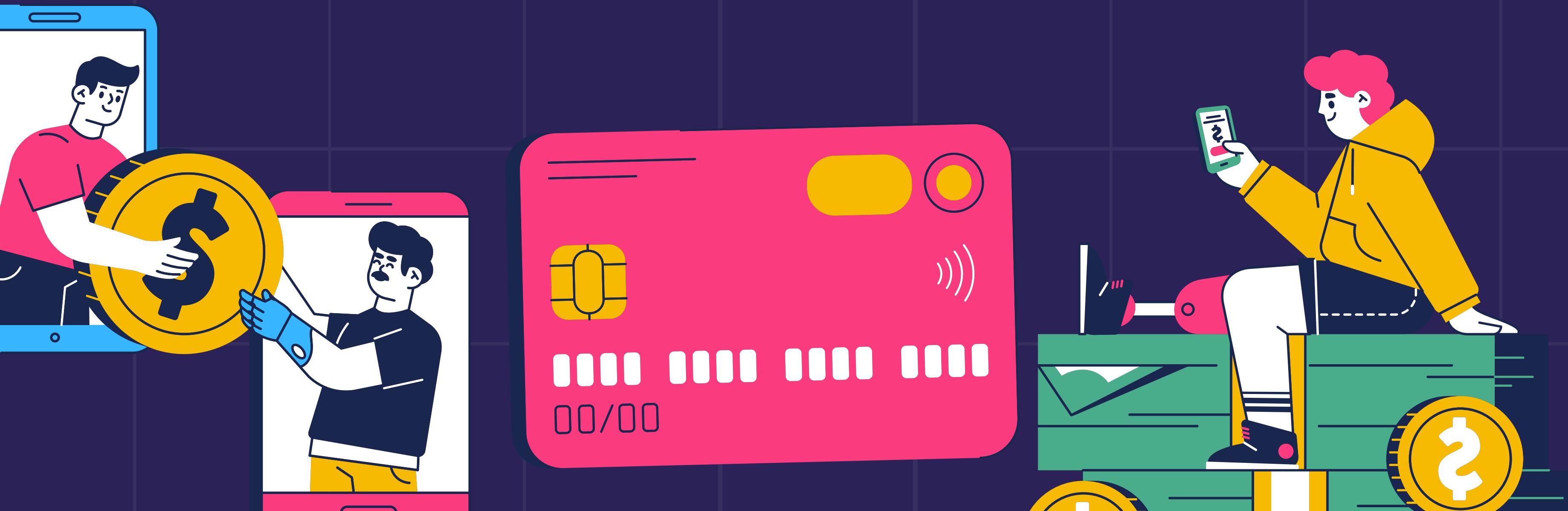


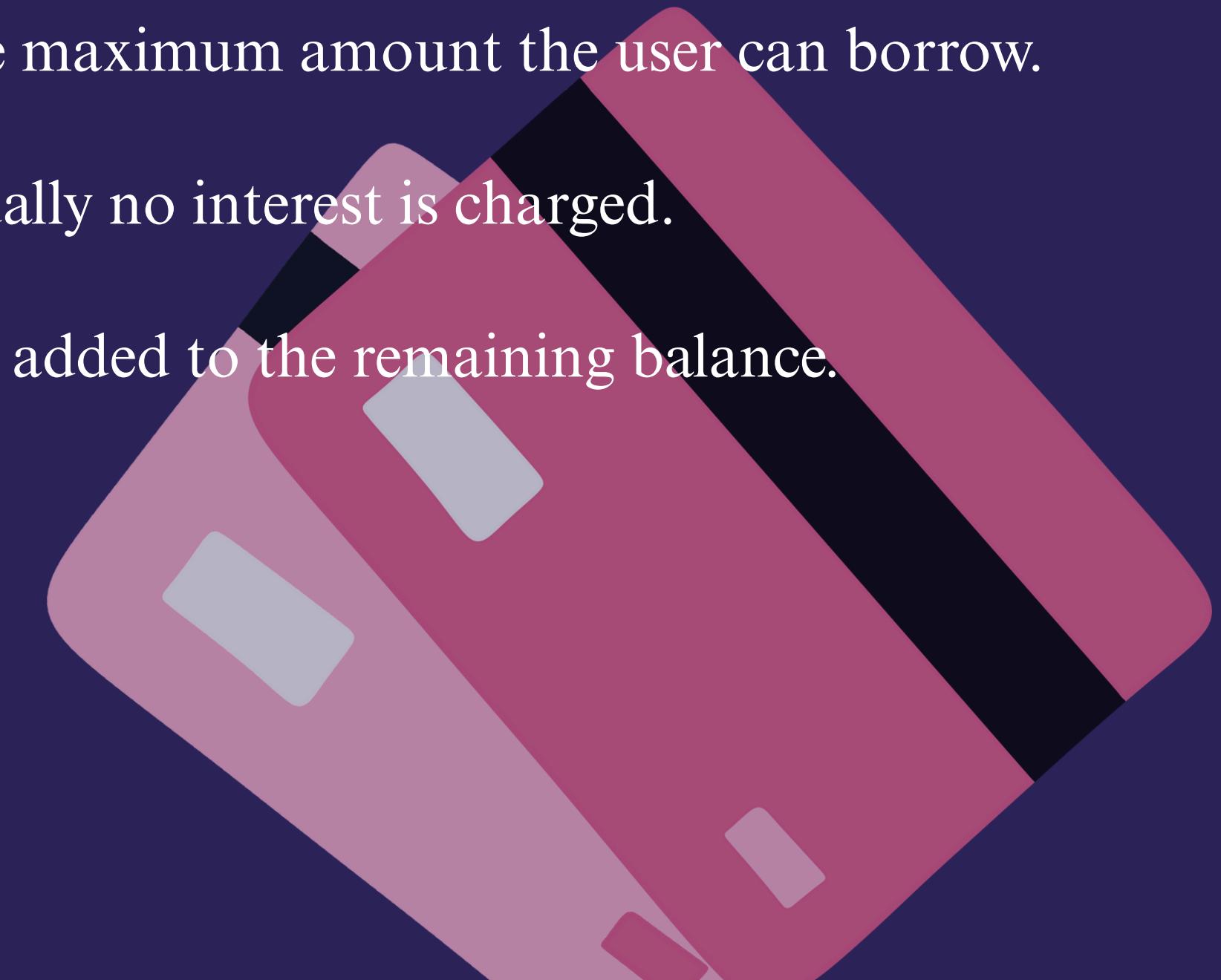
Understanding credit card



credit card

Allows the cardholder to borrow funds to pay for goods and services. The cardholder must repay the borrowed money either in full by the due date or over time with interest.

- Each card has a credit limit, which is the maximum amount the user can borrow.
- If the bill is paid in full each month, usually no interest is charged.
- If only part of the bill is paid, interest is added to the remaining balance.



credit card HISTORY

1. Early Forms – 1920s–40s

In the 1920s, some U.S. companies (especially in oil and hotels) issued cards to allow loyal customers

2. The First Universal Credit Card – 1950

The first modern credit card was the Diners Club card, introduced in 1950 in the United States.

3. Bank Cards – 1958

In 1958, Bank of America launched the BankAmerican card in California—the first bank-issued revolving credit card.



The process after swipe

Card Swiped/Inserted/Tapped

