

**Dr.SNS RAJALAKSHMI COLLEGE OF ARTS AND SCIENCE
(Autonomous)**

**Accredited by NAAC - UGC with 'A+ Grade (Cycle IV)
(Recognized by UGC, Approved by AICTE & Affiliated to Bharathiar University)
Coimbatore- 49**

**DEPARTMENT OF COMMERCE WITH INFORMATION
TECHNOLOGY**

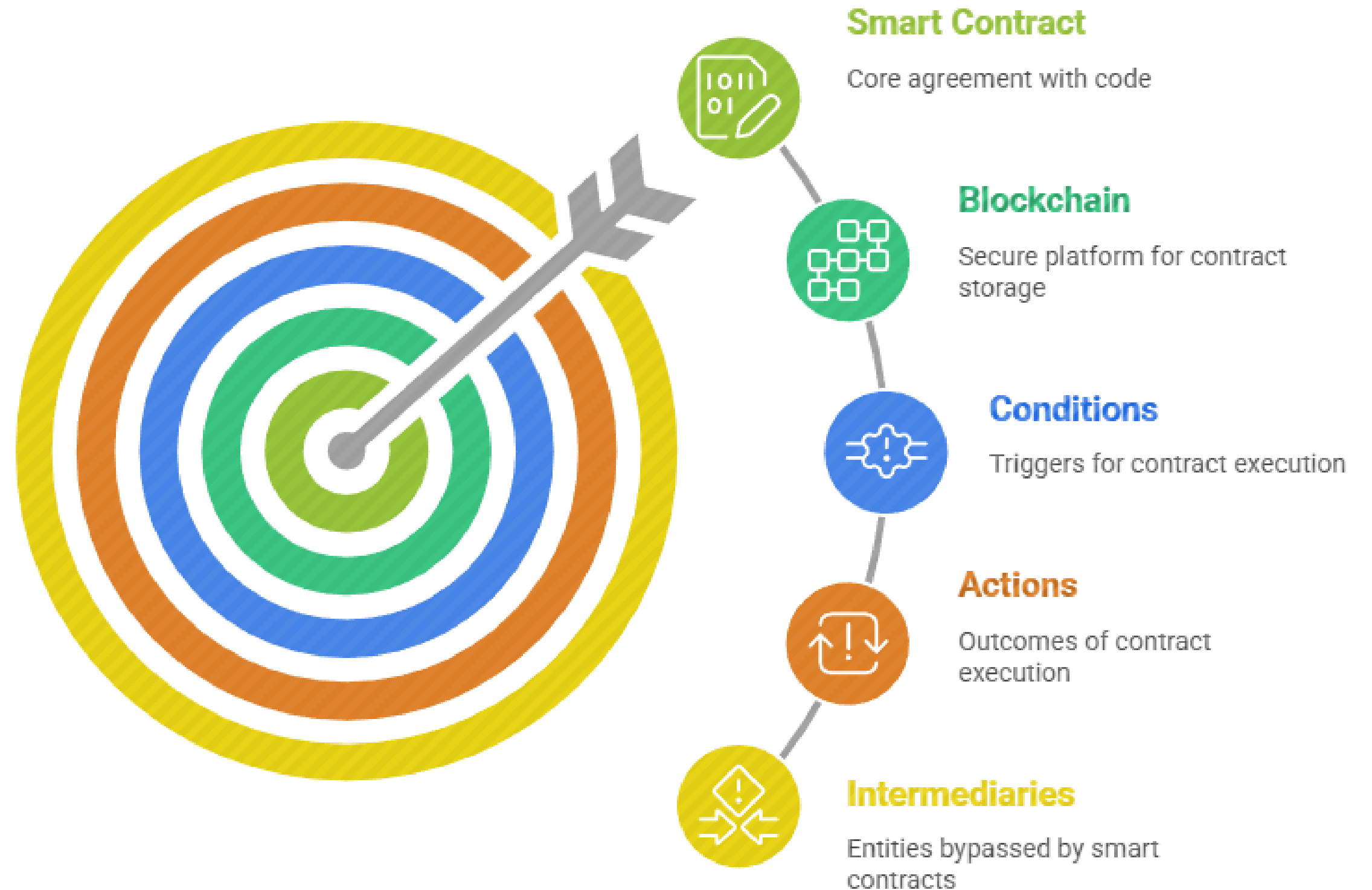
**21UCI505 – BLOCKCHAIN AND DISTRIBUTIVE
LEDGER**

Unit-4: Smart Contract

**Ms. S.Meenakshi, Assistant Professor
Department of Commerce with Information Technology**

Smart Contract - Meaning

- a self-executing digital agreement
- stored on a blockchain where the terms and conditions are written in computer code
- automatically performs actions when predefined conditions are met, without requiring intermediaries such as banks or brokers



Example Application: Loan Repayment Automation using Smart Contract

Scenario (Financial Transaction)

A lender provides a loan of ₹1,00,000 to a borrower. Instead of manual tracking and collection, a **smart contract** on a blockchain (e.g., Ethereum) automatically manages repayment, interest calculation, and penalties.

