

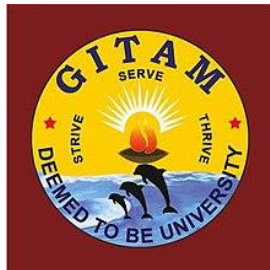
INTERNSHIP REPORT

A report submitted in partial fulfillment of the requirements for the Award of Degree of

**BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE AND ENGINEERING
by**

**SURAJ JONNALAGEDDA
Regd. No.: VU21CSEN0100479**

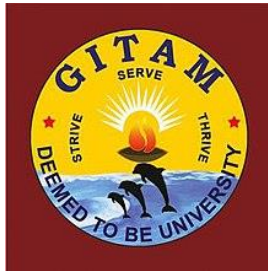
**Under Supervision of
DR S. AMARNADH
Visakhapatnam.
(Duration: 1ST FEBRUARY 2024 to 1ST MARCH 2024)**



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
GITAM SCHOOL OF TECHNOLOGY**

**GITAM (Deemed to be University)
VISAKHAPATNAM,
ANDHRA PRADESH
2023 – 2024**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
GITAM SCHOOL TECHNOLOGY
GITAM(Deemed to be University)
VISAKHAPTNAM**



CERTIFICATE

This is to certify that the “**Internship report**” submitted by **SURAJ JONNALAGEDDA (Regd. No.: VU21CSEN0100479)** is work done by her and submitted during 2023 – 2024 academic year, in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND ENGINEERING**, at **OCTANET SERICES PVT LTD.**

Dr. Gondi Lakshmeeswari
Head of the Department

DR S. AMARNADH
Internship Faculty

- **INTERNSHIP CERTIFICATE**

CERTIFICATE



Corporate Identity Number :
U62013OD2023PTC044081



TECH

OCTANET SERVICES PVT LTD.

This is certify that

Suraj Jonnalagedda

Python Development Internship

Duration: 1 Month (1st February 2024 to 1st March 2024)

During the internship period, He/She has demonstrated exceptional dedication, enthusiasm and a strong willingness to learn. They actively engaged in various projects and tasks assigned to them, exhibiting remarkable skills and a high level of professionalism.

Verified By :


Chief Technology Officer
TECHOCTANET SERVICES PVT. LTD



Verify at <https://verification.givemycertificate.com/v/081e270e-5250-4292-88b7-b6e0360498f9>

- **ACKNOWLEDGEMENT**

This internship provided me with a deep understanding of python development and its practical applications. The experience of developing an ATM interface was both challenging and rewarding, and it has significantly enhanced my programming skills and problem-solving abilities.

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1. ABSTRACT

Automated Teller Machines (ATMs) serve as a vital component of modern banking infrastructure, providing convenient access to financial services around the clock. Python, a versatile programming language, has emerged as a popular choice for developing ATM systems due to its flexibility and ease of use. This internship project focuses on developing a console-based ATM application utilizing Python, featuring various functionalities including transaction history, withdrawal, deposit, transfer, and exit options. By exploring the intricacies of Python programming and its application in the banking sector, this internship aims to provide valuable insights into software development practices and enhance the intern's skills in software engineering and problem-solving.

2. INTRODUCTION

Automated Teller Machines (ATMs) have revolutionized the way individuals interact with their finances, offering unparalleled convenience and accessibility to banking services. With the ubiquity of Python programming language and its extensive libraries, it has become increasingly prevalent in the development of various software applications, including ATMs. This internship project delves into the realm of Python-based ATM systems, seeking to equip the intern with practical experience in software development while addressing the inherent challenges and requirements of banking software.

The primary objective of this internship is to design and implement a console-based ATM application in Python, comprising distinct classes to handle user authentication, transaction management, and account operations. Through hands-on development and experimentation, the intern will gain proficiency in Python programming, object-oriented design principles, and software engineering methodologies. Moreover, the project will provide insights into the intricacies of financial transactions, security protocols, and user interface design within the context of ATM systems.

3. PROBLEM STATEMENT

The ATMs in our cities are built on Python, as we have all seen them. It is a console-based application with five different classes. In order to use the system, the user must enter his or her user ID and pin when it starts. Once the details are entered successfully, ATM functionality is unlocked. As a result of the project, the following operations can be performed:

- Transactions History
- Withdraw
- Deposit
- Transfer
- Quit

4. OBJECTIVE

The objective of this document is to encapsulate the essence of an online internship experience centered on Python development, specifically aimed at constructing an Automated Teller Machine (ATM) interface. This internship focused on practical applications of Python programming, software development methodologies, and user interface design. The primary goal was to create a secure and user-friendly ATM interface capable of facilitating various banking transactions. Through this endeavor, the aim was to enhance technical skills in Python, software development, and problem-solving, while gaining valuable insights into the practical application of theoretical knowledge. This document serves as a comprehensive record of the internship journey, documenting the processes, methodologies, challenges, results, and conclusions derived from the development of the ATM interface.

5. SOFTWARE REQUIREMENT SPECIFICATIONS

Software Requirement Specifications (SRS) outline the functional and non-functional requirements that a software system must satisfy. In the context of developing an ATM interface, the SRS would typically include:

1. Functional Requirements:

- **User Authentication:** The system should require users to input a valid user ID and PIN to access ATM functionalities.
- **Transaction Processing:** The system should allow users to perform various banking transactions such as withdrawals, deposits, transfers, balance inquiries, and PIN changes.
- **Transaction History:** The system should maintain a record of user transactions for future reference.
- **Error Handling:** The system should provide appropriate error messages and prompts to guide users through the ATM interaction process.
- **Security Measures:** The system should incorporate security measures to protect user data and prevent unauthorized access.
- **User Interface:** The system should have a user-friendly interface with clear instructions and intuitive navigation.

2. Non-Functional Requirements:

- **Performance:** The system should respond promptly to user inputs and process transactions efficiently.
- **Reliability:** The system should be reliable and available for use whenever needed, with minimal downtime.
- **Security:** The system should employ encryption and other security measures to safeguard sensitive user information.
- **Scalability:** The system should be able to accommodate a growing number of users and transactions without significant performance degradation.
- **Compatibility:** The system should be compatible with different hardware and software environments commonly used in ATM systems.
- **Usability:** The system should be easy to use for individuals with varying levels of technical expertise.
- **Maintainability:** The system should be designed in a modular and maintainable manner, allowing for easy updates and enhancements.

