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IMPLEMENTATION OF CARD TRANSACTION USING AADHAR CARD

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Abstract: The creation of a mechanism for conducting transactions using credit cards that would be compatible with Aadhar verification. The use of credit cards and debit cards is rapidly becoming the most prevalent method of payment for large purchases, which is driving an increasing number of companies to seek out credit card processing services. The solution that has been offered offers a technique for the system that handles credit card transactions that will interact with the Aadhar verification.

Keywords: Transactions , Credit Cards , Aadhar Verification , Debit Cards , ATM

I. INTRODUCTION

This paper provides the recent developments concerning the use of Aadhaar cards for financial transactions. Its primary function is to ensure safety. In this chapter, we take a look at the chapter's overview, the present system, the proposed system, the issue description, the necessity, and the scope of card transactions utilizing Aadhar cards.

1.1 Overview

Verification using Aadhaar : According to the citizenship law, if you were born in India or to Indian parents on or after January 26, 1950 but before July 1, 1987, then your birth certificate should suffice as proof that you are an Indian citizen. If this is the case, then you do not need any other documentation to prove that you are an Indian citizen. The Aadhaar card, contrary to the widespread notion, is not a valid evidence of Indian citizenship either.

We need A valid form of identification must be shown in order to get basic necessities such as power, water, SIM cards for mobile phones, and so on. This evidence of one's identification may be shown in the shape of a driver's license, a passport, an Aadhar card, a ration card, or a PAN card. Without these types of identity proof, we are unable to obtain such essential basic needs. In accordance with the revision to the citizenship laws of 2003, all citizens are required to have national ID cards.

Existing System: These days, the self-service banking system has gained widespread popularity Thanks to its capacity to provide high-quality assistance for customers around the clock. It is highly usual for clients to make use of automated teller machines, often known as ATMs, which provide users the convenience of dealing in banknotes. However, there has been a steady increase in the number of cases of financial crime in recent years. Many perpetrators of these crimes illegally tamper with ATM terminals in order to obtain credit card information and passwords from customers. As soon as the user's bank card is misplaced and the associated password is taken, the criminal will withdraw all cash in the shortest amount of time, causing the consumer to suffer tremendous financial losses. The question of how to verify a customer's identification in today's world has grown more important in the banking sector. Although conventional ATMs often authenticate users by having them provide both their credit card and their password, this approach is not without its flaws. The customer's identity cannot be completely confirmed by using just their payment card and password. In recent years, an algorithm that the fingerprint recognition constantly updated and check Aadhar detail has provided us with new verification methods. This has been possible thanks to the development of these technologies. We are able to accomplish our aim of making the usage of automated teller

machines (ATMs) safer by combining the traditional password authentication technique with biometric identification technology. This combination verifies the identities of our clients in a more accurate manner.

1.2 Problem Statement

- The offline method of credit card processing involves the merchant collecting sensitive client data, such as credit card numbers, and keeping it in a database housed on your website before entering the data into their on-site merchant credit card processing system.
- Unsecured: A knowledgeable hacker could be able to breach into the database and obtain a complete list of credit card numbers, which would be detrimental to the merchant's reputation with their existing customers.
- There is a greater potential for fraudulent chargebacks from customers when there is no signature on the transaction. There is also a greater potential for fraudulent activity when stolen credit cards are used.

1.3 Proposed Methodology

The Aadhar Number Based ATM is a desktop program that verifies the user's Aadhar number in order to provide authentication. In order to complete any financial transaction, all you need to do is provide your 12-digit Aadhar number. In order to proceed with the transaction, the user must first log in using his Aadhar number, after which he must input the pin code. The user has the ability to take money out of his account at any time. Users have the ability to transfer funds to several accounts simply by providing the relevant account numbers. In order to withdraw money, the user must first input the amount of money he wants to withdraw and then choose the kind of account from which he wants to take the money (for example, a savings account or a checking account). In order for the user to complete a transaction using the ATM, the user's account must have sufficient funds. Users have the ability to examine the available balance in their separate accounts.

1.4 Solution Description

The solution that has been offered offers a technique for the system that handles credit card transactions that will interact with the Aadhar verification.

Authenticating a user in order to carry out a successful transaction in a way that is both dependable and time-efficient is one of the primary objectives of the present project, which aims to put into action a system that makes use of the Aadhar verification approach.

It should be flexible enough so that people can easily utilize it without any reluctance, and the goal is to automate the process of online transactions while creating a system that offers a dependable and effective manner of conducting such transactions.