The cardholder gives their card to the merchant or taps it at a terminal.

Authorization Request

The merchant's Point of Sale (POS) machine sends the transaction details (amount, card info) to their Acquiring Bank (the merchant's bank). The Acquirer forwards this request to the Card Network (Visa, Mastercard, etc.).

Communication with Issuer

The Card Network sends the request to the Issuer Bank .

The Issuer checks:

- Is the card valid?
- Does the customer have enough credit limit?
- Is the transaction suspicious or possibly fraudulent?



The process after swipe

Authorization Response

The Issuer sends back a response: Approved or Declined. This response goes through the Card Network and Acquirer, back to the POS machine. If approved, the merchant gives the product/service to the customer.

Transaction Hold (Temporary)

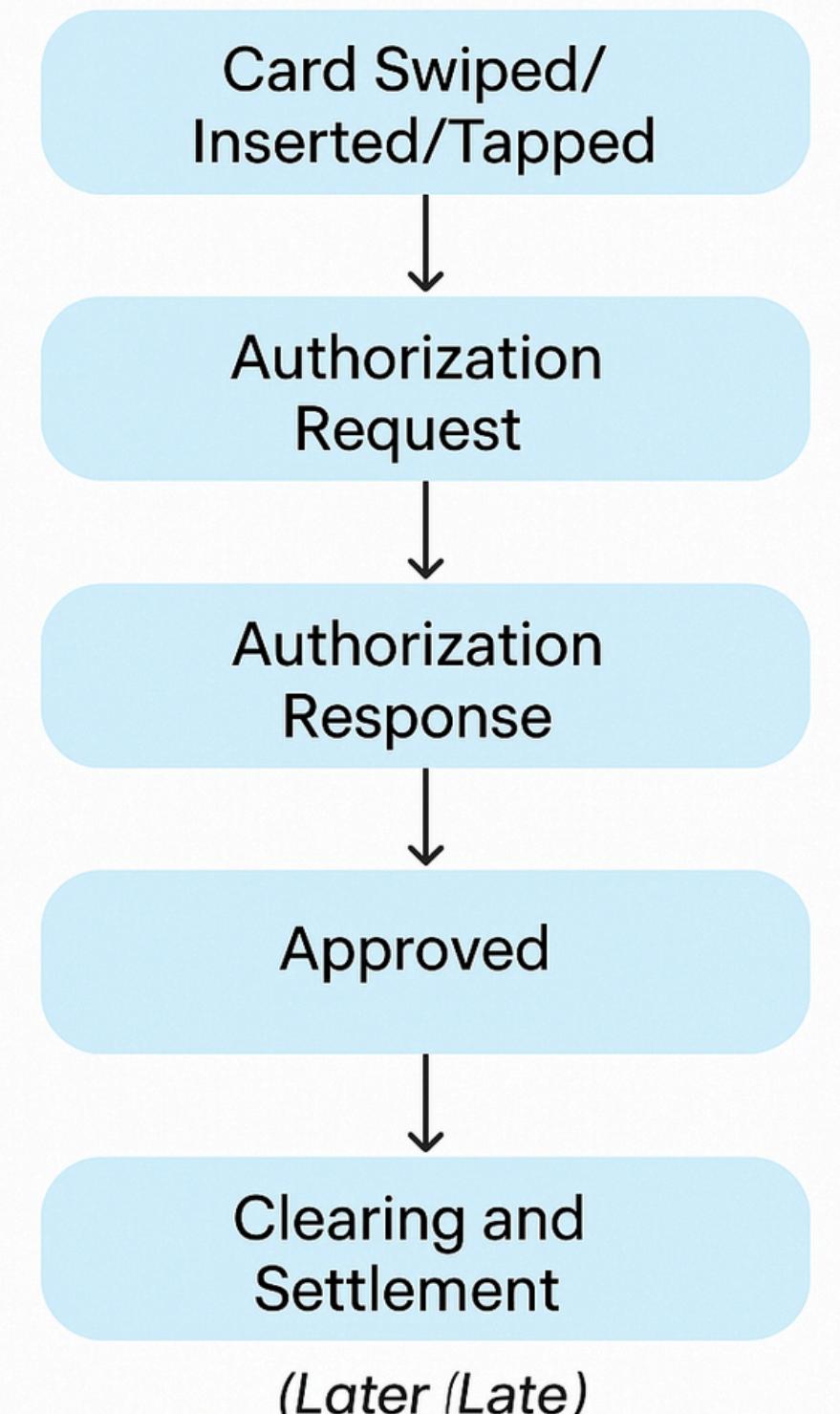
The approved amount is placed on hold from the customer's credit limit. It hasn't been transferred yet—just reserved.