6. TECHNOLOGIES

In developing an ATM interface, several technologies are typically involved to create a robust and functional system. These may include:

1. Python: As mentioned, Python is the primary programming language used for developing the ATM interface due to its simplicity, readability, and extensive support for various libraries and frameworks.

2. Database Management Systems (DBMS): A DBMS like SQLite, MySQL, or PostgreSQL is often employed to store and manage user account information, transaction records, and other relevant data like userID, userPIN, balance and security questions. Here I used CSV or Excel file as database.

4. Integrated Development Environments (IDEs): IDEs used here is VS Code which provide an integrated environment for coding, debugging, and testing the ATM interface application.

5. Operating System: The choice of operating system may vary, but Python is cross-platform, allowing the ATM interface to run on Windows, macOS, or Linux environments.

6. pwininput: A Python module used for secure password input. It masks the input characters to prevent others from seeing the entered password.

7. openpyxl: A Python library for reading and writing Excel files. It is used to load user data from an Excel spreadsheet and update user balances and transaction history in separate Excel files.

7. METHODOLOGIES

The methodologies includes the packages we have used to develop the python ATM Interface which are mentioned below:

1. Pandas:

Pandas is a Python library widely used for data manipulation and analysis. It provides easy-to-use data structures like Series and DataFrame, making it convenient to work with structured data. Pandas is often used for tasks such as data cleaning, transformation, exploration, and visualization in data science and analytics projects.

2. pwininput (getpass module):

The pwininput module, often accessed through the getpass function, is used for securely prompting users for sensitive information like passwords. Unlike regular input functions, getpass does not echo the input to the screen, ensuring that sensitive information remains private. It's commonly used in command-line applications and scripts that require user authentication or sensitive data input

3. openpyxl: A Python library for reading and writing Excel files. It is used to load user data from an Excel spreadsheet and update user balances and transaction history in separate Excel files.

```
def load_users_from_excel():
    workbook = load_workbook(excel_file)
    sheet = workbook.active
    users = []
    for row in sheet.iter_rows(min_row=2, values_only=True):
        users.append(User(row[0], row[1], row[2]))
    return users, workbook
```

LOAD EXCEL SHEET

```
def update_balance_in_excel(users, workbook):
    sheet = workbook.active
    for row in sheet.iter_rows(min_row=2, max_col=3, max_row=sheet.max_row):
        for user in users:
            if user.user_id == row[0].value:
                row[2].value = user.balance
                break
    workbook.save(excel_file)
```