II. LITERATURE SURVEY

2.1 Study

A desktop program called STUDY Aadhar No. Based Card Transaction uses the user's Aadhar number as an authentication factor. In order to complete any financial transaction, all you need to do is provide your 12-digit Aadhar number. In order to proceed with the transaction, the user must first authenticate in using his fingerprint and then input his personal identification number (PIN). The user has the ability to take money out of his account at any time. Users have the ability to transfer funds to several accounts simply by providing the relevant account numbers. In order to withdraw money, the user must first input the amount of money he wants to withdraw and then choose the kind of account from which he wants to take the money for example, a savings account or a checking account. In order for the user to complete a transaction using the ATM, the user's account must have sufficient funds. Users have the ability to examine the available balance in their separate accounts.

2.2 Problem Methodology

Your birth certificate serves as sufficient evidence of citizenship if you were born in India on or after January 26, 1950 and before July 1, 1987. However, you are not an Indian citizen at birth if you were born in India after January 26, 1950 and before July 1, 1987. Contrary to popular belief, the Aadhaar card is not acceptable proof of Indian citizenship either.

Essentials such as electricity, water, mobile phone SIM cards, and so on cannot be issued without a valid form of identification being shown beforehand. Acceptable forms of identification include passports, Aadhar cards, ration cards, PAN cards, and driver's licenses. Those who are unable to provide evidence of their identification often are unable to receive such fundamentals. In accordance with the revision to the citizenship laws of 2003, all citizens are required to have national ID cards.

2.3 The Current Model for Software Engineering Paradigm

The software development approach that incorporates the process, techniques, and tools is called the software engineering paradigm. Other names for this strategy include software process model and the Software Development Life Cycle (SDLC) model. There are a few other names for this model, but they all refer to the same thing: a model for the process of creating software. An SDLC starts when a concept for a software system is first formed and ends when the software system is no longer in use or required.

2.4 Technology Used

The user's fingerprint and Aadhar number are utilized as a form of authentication while using the Aadhar desktop program. Because every human being has a unique set of minutiae characteristics for their fingerprint, it is possible to identify each individual user. Transactions made using a card that is based on a person's fingerprint, rather than an ATM card, are more reliable and secure. It is not necessary to carry your ATM card around in your wallet, therefore there is no need to be concerned about losing it. In order to complete any kind of financial transaction, you will just need to use your fingerprint. In order to proceed with the transaction, the user must first authenticate in using his fingerprint and then input his personal identification number (PIN).

Every Indian person receives an individual 12-digit identification number called Aadhar, which means "foundation," based on their biometric and demographic data. The Unique Identification Authority of India (UIDAI), a statutory authority established in January 2009 by the Government of India and falling under the Ministry of Electronics and Information Technology, is the organization that is in charge of gathering the data in accordance with the provisions of the Aadhar (Targeted Delivery of Financial and other Subsidies, benefits, and services) Act, 2016. UIDAI is a statutory authority.

2.5 Minimum System Requirements for Hardware

2.5.1 Recommended system specifications

- Dual core processor 2 GB RAM
- Disk space – 1 GB
- Windows 7 serves as the operating system.

2.5.2 Prerequisites for the Software

- Front End Swing : Refers to a framework that is used for desktop applications.
- Back End : MySQL DB Java 1.5v

III. ANALYSIS

3.1 Establishment of the System's Needs and Capabilities

This software requirement specification offers a comprehensive overview of the bank's card transaction system, including all of its functions and requirements. The card transaction system will benefit from this additional layer of protection as a result.

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3.2 Functional Requirements

The user inserts their ATM card, the machine verifies that it is valid, the user selects the desired product, the user enters their PIN, the machine verifies that the PIN is correct, the user enters their Aadhar number, the machine verifies that the Aadhar number is correct, the machine verifies the account type if the task is banking, the user inputs the amount to be withdrawn, the amount is debited if there is enough money, and an error message is displayed

3.3 Non-Functional Requirements

- It is recommended that an error message be shown for a minimum of six seconds.
- In the event that a request made to the bank computer is not fulfilled within a minute's time, the card will be declined and an error notice will be shown.
- If and only if the back processes and approves the request to withdraw money from the account, the automated teller machine (ATM) will disburse the money.
- It's possible that a single back can handle transactions coming from many ATMs at the same time.

3.4 E-R Diagram

An ERD, or entity relationship diagram, is a diagram used to display the relationships between entity sets in a database. The term "entity" will be used to describe a data component for the duration of this discussion. Databases' logical structure may be represented graphically using ER diagrams.
At first sight, an entity connection diagram may be confused with a flowchart due to its visually similar appearance. What sets it apart from other similar systems are the specific symbols and the meanings associated with those symbols.

