


Welcome

# :Today's Topic:[Python] [Cont.]



Tuples, Sets & Dictionaries

Iterable Functions & Behaviors

List Comprehensions

By Reference vs By Value

# Today's Topic [New][Python]

▶ Formatting Strings

▶ `map()`, `reduce()`

▶ Function Argument Unpacking



# :Today's Topic:[Block Chain Perspective Cont.]



Send Transactions from A to B



Outstanding Transactions & Mining

[New]

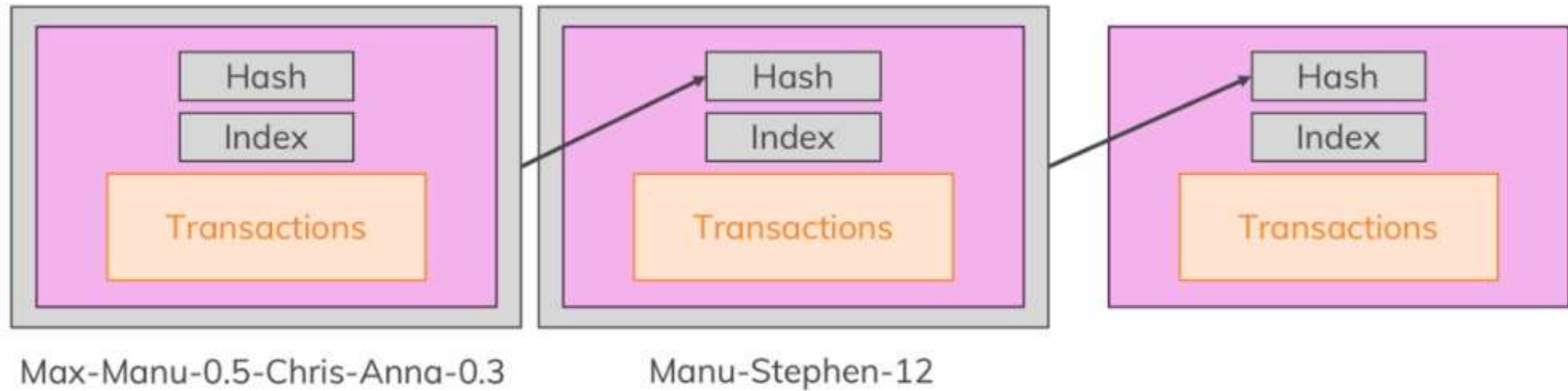


Revamp the Balance Calculation



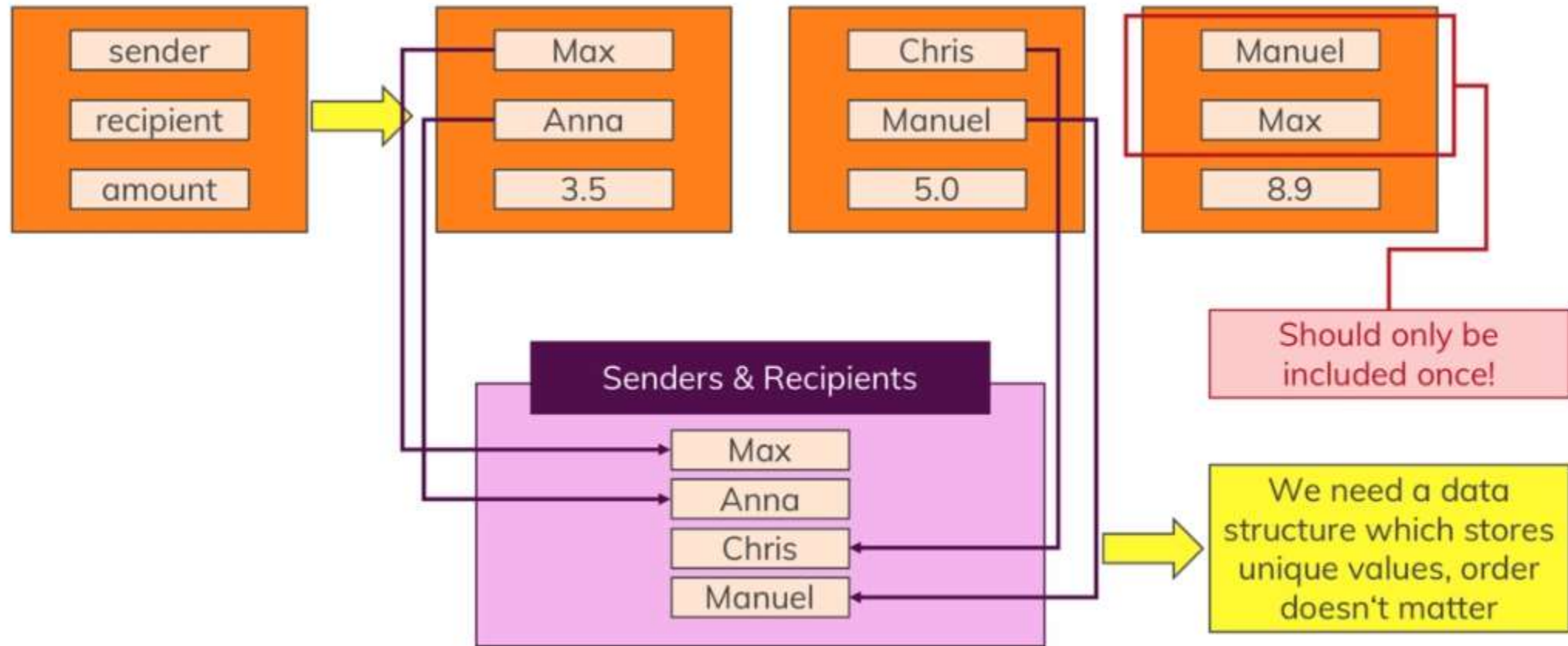
Improve User Interface Output

# A New Way Of Validating Block

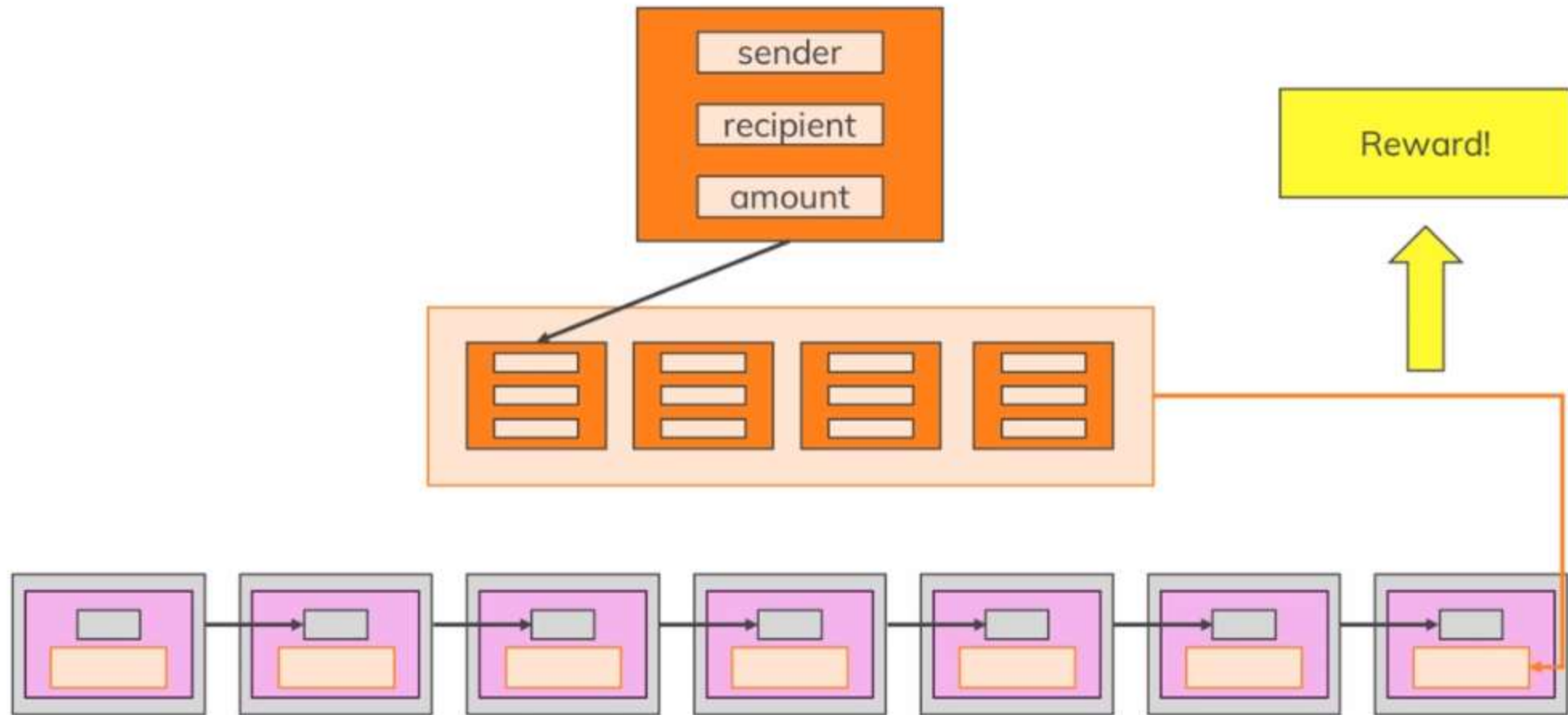




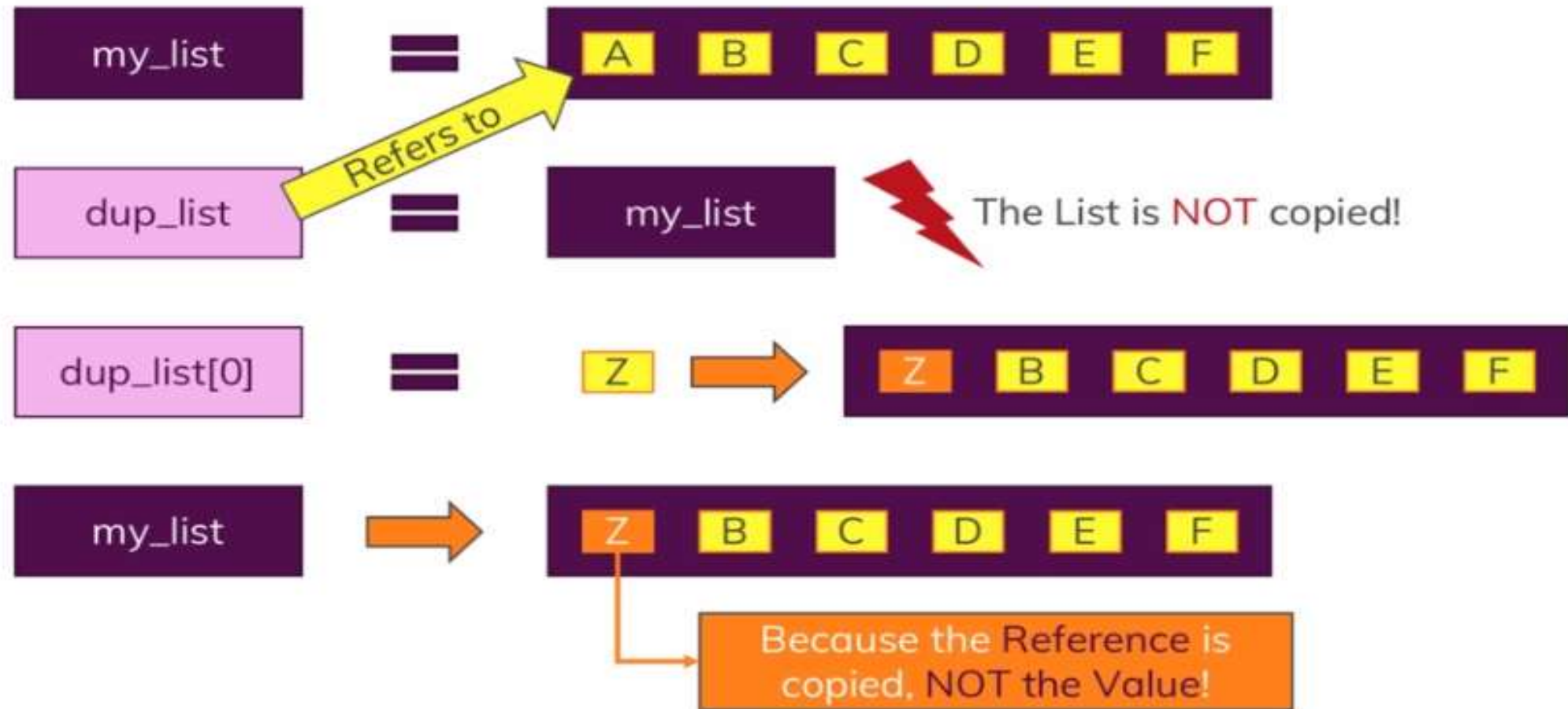
# Managing Participants



# Giving Reward To Miners



# Problem With Complex Data Structures [By Ref Vs By Val]





# Solution

`my_list` = `A B C D E F`

`dup_list` = `my_list[:]` This returns a new List

`dup_list[0]` = `Z` → `Z B C D E F`

`my_list` → `A B C D E F`

# :Till Now:[Python Perspective]

## Iterables

- **Lists:** Ordered, mutable List of Values
- **Sets:** Unordered, mutable List of Unique Values
- **Tuples:** Ordered, immutable List
- **Dictionaries:** Unordered Key-Value Pairs