UPDATING EXCEL SHEET

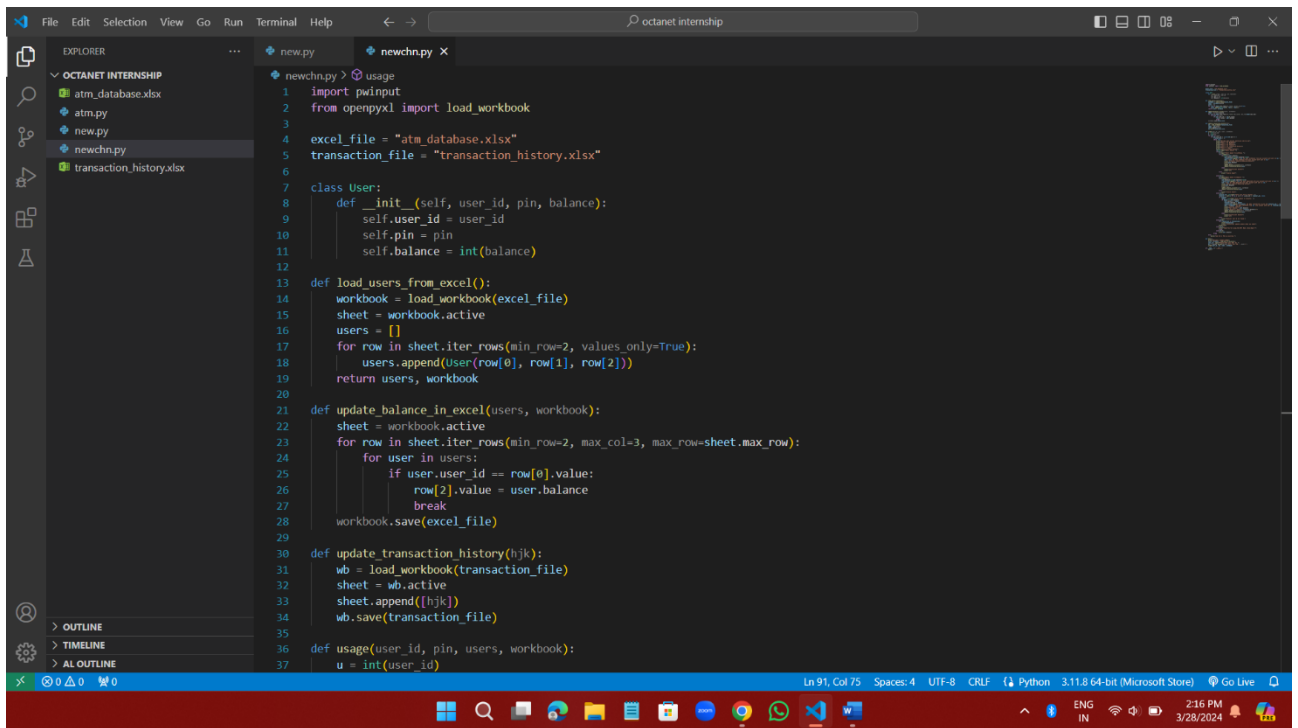
8. SAMPLE CODING

```
def usage(user_id, pin, users, workbook):
    print("Your balance:", user.balance)
    print("Receiver's balance: {receiver.balance}\n")
    update_balance_in_excel(users, workbook)
    update_transaction_history(hjk)
    else:
        print("Insufficient balance")
        print("\n")
    else:
        print("Receiver user ID not found.")
    elif(ch==4):
        for transaction in transactions:
            print(transaction)
            print("transactions updated please check you sheet")
            print("\n")
    elif(ch==5):
        print("Thank You for using the ATM. Have a Nice Day!!!")
        break
    elif(ch==6):
        print(user.balance)
        break
    else:
        print("User ID or PIN is incorrect.")

def main():
    print("Welcome to Python ATM\n")
    users, workbook = load_users_from_excel()
    user_id = input("Please Enter your User ID: ")
    pin = pwinput(prompt='Enter your PIN: ', mask='*')
    usage(user_id, pin, users, workbook)

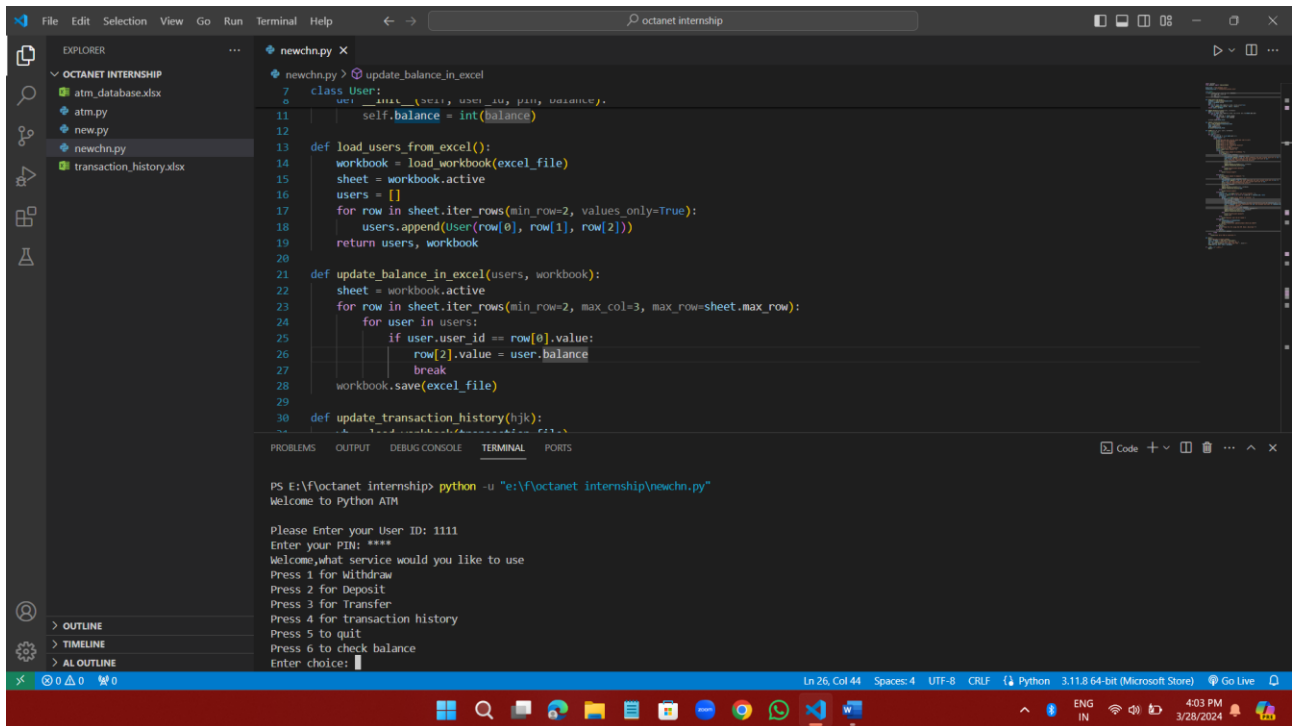
if __name__ == "__main__":
    main()
```

```
def usage(user_id, pin, users, workbook):
    for user in users:
        if user.user_id == u and user.pin == v:
            transactions = []
            while True:
                print("Welcome, what service would you like to use")
                print("Press 1 for Withdraw")
                print("Press 2 for Deposit")
                print("Press 3 for Transfer")
                print("Press 4 for transaction history")
                print("Press 5 to quit")
                print("Press 6 to check balance")
                ch=int(input("Enter choice: "))
                if(ch==1):
                    a=input("Enter amount to withdraw: ")
                    if(a.isdigit()):
                        if(int(a)<=user.balance):
                            user.balance=int(user.balance)-int(a)
                            transactions.append((f"${a} has been withdrawn from your account with user id {u}."))
                            hjk= f"${a} has been withdrawn from your account with user id {u}."
                            print("Withdrawal complete, Remaining balance")
                            print(user.balance)
                            print("\n")
                            update_balance_in_excel(users, workbook)
                            update_transaction_history(hjk)
                        else:
                            print("Insufficient balance")
                            print("\n")
                    else:
                        print("Invalid Input")
                elif(ch==2):
                    a=input("Enter amount to deposit: ")
                    if(a.isdigit()):
                        user.balance=int(user.balance)+int(a)
                        transactions.append((f"${a} has been deposited into your account with user id {u}."))
                        hjk= f"${a} has been deposited into your account with user id {u}."
```