Clearing and Settlement (Happens Later)

At the end of the day (or batch time), the merchant sends all transactions to the Acquirer. The Acquirer sends them through the Card Network to the Issuer. Settlement happens: Money moves from the Issuer to the Acquirer, and finally to the merchant's bank account.

Summary: Swipe → Authorization → Approval → Product given → Later Settlement

The Background Process When an Individual Swipes the Credit Card



UNCLEAR ???



Storyblocks

UNCLEAR ???



How Credit Cards Work? Should I own a Credit Card? | Dhruv Rathee

CREDIT CARDS EXPLAINED



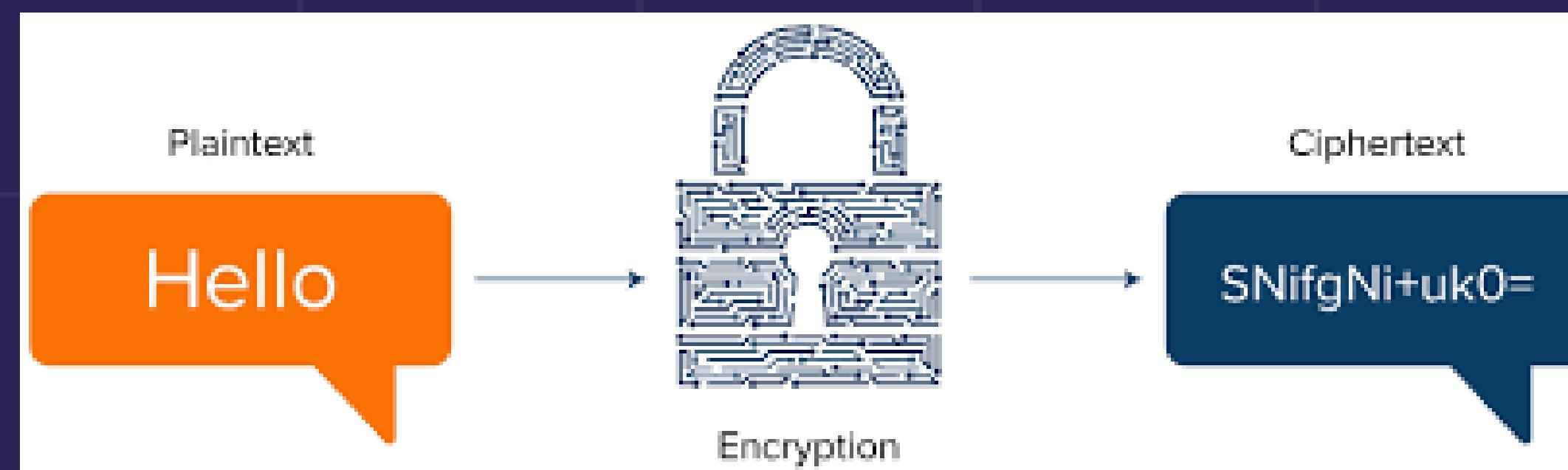
Share

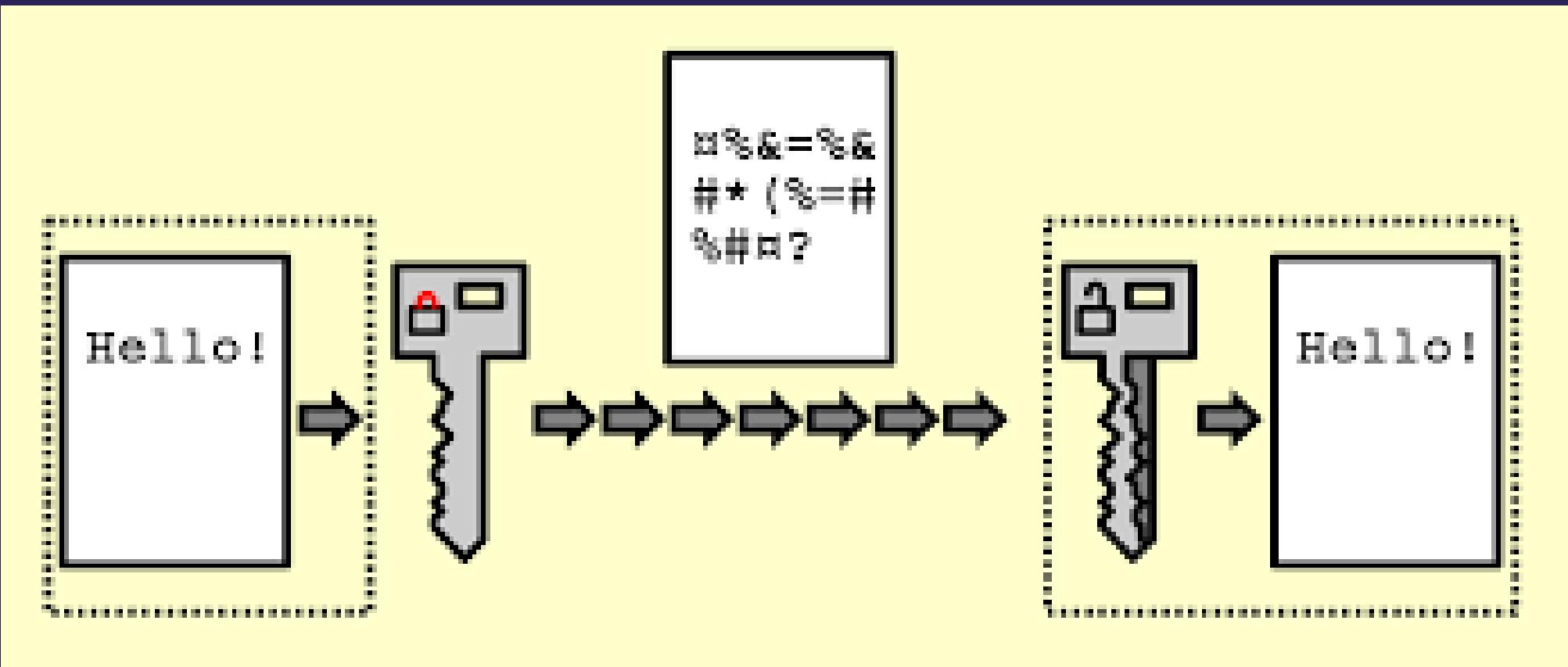
Watch on



Encryption, Tokenization & Dynamic CVV

- Encryption: Scrambles data into a secret code. (Unreadable if stolen).
- Tokenization: Substitutes card number with a secure 'token' (Underlying data is secure).
- CVV/CVC: 3-4 digit number. (Authenticates you have the card).





End-to-end encryption

3D Secure: similar to One-Time Passwords [OTP] verification

- 3D Secure: Additional verification of online transactions.
- Often uses One-Time Passwords (OTP) sent to you.
- Confirms that you authorized the payment.
- Minimizes online fraud risk.
- "Frictionless" checks run silently if safe.

EMV chip vs. magnetic stripe vs. contactless [NFC] transactions

- EMV Chip: Secure; one-of-a-kind code for each purchase (Difficult to copy).
- Magnetic Stripe: Old; static info (Easier to 'skim'). Magnetic Stripe: Old; static info (Easier to 'skim').
- Contactless (NFC): Tap-to-pay; secure codes such as chips; short-range.

Typical fraud types and countermeasures

- Card-Not-Present (CNP): Stolen information phone/online fraud.
- Counter: Bank AI detects suspicious activity.
- Phishing: Fake messages tricking you for info.
- Beware, check requests, don't trust unusual calls or links.
- Skimming: Machines steal information at readers (ATMs/pumps).
- Counter: Check readers, use reliable machines.

Why it matters: Emphasizes the trust infrastructure for safe use:

- Protects your money.
- Enables safe electronic financial transactions and services.
- Builds TRUST (You <-> Banks <-> Businesses).
- Essential to a prosperous economy.