3.4.1 Entity
Rectangles are used to symbolize the many entities throughout the game. The entity set that a rectangle belongs to determines what it is called.
Properties of entities Attributes may be thought of as the properties of entities. Ellipses are used to illustrate the characteristics of an attribute. Each ellipse stands for a different property and is in close proximity to the thing it represents rectangle.

3.4.2 Relationship
The box in the form of a diamond is used to depict relationships. Within the diamond-shaped box is the name of the connection that has been made. All of the entities rectangles that are a member of a connection are linked to it by a line that runs through the middle of them.

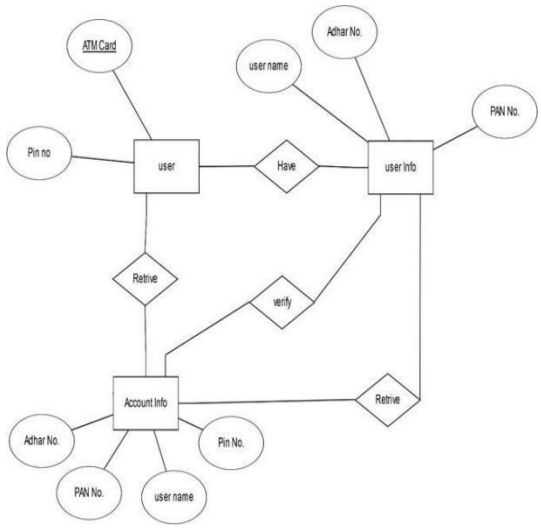
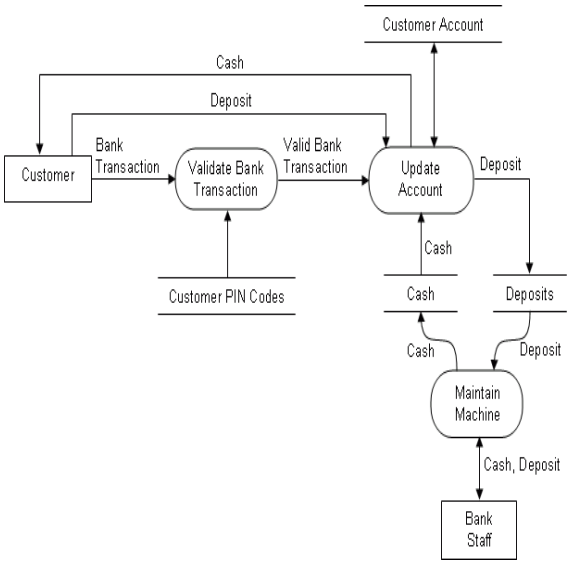


Figure 1: ERDiagram

3.5 Diagram of the Flow of Data

Understanding how information travels via diverse infrastructures is a breeze with the right data flow diagram software. Everything you need to know about data flow diagrams, from their definition and history to their symbols and notations, may be found in this comprehensive guide. You'll learn what makes a DFD unique from a UML diagram, how to tell the difference between a logical and physical DFD, and other useful information.

A data flow diagram, or DFD, is a visual representation of the flow of data in a given system or process. Predefined symbols like rectangles, circles, and arrows, together with short text descriptions, are used to represent data sources, destinations, storage locations, and connections between them. From simple, hand-drawn process overviews to intricate, multi-level data flow diagrams (DFDs), which dive progressively deeper into how data is handled, data flowcharts come in a wide variety of shapes, sizes, and complexity levels. They may be used both for study on existing systems and for modeling brand new ones. Like the best charts and diagrams, a DFD can often "communicate" visually what is difficult to explain in words. And not only for coders and CEOs, but for everyone in between as well, these visualizations are really helpful. This is why DFDs are still widely used today, even after all these years.



Although these techniques work very well for data flow software and systems, they are becoming more inadequate when trying to visualize interactive, real-time, or database-oriented software and systems.

Figure 2. DataFlowDiagram

3.6 Data Dictionary

It's a glossary of terms related to the data stored there. The document contains all relevant detail about the data objects. It's analogous to maintaining the most current details about objects like tables, columns, indexes, constraints, and functions.

This facilitates our ability to swiftly identify entry points and learn about the product's qualities. A data dictionary stores information about a person or organization, like their name, address, the number of people living there, the ages of the oldest and youngest members, and the roles they play within the organization, or a house, like its name, address, the number of people who live there, the ages of the eldest and youngest members, and the responsibilities each member of the household has.

The data dictionary provides context-specific definitions and descriptions of.

- Its name
- Its security, including details such as who the table's owner is, when it was created, and when it was last viewed.
- Information pertaining to the table's physical location, such as the location of its data storage
- Information on the structure, such as the names of its attributes, as well as its datatypes, constraints, and indexes.

