Project Title:

About ATM Machine:

An Automated Teller Machine (ATM) is an electronic banking device that allows users to perform basic financial transactions without the need for a bank employee. It enables customers to withdraw cash, check account balance, deposit money (in advanced ATMs), transfer funds, and change PIN securely. ATMs are available 24/7 and provide quick, convenient, and secure access to banking services, improving customer experience and reducing workload on bank staff.

Project Overview

This ATM Machine project is a software-based simulation of how a real ATM system works.
The main goal of the project is to demonstrate the operations performed in an ATM such as authentication, balance checking, deposits, withdrawals, and transaction history.
The system focuses on secure user login using PIN verification and accurate financial operations.

The project helps in understanding core concepts of banking systems, database handling, input validation, and user-interface design.

It acts as a mini banking application where users can interact with various ATM functions in a simple and structured way.

Features of the ATM Project

User Authentication using PIN

Check Account Balance

Cash Withdrawal

Cash Deposit

Fund Transfer (optional)

Mini Statement / Transaction History

Change PIN Facility

Exit / Cancel Transaction Option

Error Handling (wrong PIN, insufficient balance, etc.)

User-friendly menu-based interface

Technology & Tools Used

Technologies Used:

Programming Language: Python / Java / C++ (choose as per your project)

Database: MySQL / SQLite / File Storage

IDE/Editor: VS Code / PyCharm / IntelliJ / Notepad++

Version Control (Optional): Git & GitHub

Steps to Install & Run the Project

Installation Steps:

1. Download or clone the project folder from GitHub.

2. Install required software (Python/Java/C++ compiler).

3. Install necessary libraries (if any).

4. Set up the database (import SQL file or create tables).

Steps to Run the Project:

1. Open the project in your IDE.

2. Run the main file (e.g., main.py, ATM.java, etc.).

3. Enter account number and PIN to log in.

4. Use the menu options to perform transactions.
5. View output directly in terminal/console.

Instructions for Testing

Ensure the database is connected before running the project.

Test with valid and invalid PINs to check authentication.

Try withdrawing more money than available to test error handling.

Test deposit function and verify updated balance.

Logout and login again to check data persistence.

Test edge cases like:

Empty input

Special characters

Long inputs

Confirm all menu options work properly.

Note down any bugs and re-test after fixing.

CODE

```python
balance = 5000        # initial balance
pin = "1234"          # default PIN
def login():
    print("===== ATM LOGIN =====")
    entered_pin = input("Enter PIN: ")

    if entered_pin == pin:
        print("Login successful!\n")
        return True
    else:
        print("Incorrect PIN!\n")
        return False
def check_balance():
    print(f"Your current balance is: ₹{balance}\n")

def withdraw():
    global balance
    amount = float(input("Enter amount to withdraw: ₹"))

    if amount <= 0:
        print("Enter a valid positive amount!\n")
    elif amount > balance:
        print("Insufficient balance!\n")
    else:
        balance -= amount
        print(f"Withdrawal successful! You withdrew ₹{amount}")
        print(f"Remaining balance: ₹{balance}\n")
def deposit():
    global balance
    amount = float(input("Enter amount to deposit: ₹"))

    if amount <= 0:
        print("Enter a valid positive amount!\n")
    else:
        balance += amount
        print(f"Deposit successful! You deposited ₹{amount}")
        print(f"Updated balance: ₹{balance}\n")
def menu():
    print("===== ATM MENU =====")
    print("1. Check Balance")
    print("2. Withdraw Money")
    print("3. Deposit Money")
    print("4. Exit")

# Main Program
if login():
    while True:
        menu()
        choice = input("Enter your choice: ")

        if choice == "1":
            check_balance()
        elif choice == "2":
            withdraw()
        elif choice == "3":
            deposit()
        elif choice == "4":
            print("Thank you for using the ATM!")
            break
        else:
            print("Invalid option! Please try again.\n")
```