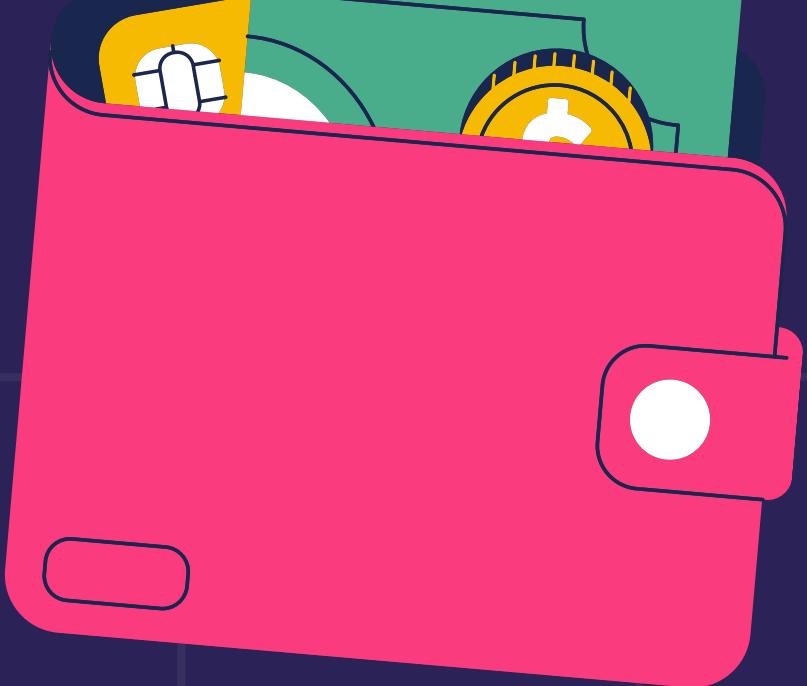
Different types of fees

INTERCHANGE FEES

- .It goes to cardholder's bank.
- .Depend on card type and transaction.
- .It's value ranges from 1 to 3%.

ASSESSMENT FEES AND MERCHANT DISCOUNT RATES

- .Assessment Fees goes to card network (visa,MasterCard or rupay).
- .Merchant Discount Rates is given by merchant for accepting credit cards.



How Different Stakeholders Earn Money



Banks- Collect annual fees, interchange fees and interest.

Card Network- From Assessment fees.

Merchants- Pay fees but gain sales from card use.



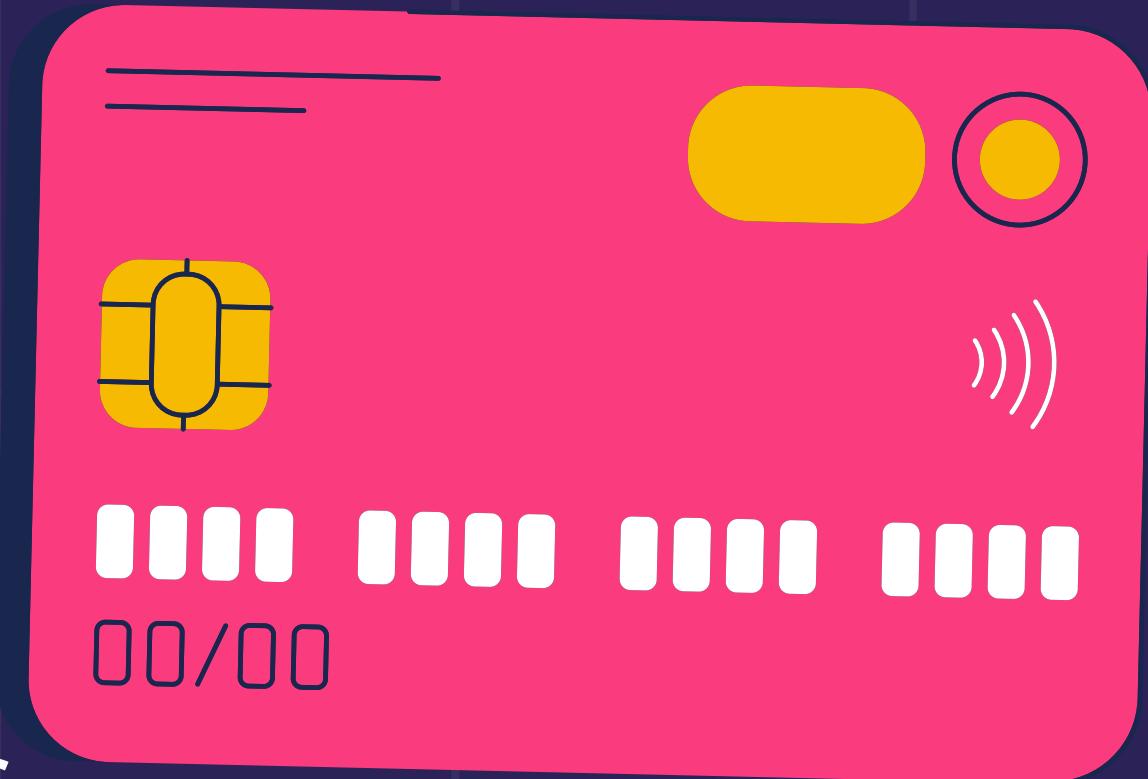
Dynamic Pricing: Credit vs Debit Card

CREDIT CARDS

- .Higher Fees but gives Cashback, offer rewards.
- .Users have a card limit.
- .Charges high interest if payment is delayed.

DEBIT CARDS

- . No rewards or cashback but lower fees.
- .Direct payment from your bank account.
- .No interest.