Step 1 – Agreement Creation

- Terms are coded into the smart contract:
- Loan Amount: ₹1,00,000
- Interest Rate: 10% per annum
- Repayment Period: 10 months
- Monthly Instalment: Automatically calculated
- Penalty for Delay: 2% per missed payment

Step 2 – Deployment

The smart contract is uploaded to the blockchain.

Both borrower and lender digitally sign using crypto wallets.

Step 3 – Loan Disbursement

Once deployed, the smart contract automatically transfers funds from lender to borrower's wallet.

Step 4 – Automated Repayment

Every month:

- The contract checks the due date.
- Borrower sends payment to the contract address.
- Smart contract verifies amount and records payment permanently on blockchain.

Step 5 – Penalty & Default Handling

If payment is late:

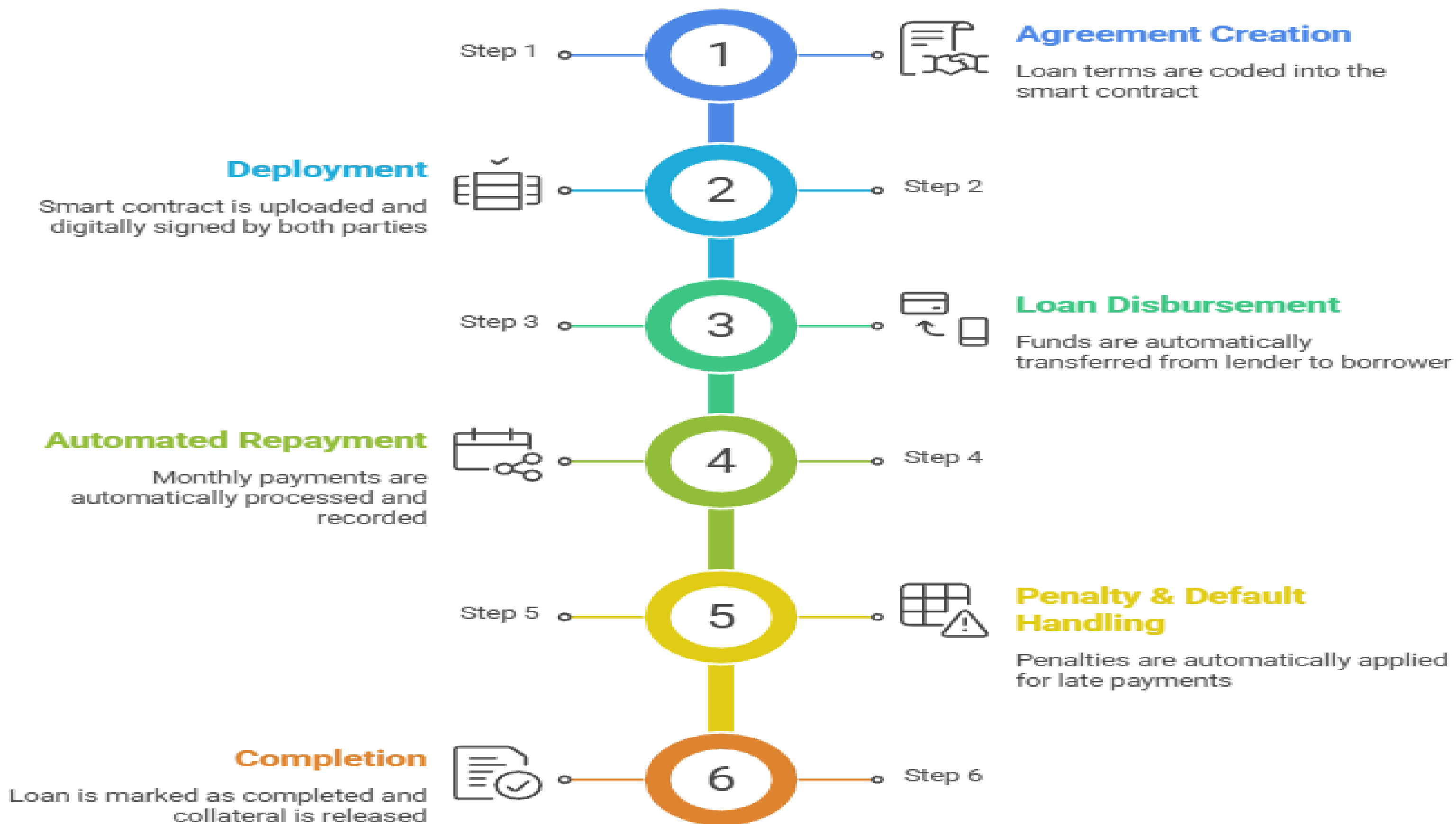
- Contract automatically adds penalty.
- Status is updated transparently.