## List Comprehensions

- An elegant way of **converting an Iterable into a new Iterable**
- Can be **nested**
- Can be **combined with Conditions** (if, all, any)

## Indexing & Unpacking

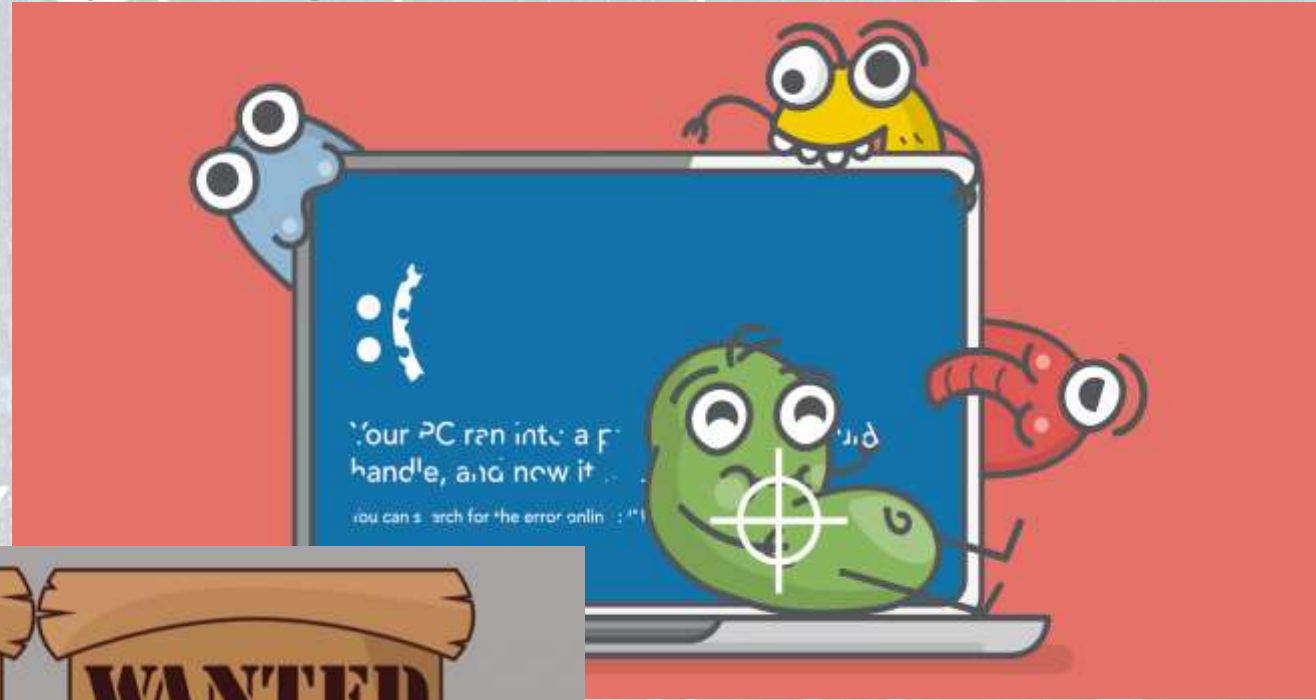
- **Indexing:** Access value by Index (the Key in Dictionaries!)
- **Unpacking:** Extract Data from the Iterable into Variables

# :Till Now:[Block Chain Perspective]

- ☒ Chain of Data → More than just Numbers
- ☒ Mine new Blocks → Reward Miners
- ☒ Block Hashing → Not checking Values Only Anymore
- ☒ Analyze & Verify Chain → Calculate Balances
- ☒ Transactions
- ☐ Store Chain to Disk
- ☐ Node Network
- ☐ Share Data, Resolve Conflicts
- ☐ Wallets



# :Fixing Up Bugs:



# Summery [Python Side]

## Strings

- **format()** allows you to easily output formatted data
- **Strings and Lists** share some similiarities but also have a very different set of built-in functions

## Function Argument Unpacking

- Use **\*** and **\*\*** to unpack lists and dictionaries to single values

## Built-in Functions

- **map()**: Can be an alternative to List Comprehensions though you typically want to stick to the latter
- **reduce()**: Is great if you want to summarize a list to one value only



# Summery [Block Chain Side]

- ☒ Chain of Data
- ☒ Mine new Blocks
- ☒ Block Hashing
- ☒ Analyze & Verify Chain  Simplified Balance Calculation
- ☒ Transactions
- ☐ Store Chain to Disk
- ☐ Node Network
- ☐ Share Data, Resolve Conflicts
- ☐ Wallets



Thank  
you