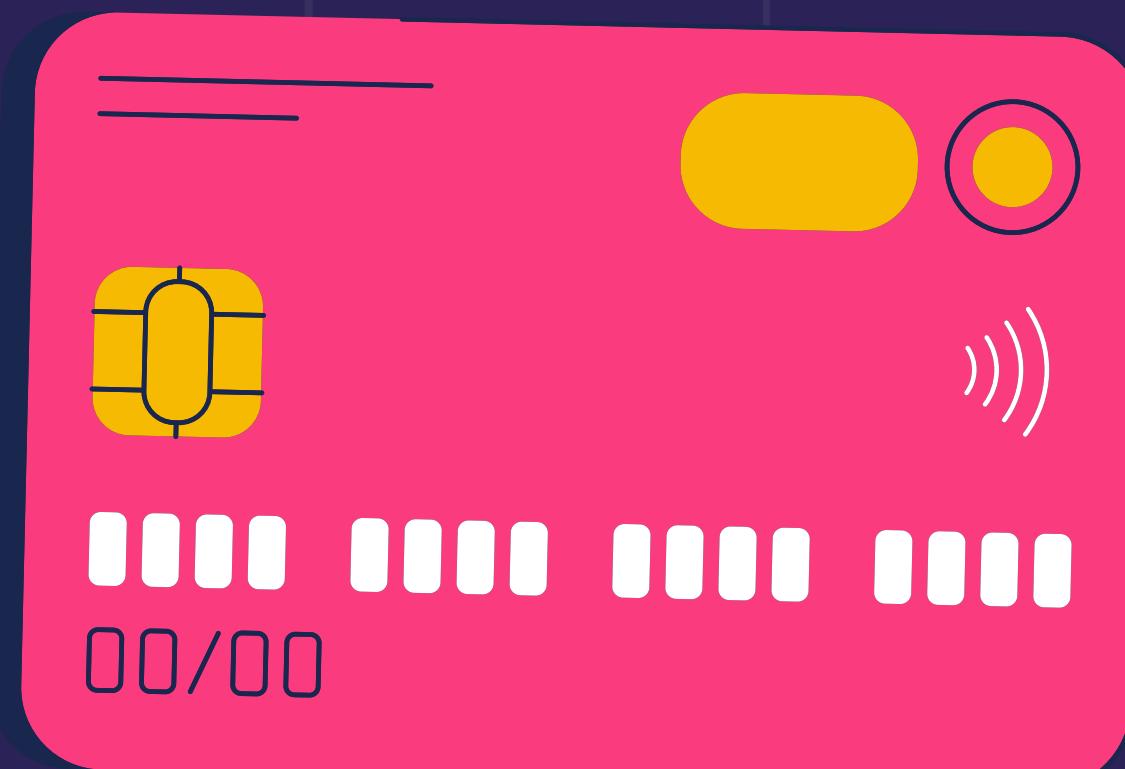
Why These costs Matter



.Hidden fees are not visible to customers but it affect the profit of Merchants.

.Merchants increases prices to cover this fees.

.Some merchants ask for UPI Payment or cash.



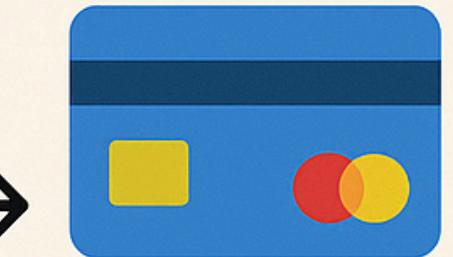
EXAMPLE

Example of Transaction Costs



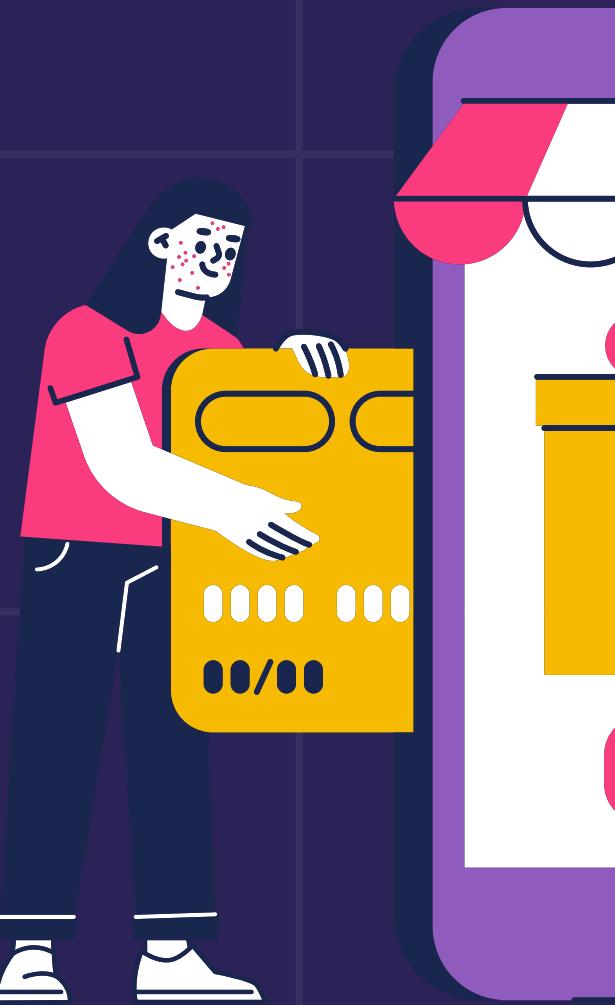
You buy a
100-rupee item.

If you pay by credit card,
merchant pays 2% fee
(2 rupees).



102
rupees

Merchant might
charge you 102
rupees to cover
the fee.



REGULATORY AND COMPLIANCE FRAMEWORK

An overview of key regulations governing
credit card transactions and data security.

- PCI-DSS
- Role of Banks (RBI)
- GDPR
- Regulation of Fees and Interest Rates
- Summary

PCI-DSS: Payment Card Industry Data Security Standard

What is it?

A global data security standard developed to protect cardholder data and ensure secure transactions.

