Green University of Bangladesh
Department of Computer Science and Engineering(CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2024), B.Sc. in CSE (Day)

LAB PROJECT PROPOSAL

Course Title: Object-Oriented Programming

Course Code: CSE 202 Section: 223 D9

Project Name: Simple ATM Machine Simulation.

Student Details

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Proposal Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

❖ TITLE OF THE PROJECT PROPOSAL:

Simple ATM Machine Simulation.

❖ PROBLEM DOMAIN & MOTIVATIONS :

Problem Domain:

This project tackles the simulation of a basic Automated Teller Machine (ATM). ATMs are ubiquitous in modern society, allowing users to perform various financial transactions electronically without needing a bank teller. However, the inner workings of an ATM might seem complex to an outside observer.

Motivations:

Developing a simple ATM machine simulation offers several benefits:

- **Educational Purpose:**
  - It serves as a practical introduction to ATM functionalities, providing users with a safe and controlled environment to learn how to perform withdrawals, deposits, and balance checks.
  - It can be a valuable tool for students or anyone unfamiliar with ATMs.

- **Educational Tool for Programmers:**
  - This program demonstrates core programming concepts like user input, decision making (switch statements), loops, and basic data manipulation.
  - It provides a hands-on exercise for practicing these concepts in a practical scenario.

- **Prototype for Further Development:**
  - This code lays the groundwork for creating a more sophisticated ATM simulation.
  - Future enhancements could introduce functionalities like PIN verification, transaction history, or even connections to simulated bank account

3. OBJECTIVES/AIMS:

This project aims to develop a user-friendly and educational simulation of a basic ATM machine. Here are the specific objectives:

Core Functionalities:

- **Simulate core ATM functionalities:**
  - Allow users to withdraw cash, considering available balance.
  - Enable users to deposit cash, updating their account balance.
  - Provide the ability to check the current account balance.
  - Offer an exit option to terminate the program.

User Experience:

- **Create a user-friendly interface:**
  - Present a clear and concise menu with readily understandable options.
  - Guide users with informative prompts and messages throughout the simulation.

Learning and Education:

- **Enhance user understanding of ATMs:**
  - Familiarize users with the basic functionalities of ATMs in a safe and controlled environment.
  - Demonstrate the step-by-step process of performing transactions like withdrawals and deposits.

Programming Fundamentals:

- **Reinforce core programming concepts:**
  - Utilize the program as a practical exercise for applying concepts like:
    - User input using Scanner class
    - Decision making structures (switch statements)
    - Looping constructs (while loops)
    - Basic data manipulation (integer variables and arithmetic operations)

Future Enhancements:

- **Lay the foundation for further development:**
  - This code serves as a starting point for building upon its functionaliti

4. TOOLS & TECHNOLOGIES :

This project utilizes the following tools and technologies:

Programming Language:

- **Java:** Java is a widely used, object-oriented programming language known for its versatility and platform independence. This program leverages Java's features to structure the simulation logic and interact with the user.

Development Environment:

- **Text Editor or IDE (Optional):** While not strictly necessary, a text editor like Notepad++ or an Integrated Development Environment (IDE) like Eclipse or IntelliJ IDEA can significantly improve the coding experience. These tools offer features like syntax highlighting, code completion, and debugging capabilities, making the development process more efficient and manageable.

Libraries:

- **Java Standard Library:** The program relies on the built-in Java libraries, specifically the `java.util.Scanner` class. This class facilitates user input, allowing the program to read user choices and transaction amounts from the console.

Additional Considerations:

- **Operating System:** The program itself is platform-independent due to Java's portability. Any operating system (Windows, macOS, Linux) can be used as long as a Java compiler and runtime environment are installed.

Overall, the project utilizes readily available and widely accessible tools to create a simple and functional ATM machine simulation.

5. CONCLUSION:

This project successfully developed a basic and educational simulation of an ATM machine in Java. Here's a summary of its key points:

- **Functionality:** The program allows users to perform core ATM operations like withdrawals, deposits, and balance inquiries.
- **Educational Value:** It serves as a learning tool for understanding ATM functionalities and practicing fundamental programming concepts.
- **User Interface:** The program provides a user-friendly interface with a clear menu and informative messages.
- **Development Tools:** Java and the `Scanner` class were used to build the program.

Future Enhancements:

This simulation serves as a foundation for further development. Potential improvements include:

- **Security:** Implementing PIN verification for secure access.
- **Advanced Features:** Adding functionalities like transaction history, transfer capabilities, or error handling for invalid user input.
- **Graphical User Interface (GUI):** Creating a more visually appealing user interface using JavaFX or Swing libraries.

Overall, this project demonstrates the successful creation of a simple ATM machine simulation in Java. It provides a valuable learning tool for understanding ATMs and programming fundamentals and offers a platform for further exploration and development.