9. RESULTS & DISCUSSIONS (OUTPUT SCREEN SHOTS)

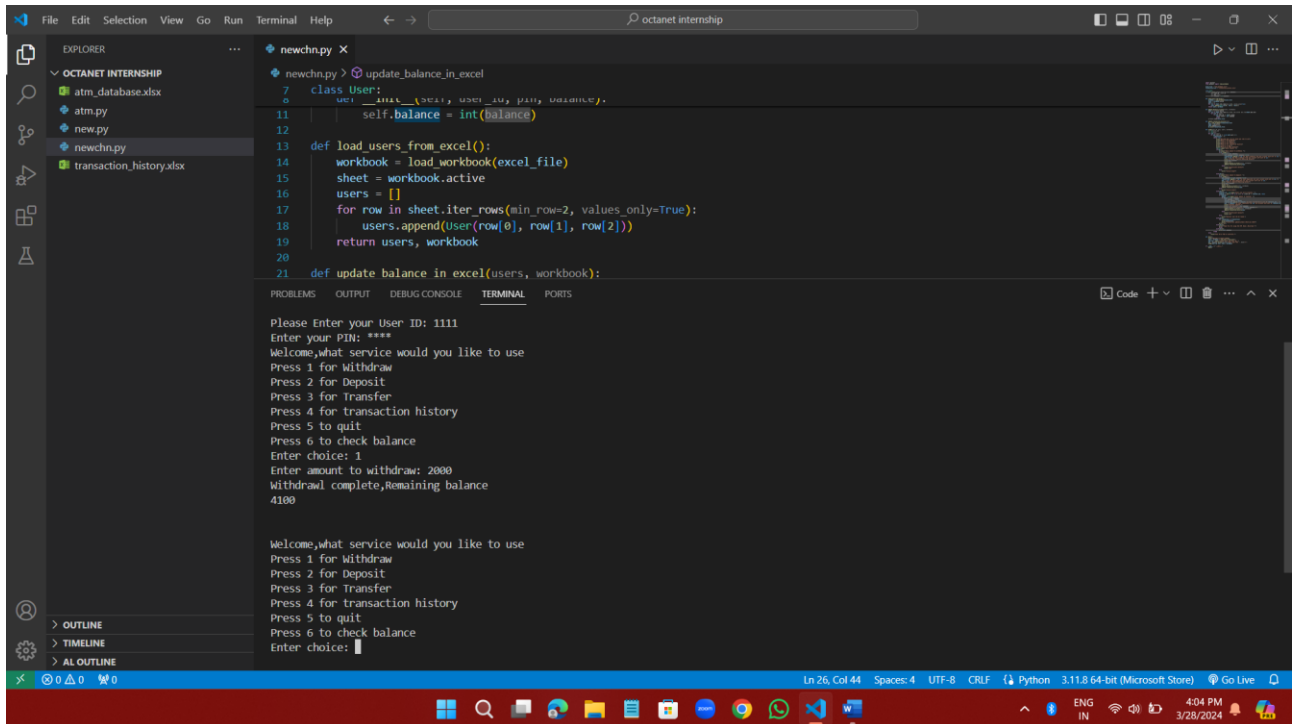
FIG 1: - GIVING USER ID AND PASSWORD



```
newchn.py X
newchn.py > update_balance_in_excel
7 class User:
8     def __init__(self, user_id, user_pwd, user_balance):
9         self.user_id = user_id
10        self.user_pwd = user_pwd
11        self.balance = int(balance)
12
13 def load_users_from_excel():
14     workbook = load_workbook(excel_file)
15     sheet = workbook.active
16     users = []
17     for row in sheet.iter_rows(min_row=2, values_only=True):
18         users.append(User(row[0], row[1], row[2]))
19     return users, workbook
20
21 def update_balance_in_excel(users, workbook):
22     sheet = workbook.active
23     for row in sheet.iter_rows(min_row=2, max_col=3, max_row=sheet.max_row):
24         for user in users:
25             if user.user_id == row[0].value:
26                 row[2].value = user.balance
27                 break
28     workbook.save(excel_file)
29
30 def update_transaction_history(hjk):
31     pass
32
33 if __name__ == '__main__':
34     users, workbook = load_users_from_excel()
35     update_balance_in_excel(users, workbook)
36     update_transaction_history(workbook)
37
38 PS E:\octanet internship> python -u "e:\octanet internship\newchn.py"
Welcome to Python ATM

Please Enter your User ID: 1111
Enter your PIN: ****
Welcome, what service would you like to use
Press 1 for Withdraw
Press 2 for Deposit
Press 3 for Transfer
Press 4 for transaction history
Press 5 to quit
Press 6 to check balance
Enter choice: 1
```

FIG 2: - WITHDRAW OPTION



```
newchn.py X
newchn.py > update_balance_in_excel
7 class User:
8     def __init__(self, user_id, user_pwd, user_balance):
9         self.user_id = user_id
10        self.user_pwd = user_pwd
11        self.balance = int(balance)
12
13 def load_users_from_excel():
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24         for user in users:
25             if user.user_id == row[0].value:
26                 row[2].value = user.balance
27                 break
28     workbook.save(excel_file)
29
30 def update_transaction_history(hjk):
31     pass
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33 if __name__ == '__main__':
34     users, workbook = load_users_from_excel()
35     update_balance_in_excel(users, workbook)
36     update_transaction_history(workbook)
37
38 PS E:\octanet internship> python -u "e:\octanet internship\newchn.py"
Welcome to Python ATM

Please Enter your User ID: 1111
Enter your PIN: ****
Welcome, what service would you like to use
Press 1 for Withdraw
Press 2 for Deposit
Press 3 for Transfer
Press 4 for transaction history
Press 5 to quit
Press 6 to check balance
Enter choice: 1
Enter amount to withdraw: 2000
Withdrawal complete, Remaining balance
4100

Welcome, what service would you like to use
Press 1 for Withdraw
Press 2 for Deposit
Press 3 for Transfer
Press 4 for transaction history
Press 5 to quit
Press 6 to check balance
Enter choice: 1
```

