

Welcome

Today We Learn [Python]

▶ What Is the Standard Library?

▶ Importing & Exporting

▶ random, datetime, hashlib

Today We Learn [Python] [Cont.]



Opening & Closing Files

Reading & Writing Data

Using with for Saver Access

Saving Python Data to Files with json or
pickle

Today We Learn [Blockchain]

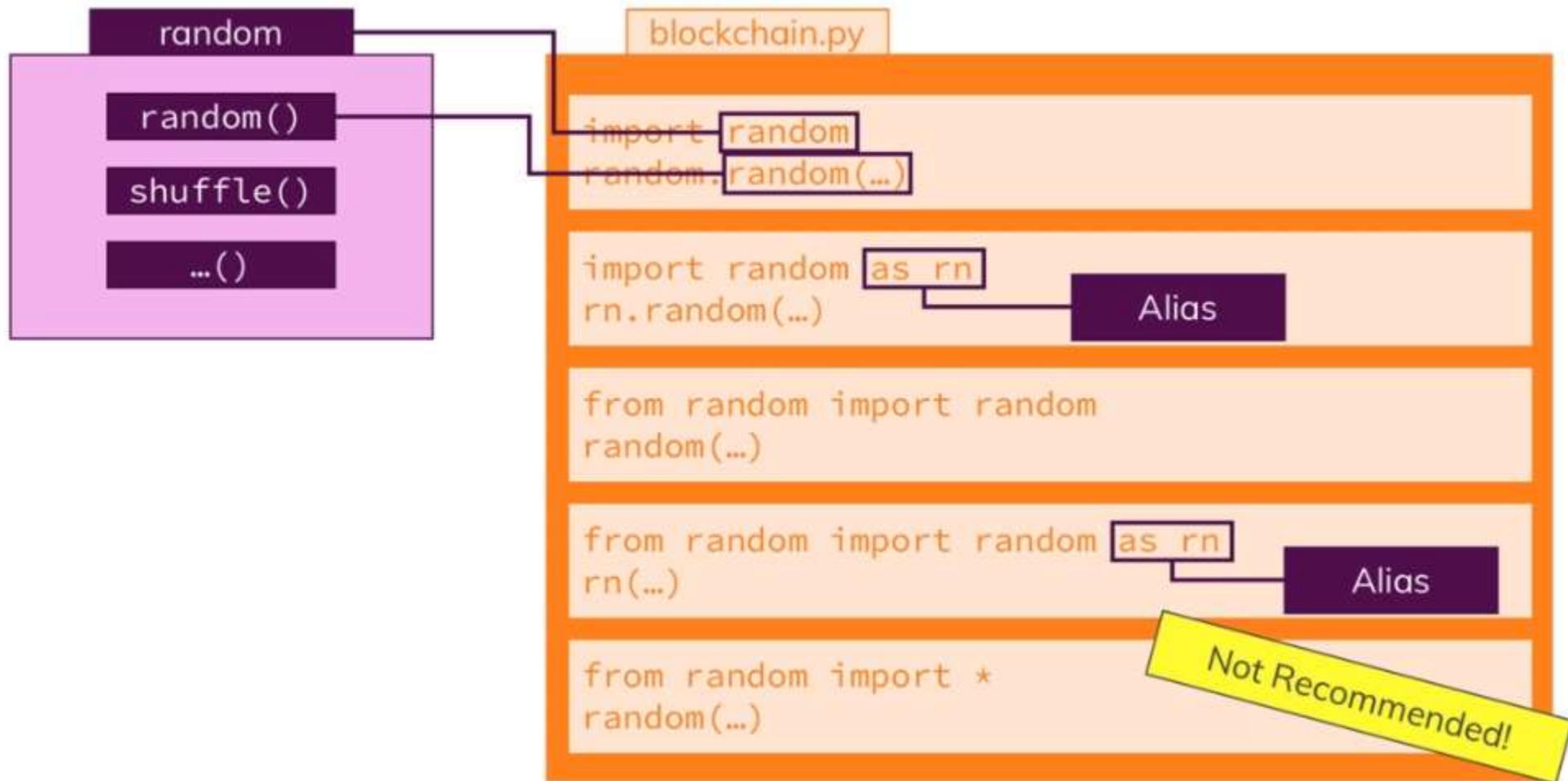


Adding a Proof of Work for Mined Blocks

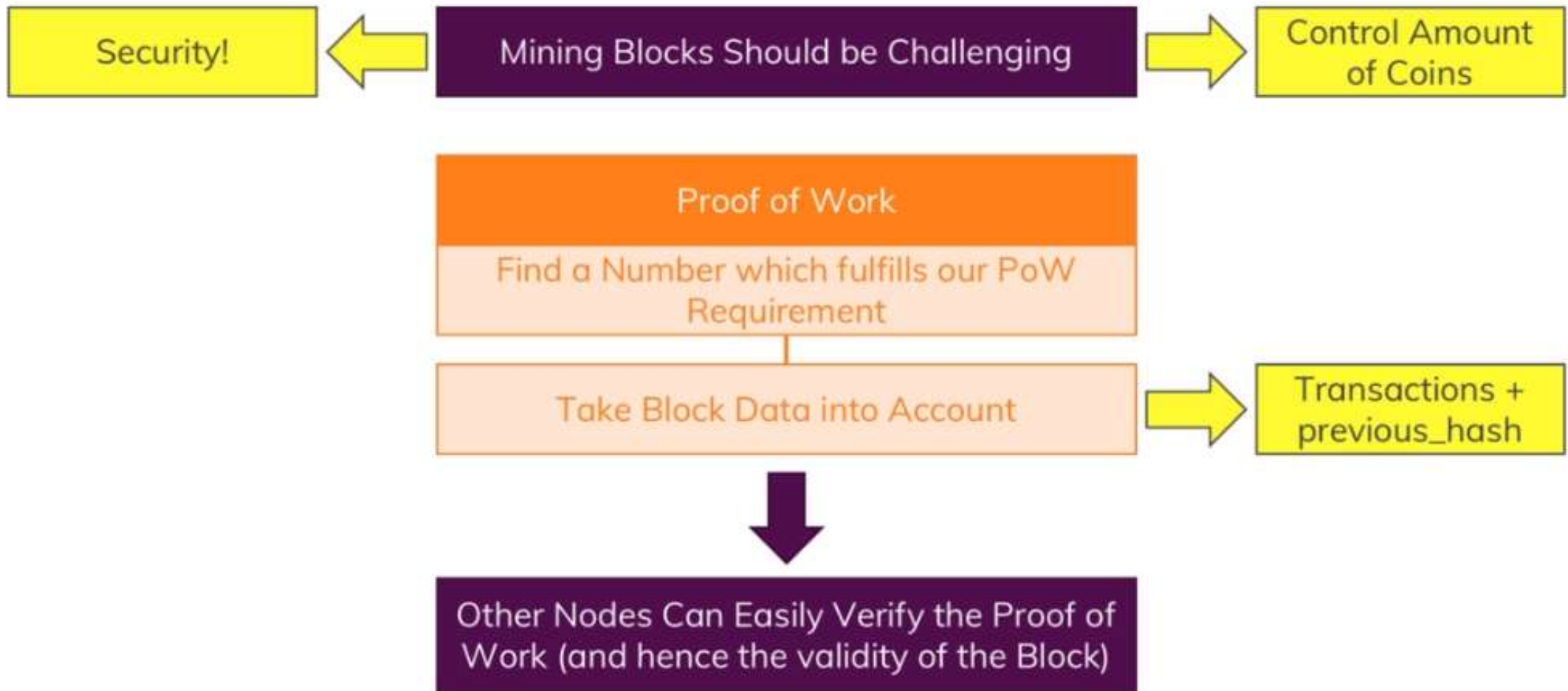
Generating a "real Hash"

Store Blockchain Locally

Importing Packages



Adding Proof of Work



Proof of Work

Incremented in Loop
(1, 2, 3, ...)