Step 6 – Completion

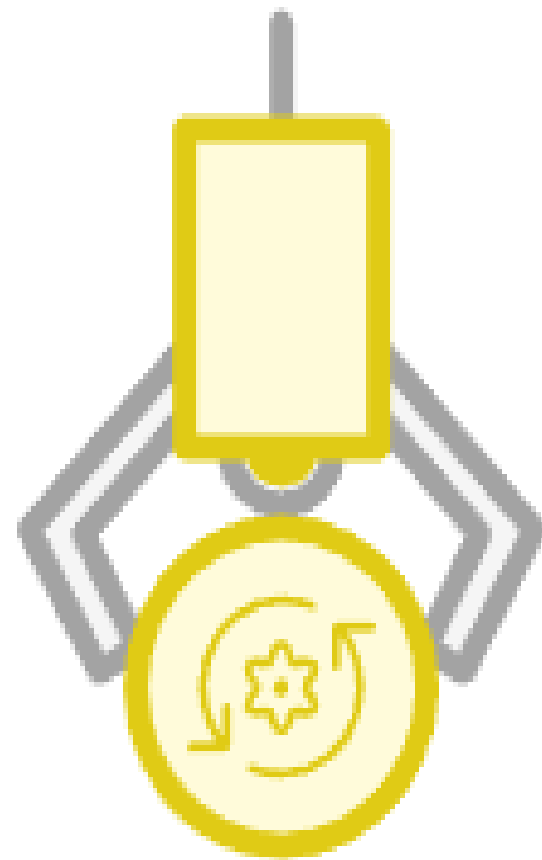
After full repayment:

- Smart contract updates loan status to “Completed.”
- Collateral (if any) is automatically released.