FIG 3: - DEPOSIT OPTION

```
File Edit Selection View Go Run Terminal Help
octanet internship

EXPLORER
OCTANET INTERNSHIP
  atm_database.xlsx
  atm.py
  new.py
  newchn.py
  transaction_history.xlsx

newchn.py X
newchn.py > update_balance_in_excel
7 class User:
8     def __init__(self, user_id, user_name, pin, balance):
11         self.balance = int(balance)
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21 def update_balance_in_excel(users, workbook):
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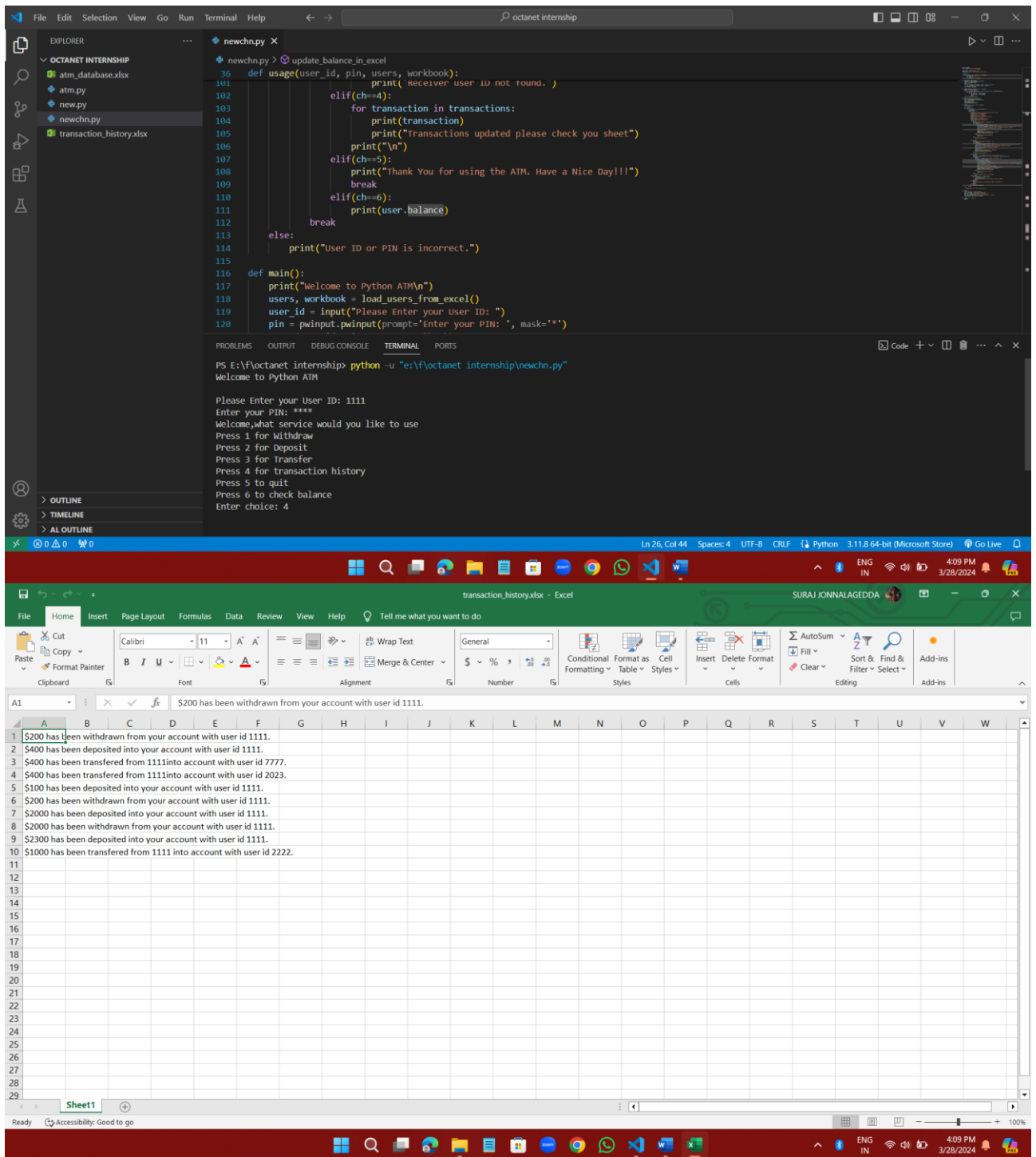


FIG 6: - QUIT OPTION


```
File Edit Selection View Go Run Terminal Help
octanet internship

EXPLORER
OCTANET INTERNSHIP
-transaction_history.xlsx
atm_database.xlsx
atm.py
new.py
newchn.py
transaction_history.xlsx

newchn.py X
36 def update_balance_in_excel
101 def usage(user_id, pin, users, workbook):
102     print(Receiver user ID not round.)
103     elif(ch==4):
104         for transaction in transactions:
105             print(transaction)
106             print(transactions updated please check you sheet")
107             print("\n")
108         elif(ch==5):
109             print("Thank You for using the ATM. Have a Nice Day!!!")
110             break
111         elif(ch==6):
112             print(user.balance)
113             break
114     else:
115         print("User ID or PIN is incorrect.")
116
117 def main():
118     print("Welcome to Python ATM\n")
119     users, workbook = load_users_from_excel()
120     user_id = input("Please Enter your User ID: ")
121     pin = pwininput(prompt='Enter your PIN: ', mask='*')
122
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS E:\octanet internship> python -u "e:\octanet internship\newchn.py"
Welcome to Python ATM

Please Enter your User ID: 1111
Enter your PIN: ****
Welcome,what service would you like to use
Press 1 for Withdraw
Press 2 for Deposit
Press 3 for Transfer
Press 4 for transaction history
Press 5 to quit
Press 6 to check balance
Enter choice: 5
Thank You for using the ATM. Have a Nice Day!!!
PS E:\octanet internship>
```

FIG 7: - CHECKING BALANCE OF USER

```
File Edit Selection View Go Run Terminal Help
octanet internship

EXPLORER
OCTANET INTERNSHIP
-transaction_history.xlsx
atm_database.xlsx
atm.py
new.py
newchn.py
transaction_history.xlsx

newchn.py X
36 def update_balance_in_excel
101 def usage(user_id, pin, users, workbook):
102     print(Receiver user ID not round.)
103     elif(ch==4):
104         for transaction in transactions:
105             print(transaction)
106             print(transactions updated please check you sheet")
107             print("\n")
108         elif(ch==5):
109             print("Thank You for using the ATM. Have a Nice Day!!!")
110             break
111         elif(ch==6):
112             print(user.balance)
113             break
114     else:
115         print("User ID or PIN is incorrect.")
116
117 def main():
118     print("Welcome to Python ATM\n")
119     users, workbook = load_users_from_excel()
120     user_id = input("Please Enter your User ID: ")
121     pin = pwininput(prompt='Enter your PIN: ', mask='*')
122     usage(user_id, pin, users, workbook)
123
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS E:\octanet internship> python -u "e:\octanet internship\newchn.py"
Welcome to Python ATM