Transactions

Previous Hash

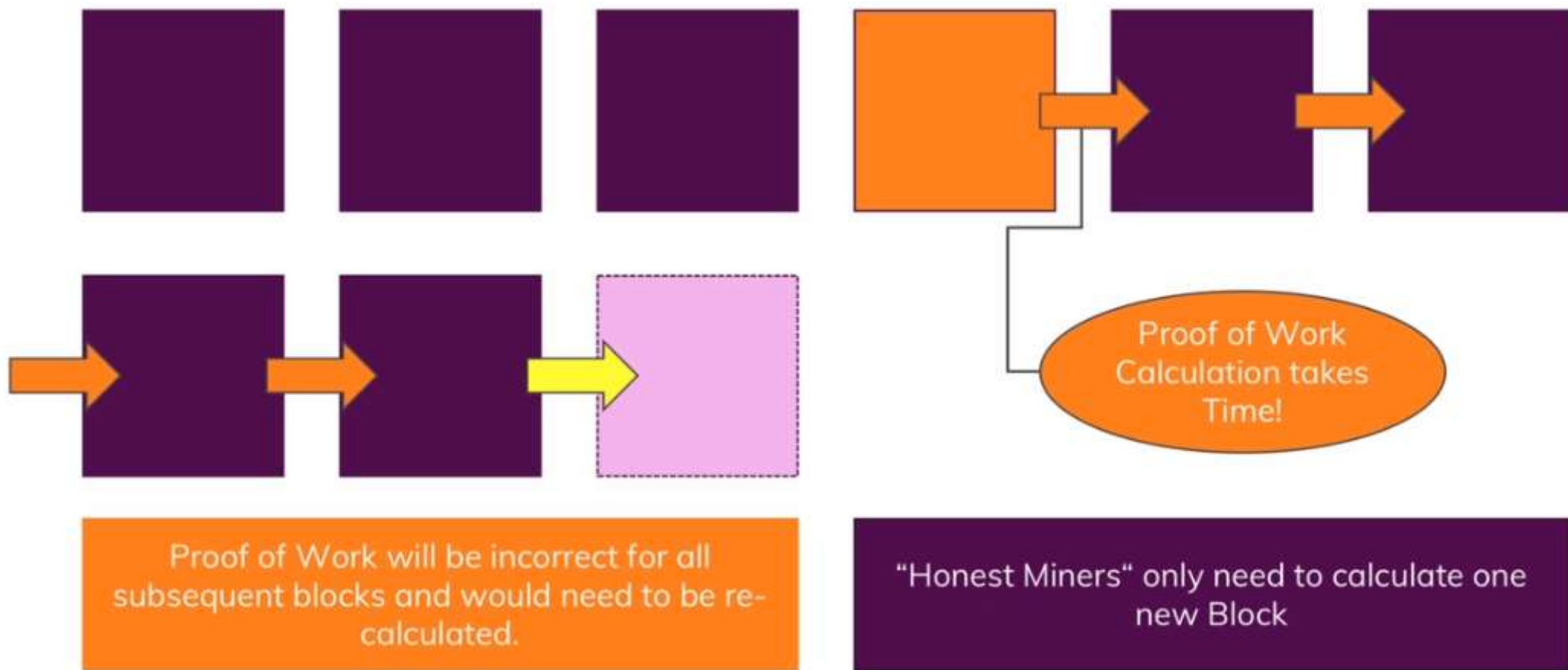
Proof (Nonce)

Hash

00a7dasf79a2rfh9e9238fh29fhf93f9fh82392fc2h3109f

Difficulty: X (e.g. 2) beginning
characters have to be a 0

Manipulating Blockchain



Till Now [Python Perspective]

The Standard Library

- Python follows a “**Batteries Included**” Approach
- Most functionalities **need to be imported** to be available (though **no external package** needs to be installed)

