my knowledge.
Do you accept the above declaration (y/n) : y
Just give us a second...

    Dear Pulkit verma,

    Congratulations! Your account with The Swiss Bank has been successfully opened. Here are your essential details:

    Account Number: 143539740057
    4-Digit PIN: 8579
    Please remember to keep this information confidential for your security. If you have any questions or need assistance, feel free to reach out.

    Thank you for choosing us. We look forward to serving you!

    Best regards,

    Bank Account Management
    The Swiss Bank
```

1.Open Account

```
Enter your choice (1-7): 2
Enter account number (or q to quit) : 143539740057
Enter the amount to deposit: ₹5555
Enter Your Pin : 8579
Just give us a second...
Deposited ₹5555.0 successfully. New balance: ₹55555.0
```

10

2.Deposit Money

```
Enter your choice (1-7): 3
Enter account number (or q to quit) : 143539740057
Enter the amount to withdraw: ₹55000
Enter Your PIN : 8579
Just give us a second...
Withdrew ₹55000.0 successfully. New balance: ₹555.0
```

```
Enter your choice (1-7): 3
Enter account number (or q to quit) : 143539740057
Enter the amount to withdraw: ₹55355
Enter Your PIN : 8579
Just give us a second...
I'm sorry, but you can't withdraw that much money since it won't maintain the minimum balance(₹200).
```

3.Withdraw Money

```
Enter your choice (1-7): 4
Enter account number (or q to quit) : 143539740057
Enter Your PIN : 8579
Your Balance is ₹55555.0.
```

4.Check Balance

```
Enter your choice (1-7): 5
Enter the amount : ₹10000
Enter how many years you want to file fixed deposit : 1
Enter your age : 17
Your maturity amount is ₹10650.0.
```

5.Fixed Deposit Enquiry

```
Enter your choice (1-7): 6
Enter your name : Pulkit Verma
Just give us a second...
High School name?:Delhi Public School

        Account Number : 143539740057
        Name : Pulkit verma
        PIN : 8579
        Group : Individual
        Date of Birth : 21/10/2006
        Gender : Male
        Status : Minor
        Mother's Name : Dipti Verma
        Father's Name : Bhanu Pratap Verma
        Married Status : None
        Nationality : India
        PAN Number : 123456789
        Aadhar Number : 987654321
        Address : Bhilai
        Pin Code : 490006
        Mobile Number : 9981143743
        Email : pulkitv224@gmail.com
```

6.Forgot Details