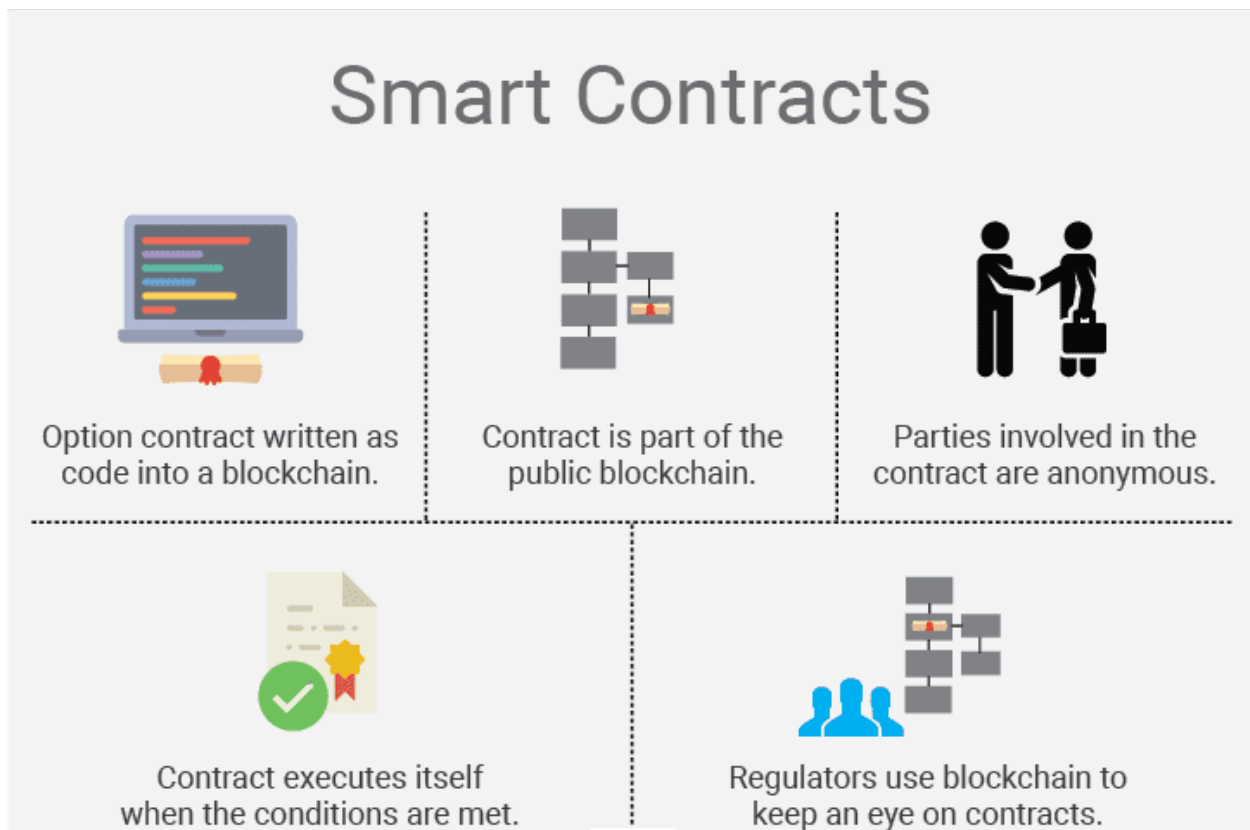# SMART CONTRACTS

Blockchain-based smart contracts are computer programs or protocols that execute in response to the fulfillment of certain requirements.  Smart contracts are self-executing protocols that wait until a certain condition is met before executing when the requirement has been met.  Blockchain-based smart contracts are computer programs or protocols that execute in response to the fulfillment of certain requirements.  Smart contracts are self-executing protocols that wait until a certain condition is met before executing when the requirement has been met.

## Smart Contracts

Option contract written as code into a blockchain.

Contract is part of the public blockchain.

Parties involved in the contract are anonymous.

Contract executes itself when the conditions are met.

Regulators use blockchain to keep an eye on contracts.

**Use smart contracts for crucial transactions like those found in blockchains for the following reasons:**

1. Accuracy, Speed, and Efficiency - Since smart contracts are digital and automated, they are fast to execute and extremely efficient and accurate. They also execute as soon as the requirements are satisfied.

2. Transparency and trust - Since there is no participation of a third party, there is no possibility of information being altered with. Participants in the transaction exchange encrypted transaction records.

3. Security - Transaction records are exceedingly hard to hack since they are encrypted. Additionally, the hacker would need to alter the entire chain of records because each entry is connected to those that came before it.

4. Cost-savings - Cut out the need for middlemen and the associated costs and delays by doing transactions directly.

**Simple description of how smart contracts operate is as follows:**

Collaboration: Business teams collaborate with developers to describe the intended behavior of the smart contract depending on particular circumstances.

Event Definitions: Triggers for the smart contract are defined as instances or situations, such as delivery of a package, authorisation of payment, or reaching a certain electric meter reading threshold.

Encoding of Complex processes: The smart contract's advanced logic may be used to encode complex processes like calculating the value of a financial instrument or automatically disbursing an insurance premium.

Development and testing: To build and test the contract's logic, developers utilize a platform for building smart contracts. A different team performs security testing on the program after it has been written.

Security Validation: To assure the robustness and defense against vulnerabilities of the smart contract's security, an internal expert or a specialist organization evaluates it.

Deployment: The contract is set up on an active blockchain or distributed ledger infrastructure after being given authorisation.

Event Monitoring: The smart contract is set up to check for new information from a "oracle," a safe data source that offers pertinent data about occurrences.

Execution: The smart contract performs and completes the prescribed actions and transactions as soon as it gets the necessary combination of events from one or more oracles.

**Smart Contracts' Capacity,**

• Smart contracts are unable to obtain information about "real-world" occurrences since they are unable to make HTTP inquiries. This is intentional.Consensus, which is essential for security and decentralization, might be compromised by using external data.

Numerous businesses can benefit from smart contracts, which provide both straightforward and complex solutions. They can enable sophisticated access control in the sharing economy in addition to simple economic operations like money transfers between parties.

- Smart contracts have the potential to revolutionize a wide range of industries, including banking, insurance, energy, e-government, telecommunications, music, art, mobility, and education. These sectors may use smart contracts to improve security, streamline operations, and develop fresh business ideas.