

A Abdur Rehman Akbar is presenting

WPS Office Smart Contracts.pptx

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Outline Slides

Smart Contracts

- Smart contracts **encode** and **enforce** rules for modifying a particular set of data that is shared among people and entities who don't necessarily trust each other.
- Exist on the **blockchain**, anyone can query them, and anyone can submit transactions to execute them.
- A smart contract execution can result in new **transactions** being written to the blockchain.
- Apps can take advantage of smart contracts to manage a **global state** that is visible to the public.
- Anyone can **audit** the blockchain in order to independently verify that an app's global shared state has been managed correctly according to the smart contracts' rules.

Use Cases

- Access control (e.g. pay to access)
- Non-fungible (e.g. collectibles) and fungible tokens (e.g. stablecoins)
- Business model templates (e.g. subscriptions)
- App-specific blockchains
- Decentralized Autonomous Organizations

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Fatima Tajam...

Affan Malik

Akbar Khan

Haroon Tahir

32 others

You



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Types of Smart Contracts

- Simple exchange
- DAOs
- Dapp
- Counter
- Supply chain
- Deeds
- Access Restriction
- Withdrawals
- State Machines
- Balance Address Checker



- Contracts call another Contract
- Fundraising
- Simple Marketplace
- Basic Provenance
- Asset transfer
- Lottery
- Delegated Voting
- Smart contract IOT - devices
- Legal Agreements
- Payment Splitting

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Clarity Programming Language

- Clarity is a programming language for writing smart contracts on the Stacks 2.0 blockchain.
- Differs from other SC languages:
 - **Interpreted:** Human-readable and auditable
 - **Decidable:** Determine precisely what code is being executed, for any function.
- Ability to write fully expressive smart contracts that anchor to Bitcoin.
- The Clarity language uses a strong static type system. LISP-based.
- Public and private functions
- A smart contract may call functions from other smart contracts using a (contract-call?) function.
- A Clarity smart contract is composed of two parts — a data space and a set of functions.
 - Only the associated smart contract may modify its corresponding data space on the blockchain.
- Users call smart contracts' public functions by broadcasting a transaction on the blockchain which invokes the public function.
- Types are checked during contract launch.
- Traits allow for standardization of certain common Clarity design patterns

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Deployed Clarity Contract

Source code

```
001 (define-non-fungible-token boom uint)
002 (define-data-var last-id uint u0)
003 (define-data-var last-series-id uint u0)
004
005 (define-map meta uint
006   (tuple
007     (series-id uint)
008     (number uint)
009     (name (string-utf8 80))
010     (uri (string-ascii 2048))
011     (mime-type (string-ascii 129))
012     (hash (buff 64))
013   ))
014
```

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