The following are some of the things that are included in a data dictionary: - Definitions of all of the database objects, including as tables, views, constraints, indexes, clusters, synonyms, sequences, procedures, functions, packages, triggers, and so on

It keeps the information about how much space is allotted for each item as well as how much space each of those objects has used up.

The storage of any possible default values that a column could have

Usernames and passwords for the database schemas

All of this information, including access permissions for schemas on each of the objects, information about when the object was last changed, and information

about when it was last accessed, as well as any other database-related information, is kept in the form of tables in the data dictionary.

IV. IMPLEMENTATION AND RESULT ANALYSIS

4.1 Results-Screen Shots

Figure 3 : Login page

Figure 4: Page for entering PIN

Figure 5 : Page for berify your aadhar

Figure 6: Page for OTP verification

Figure 7: Page for welcome

4.2 Objectives of the Testing

This project proposes the implementation of a mechanism for the credit card transaction system that will combine with the verification of Aadhar cards and the scanning of fingerprints. Users of credit cards confront the challenge of being vulnerable to a wide variety of privacy concerns due to the nature of credit cards. It is not uncommon for this to take place when customers disclose their credit card details to strangers or when their cards are misplaced. Our solution proposes a method by which the features extracted from the Aadhar and Finger Print during the payment made by user on e-commerce portal will be compared to the features from the training or stored dataset of the respective user. This will be done in order to verify the identity of the user making the payment. The training data set that is used for authentication purposes is comprised of features retrieved from the Aadhar card and saved in the administrator database. ATM, biometric fingerprint, PIN security, and Aadhar Number are some of the keywords that may be used here.

4.3 Methods and Procedures of Testing and Analysis

A tool or procedure that is used to test an application is referred to as a testing methodology. You've mentioned a few different types of testing procedures, such as monkey testing, automated user interface testing, regression testing, and so on.

Some could also argue that testing techniques like pair wise-combinatorial interdependence modeling and model-based testing are methodology in their own right. However, a testing strategy is a more comprehensive plan for ensuring that the final product is of the greatest quality possible via the use of rigorous testing procedures. One way to think of a testing strategy is as the plan by which a product will be tested.

Testing in a black box and testing in a white box are the two primary types of testing that are performed while checking out new software.

One method is called "black box test design," and it entails deriving test cases straight from a requirement definition. Some of the Methods Are:

- Equivalence Partitioning (EP)
- Examination of the Decision Table

- Diagrams Showing the Transition Between States
- Testing on Actual Use Cases

2. Creating test cases by directly referencing the structure of a system or component:

- Statement Coverage
- Insurance for Branches
- Coverage of the Path

3. Generating test cases based on the tester's previous experience with systems that are comparable to the target system or the tester's intuition:

- Error Guessing
- Tests of a Prospective Nature

V. CONCLUSION AND FUTURE WORK

5.1 Conclusion

The objective of our proposed project, which is titled "Credit Card Transaction with Aadhar verification," is to cut down on the number of instances of credit card fraud that may take place throughout the course of an online payment transaction. The purpose of this project is to automate the process of doing online transactions and to build a system that can do it in a dependable and effective manner. The capability of the system to authenticate or limit a user is part of its functionality. It need to have sufficient adaptability to allow users to utilize it without any difficulty or reluctance at all. Since the camera is such an important component to the operation of the system, it is essential that both the picture quality and the performance of the camera in real-world conditions be rigorously verified before the system can be put into production. This approach provides an adequate level of security, can be relied upon, and is readily accessible. There is no need for any specialist hardware in order to implement the system in a financial institution's software. It is possible to create it by combining a camera and a computer.

5.2 Future Work

Some dishonest individuals would purposefully tamper with the card transaction terminal in order to steal the card information of unwary customers. If a person loses their bank card and their password is stolen, their account is vulnerable to fraud. Cards (credit, debit, or smart) with a password or PIN are often used for authentication in conventional card transaction systems, however all methods have their limitations. Current user authentication techniques, such as passwords and user IDs (identifiers) or identity cards and PINs (personal identification numbers), have their share of problems. Direct and covert surveillance may be used to illegally acquire passwords and PINs. An unauthorized user may be able to access your bank account or credit card if your card is lost, stolen, or otherwise compromised. Despite repeated warnings, many people still choose easily guessable PINs and passwords like their birthdays, phone numbers, and social security numbers. In light of recent cases of identity theft, it is more important than ever to have systems in place to ensure that a person is who they claim to be. Because a person's biometric information is uniquely tied to them, cannot be used by anyone else, and is theirs alone, biometric authentication technology has the potential to solve this problem. Comparisons between scanned items and records stored in a cloud-based database, a local database, or even on a smart card are all possible with this technology. In the long run, this method of combating fraudulent activity in the Card transaction system will show to be quite useful.

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