Scope

Applies globally to all who are handling cardholder data, including merchants and processors.

Key Objectives .

- Build and maintain secure networks
- Protect data via encryption and masking
- Control user access
- Regularly monitor systems
- Maintain security policies



Role of Central Banks and National Regulations

[RBI – India]

RBI's Key Functions

Regulates card-issuing banks, sets operational guidelines, protects consumers.

Tokenization: Key Initiative by RBI.

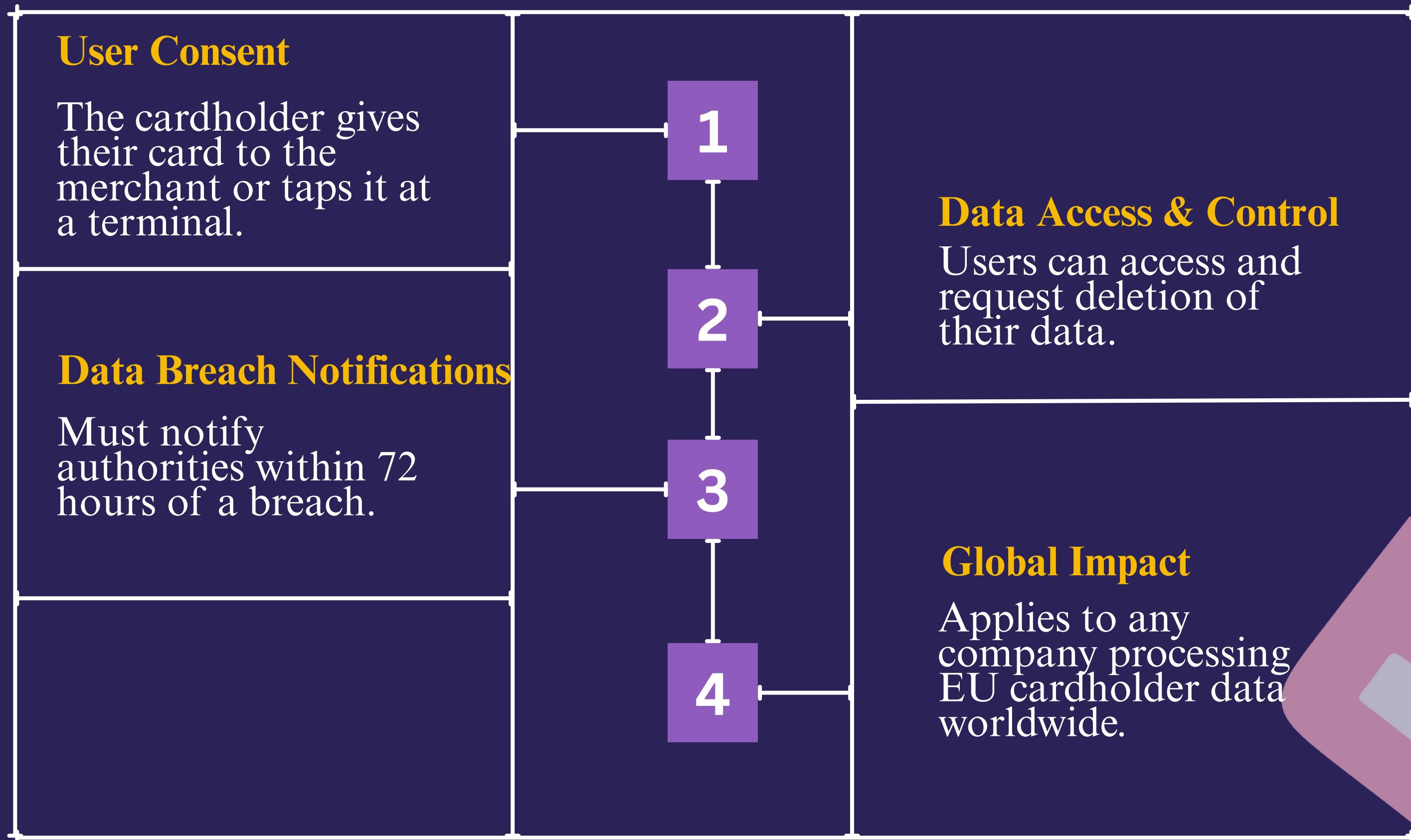
Replaces card info with unique digital tokens to enhance transaction security.

Token is stored on the merchant's platform instead of the card details.

Prevents misuse of data even if a breach occurs.