Please Enter your User ID: 1111
Enter your PIN: ****
Welcome,what service would you like to use
Press 1 for Withdraw
Press 2 for Deposit
Press 3 for Transfer
Press 4 for transaction history
Press 5 to quit
Press 6 to check balance
Enter choice: 6
5400
PS E:\octanet internship>
```

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	user_ID	user_pin	balance																				
2	1111	1234	5400																				
3	2222	5678	14000																				
4	3333	2468	9500																				
5	4444	3859	5000																				
6	5555	9308	4000																				
7	6666	2358	2500																				
8	7777	1110	4200																				
9	8888	5098	3800																				
10	9999	1067	7800																				
11	1357	2343	9000																				
12	2468	9090	9500																				
13	3579	4940	1000																				
14	4680	3947	8000																				
15	2849	4856	21300																				
16	8395	5860	12000																				
17	2047	2948	16000																				
18	1463	2845	9400																				
19	3937	8734	3000																				
20	2023	3049	5100																				

FIG 8: - GIVING NEGATIVE INPUT IN WITHDRAW

```

36 def usage(user_id, pin, users, workbook):
101     print(Receiver user ID not round.)
102     elif(ch==4):
103         for transaction in transactions:
104             print(transaction)
105             print("Transactions updated please check you sheet")
106             print("\n")
107     elif(ch==5):
108         print("Thank You for using the ATM. Have a Nice Day!!!")
109         break
110     elif(ch==6):
111         print(user.balance)
112         break
113 else:
114     print("User ID or PIN is incorrect.")
115
116 def main():
117     print("Welcome to Python ATM\n")
118     users, workbook = load_users_from_excel()
119     user_id = input("Please Enter your User ID: ")
120     pin = pwininput(prompt='Enter your PIN: ', mask='')
121     usage(user_id, pin, users, workbook)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Welcome to Python ATM