Smart Contract Logic

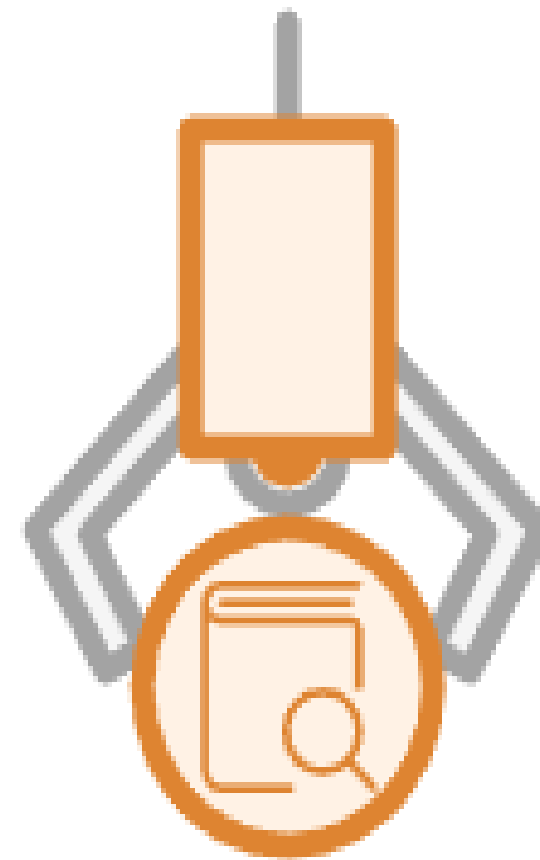


Benefits of using Smart Contracts



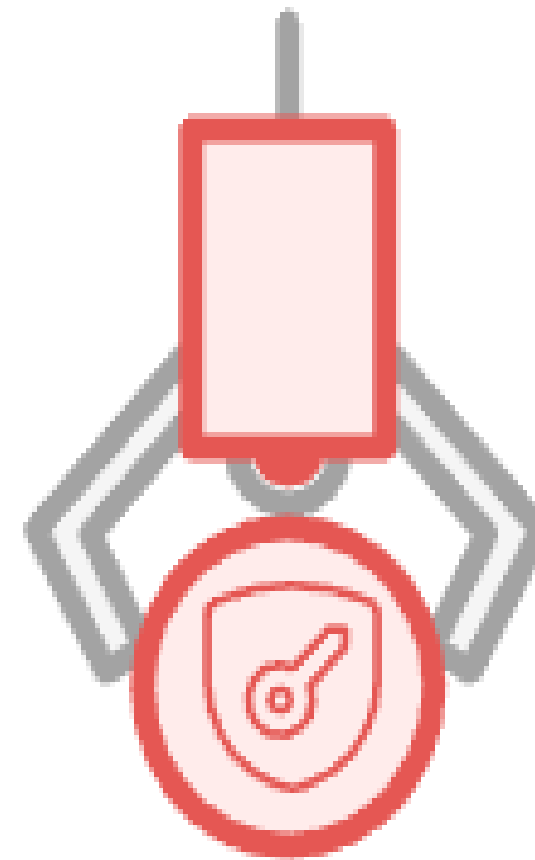
Automation

No manual monitoring or collection required.



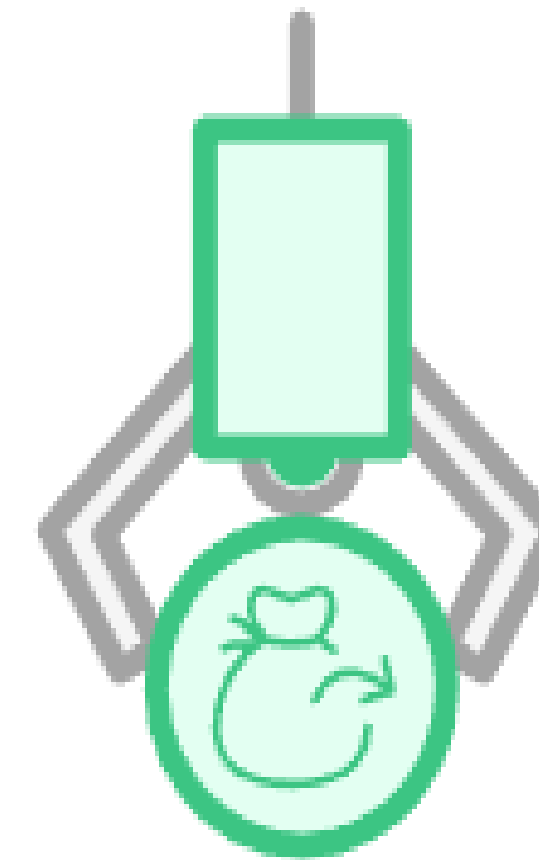
Transparency

Immutable blockchain records ensure transparency.



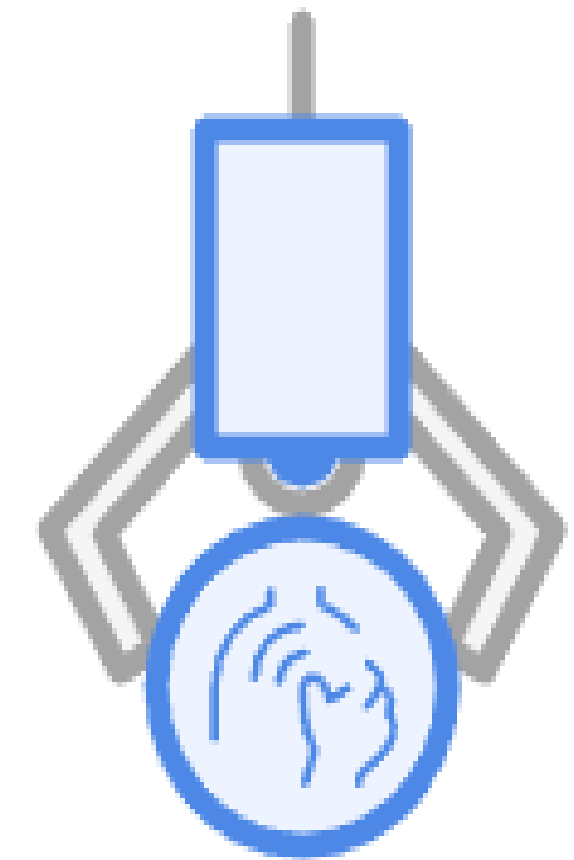
Security

No third-party manipulation is possible.



Reduced Cost

Eliminates intermediaries, reducing overall costs.



Trustless Execution

Rules execute automatically without needing trust.

THANK YOU