GDPR: General Data Protection Regulation



Regulation of Fees and Interest Rates

Fee Types

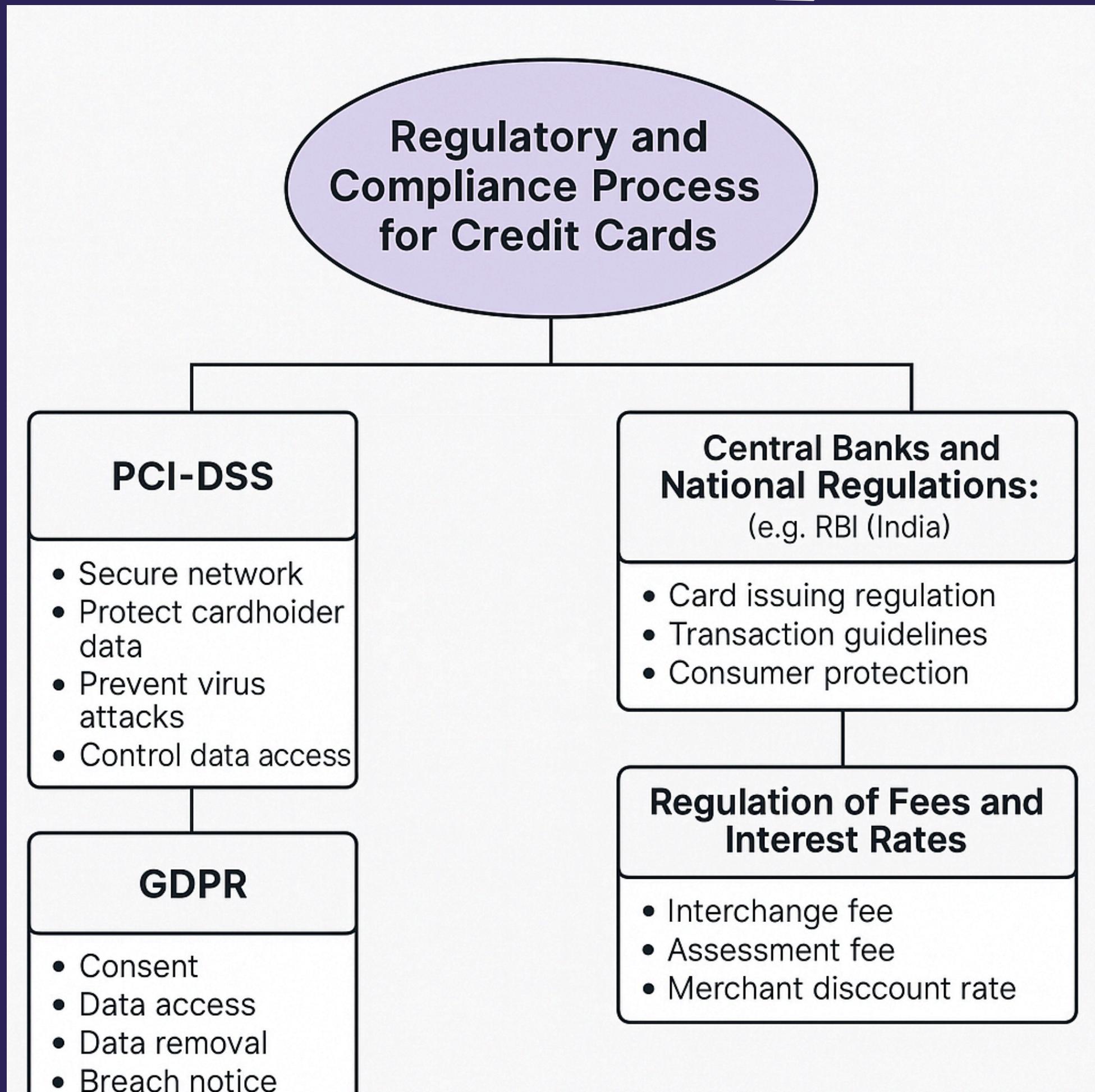
- Interchange Fee: Acquiring bank to cardholder's bank
- Assessment Fee: Paid to card networks (Visa, Mastercard)
- Merchant Discount Rate: Fee charged to merchants

Regional Regulations

- EU caps interchange fees at 0.3%
- India's RBI limits MDR for small/medium merchants
- US fees are market-driven but monitored



In Summary



Future Trends in Credit Card Systems

1. Contactless and Mobile Payments

- Near Field Communication (NFC) enables tap-to-pay transactions using smartphones, wearables, or contactless cards.
- Mobile wallets (Apple Pay, Google Pay, Samsung Pay) store card details securely and use tokenization.
- Biometric authentication (fingerprint, face ID) adds an extra layer of security.
- Growth & Adoption
 - Contactless payments surged post-COVID-19 due to hygiene concerns.
 - By 2025, over 50% of in-store transactions in the U.S. will be contactless (Juniper Research).

2. Tokenization for Enhanced Security

- What is Tokenization?
- How It Works?
- Advantages



3. AI & Machine Learning in Fraud Detection

- How AI is Used
 - Real-time fraud scoring
 - Behavioral biometrics
 - Predictive analytics

For Example. Mastercard's "Decision Intelligence" uses AI to reduce false declines.



Deep learning models detect “card-not-present (CNP) fraud”.

4. Biometric Credit Cards

- How It Works?
 - Fingerprint sensor embedded in the card (no need for PIN).
 - Works even offline (unlike mobile wallets).



5. Buy Now, Pay Later (BNPL) & Subscription Models

- BNPL services
- Pay in 4 installment plans
- Risks of this
 - Debt accumulation



Challenges in Credit Card Systems



1. Rising Cyber Fraud & Data Breaches

- Card skimming, phishing, and synthetic identity fraud.
- EMV chips reduced counterfeit fraud.

2. High Merchant Fees & Interchange Disputes

- Visa & Mastercard face lawsuits
- High fees to small merchants

3. Sustainability Concerns (Plastic Waste)

- Over 6 billion plastic cards
- Eco-friendly alternatives
- Recycled PVC cards
- Metal cards (longer lifespan).



thank you