Please Enter your User ID: 1111
Enter your PIN: ****
Welcome, what service would you like to use
Press 1 for Withdraw
Press 2 for Deposit
Press 3 for Transfer
Press 4 for transaction history
Press 5 to quit
Press 6 to check balance
Enter choice: 1
Enter amount to withdraw: -2000
Invalid Input
  
```

FIG 9: - GIVING ALPHABET INPUT IN WITHDRAW

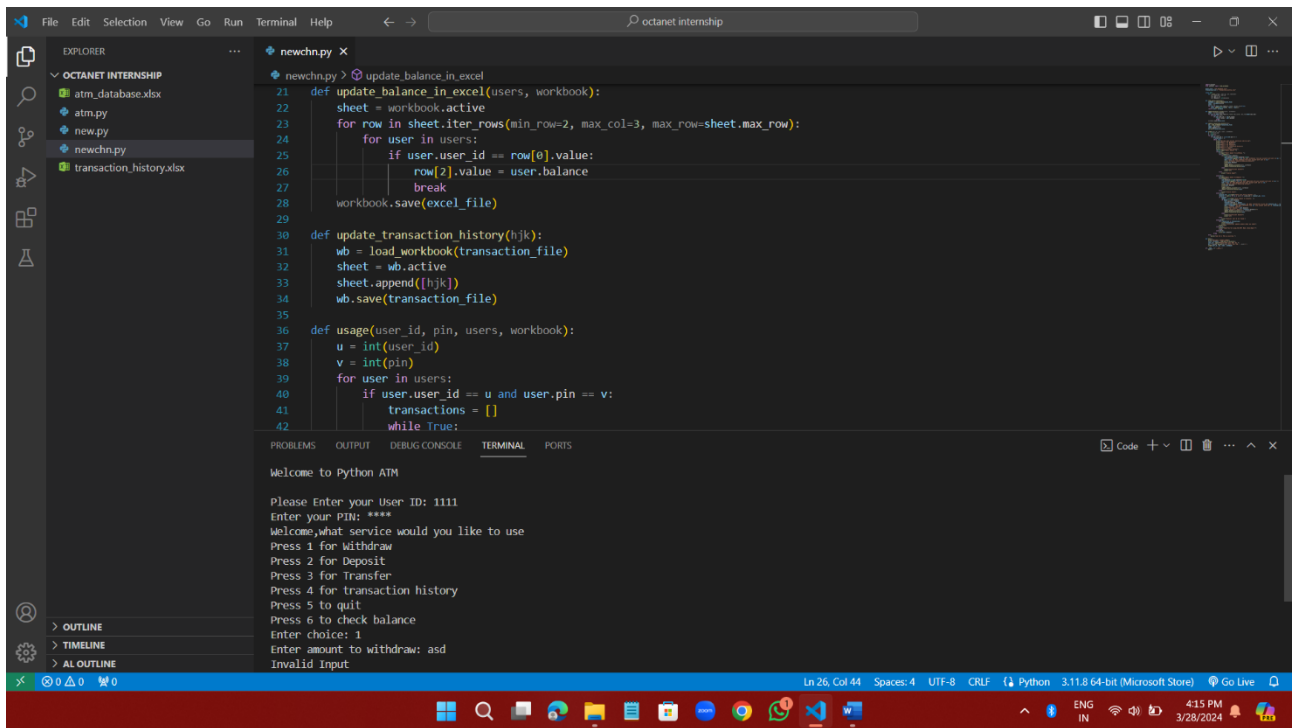


FIG 10: - GIVING INSUFFICIENT BALANCE IN WITHDRAW

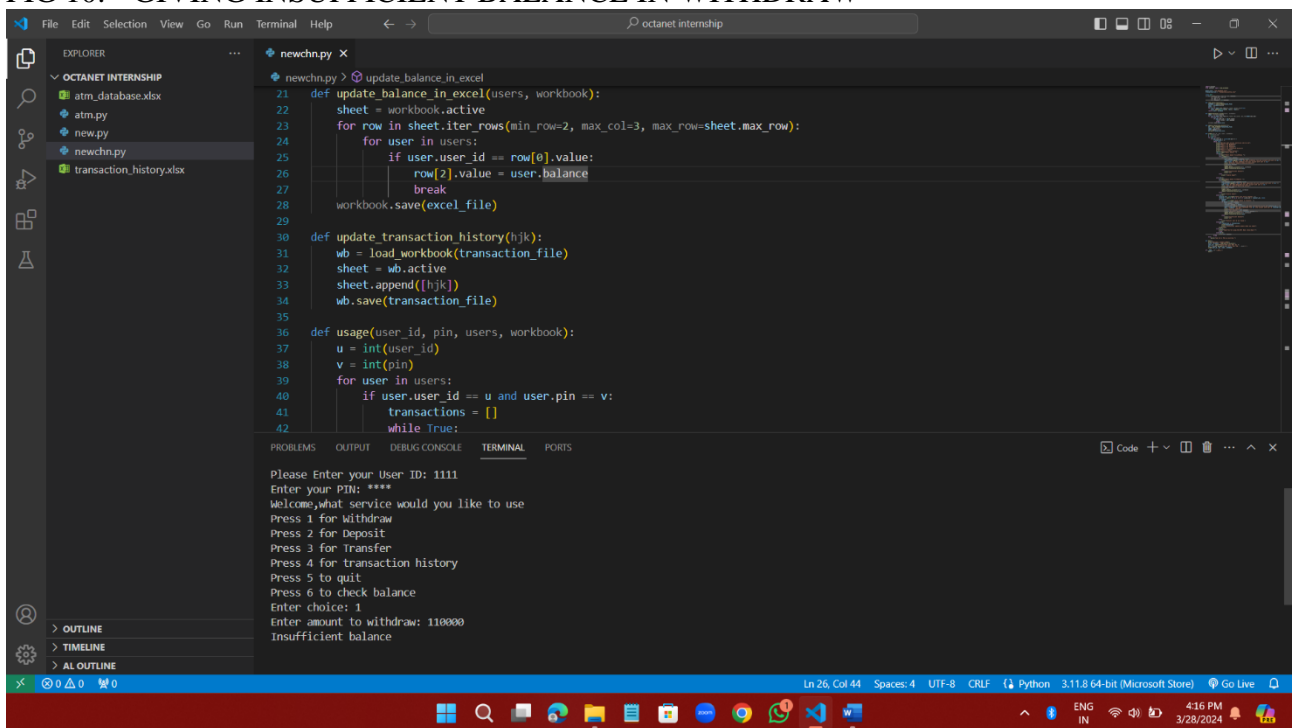


FIG 11: - GIVING NEGATIVE INPUT IN DEPOSIT

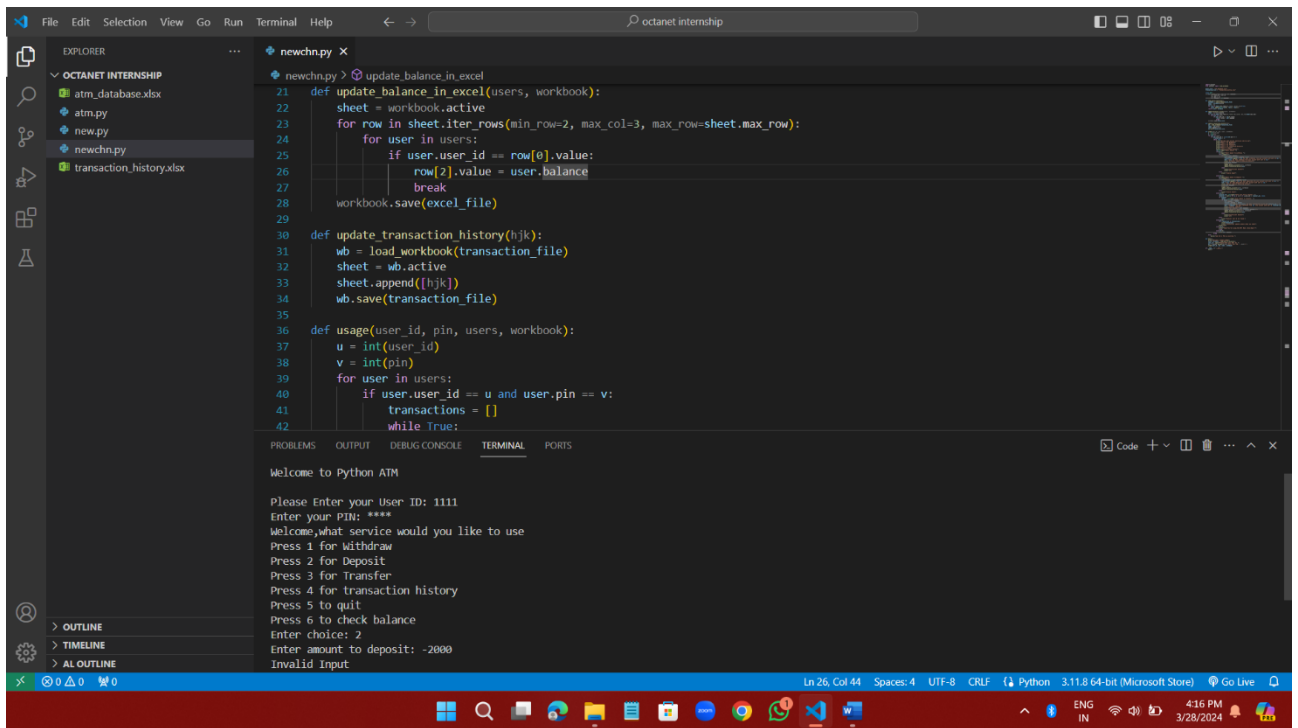


FIG 12: - GIVING ALPHABET INPUT IN DEPOSIT

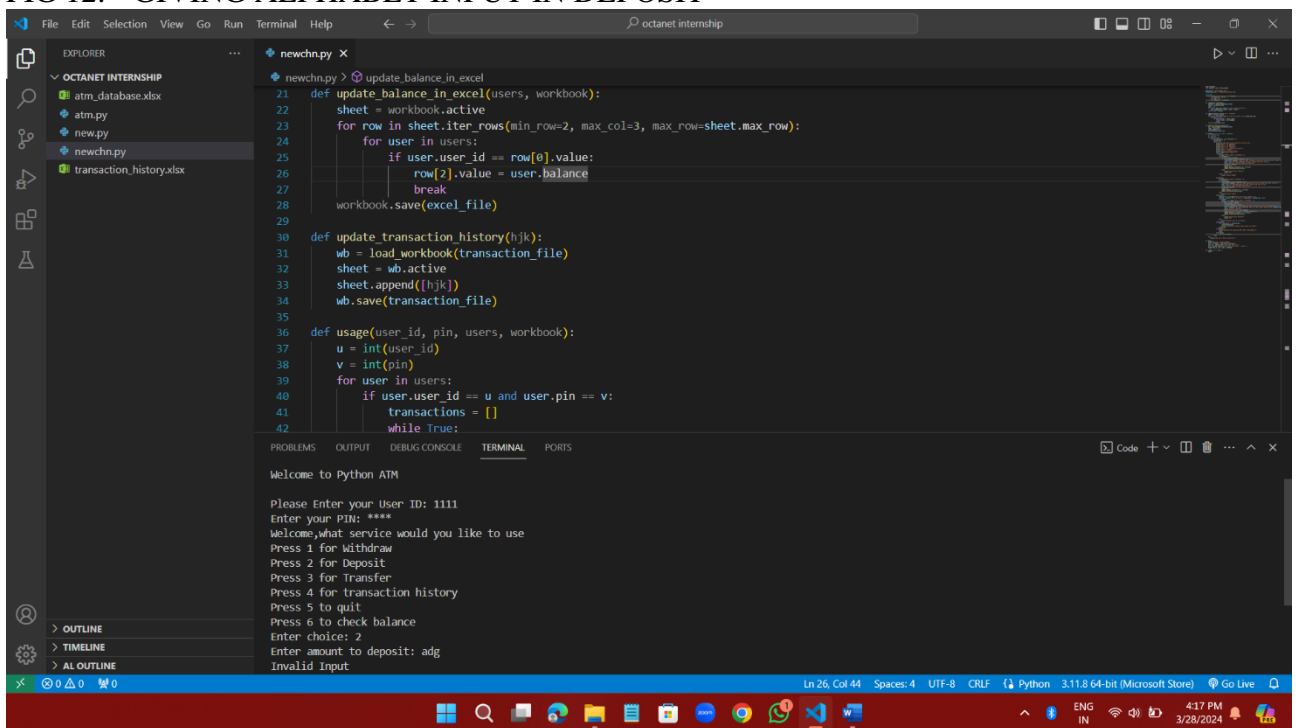
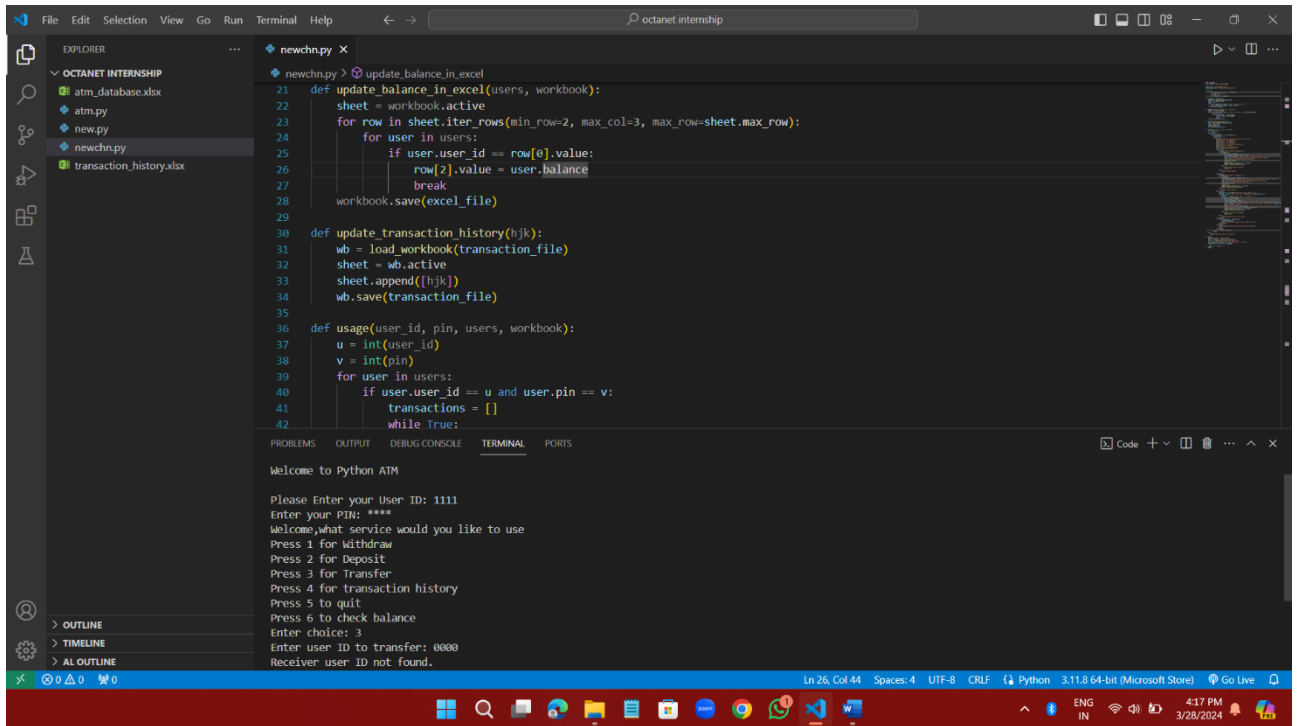


FIG 1: - GIVING UNEXISTING USER ID FOR TRANSFER OF MONEY



10.CONCLUSION

The online internship journey focused on Python development and the creation of an Automated Teller Machine (ATM) interface has been successful. Through practical applications of Python programming, software development methodologies, and user interface design, valuable skills have been honed, and insightful experiences gained.

In conclusion, the internship journey has been instrumental in bridging the gap between theory and practice, equipping participants with the capabilities to tackle real-world challenges in Python development and software design. The ATM interface project stands as a testament to the dedication, innovation, and expertise cultivated throughout the internship, paving the way for future success in the dynamic realm of technology and software engineering. The successful completion of the ATM interface project demonstrates the effective application of learned skills and knowledge. The interface encompasses various functionalities essential for modern banking systems, including user authentication, transaction processing, transaction history maintenance, error handling, security measures, and a user-friendly interface. By leveraging Python and relevant libraries, along with employing standard software development practices, a robust and efficient ATM system has been developed.