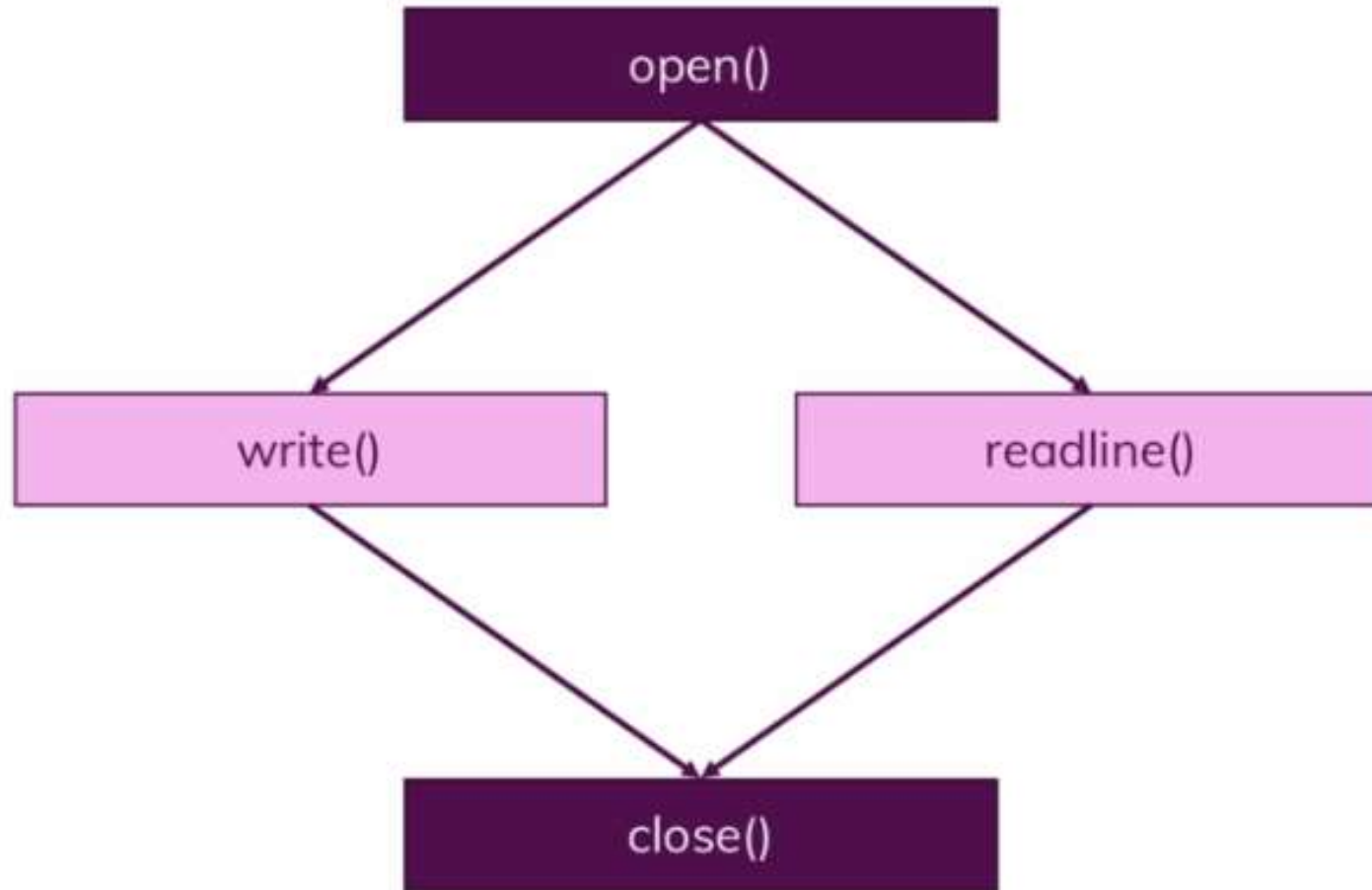
Import Syntax

- Python supports **multiple ways of importing** packages
- Import **package object**: `import package`
- Use an **alias**: `import package as pkg`
- **Directly import feature(s)**: `from package import something`
- **With alias**: `from package import something as smth`
- **Import everything**: `from package import *` (discouraged)

Till Now [Blockchain Perspective]

- ☒ Chain of Data
- ☒ Mine new Blocks  Added Proof of Work
- ☒ Block Hashing  Use a real Hash
- ☒ Analyze & Verify Chain
- ☒ Transactions
- ☐ Store Chain to Disk
- ☐ Node Network
- ☐ Share Data, Resolve Conflicts
- ☐ Wallets

File Handling in Python



Open('file.txt' mode =")

r

Read Access Only

w

Write Access Only

r+

Read & Write Access

x

Write Access Only: Exclusive Creation, Fails if File Exists

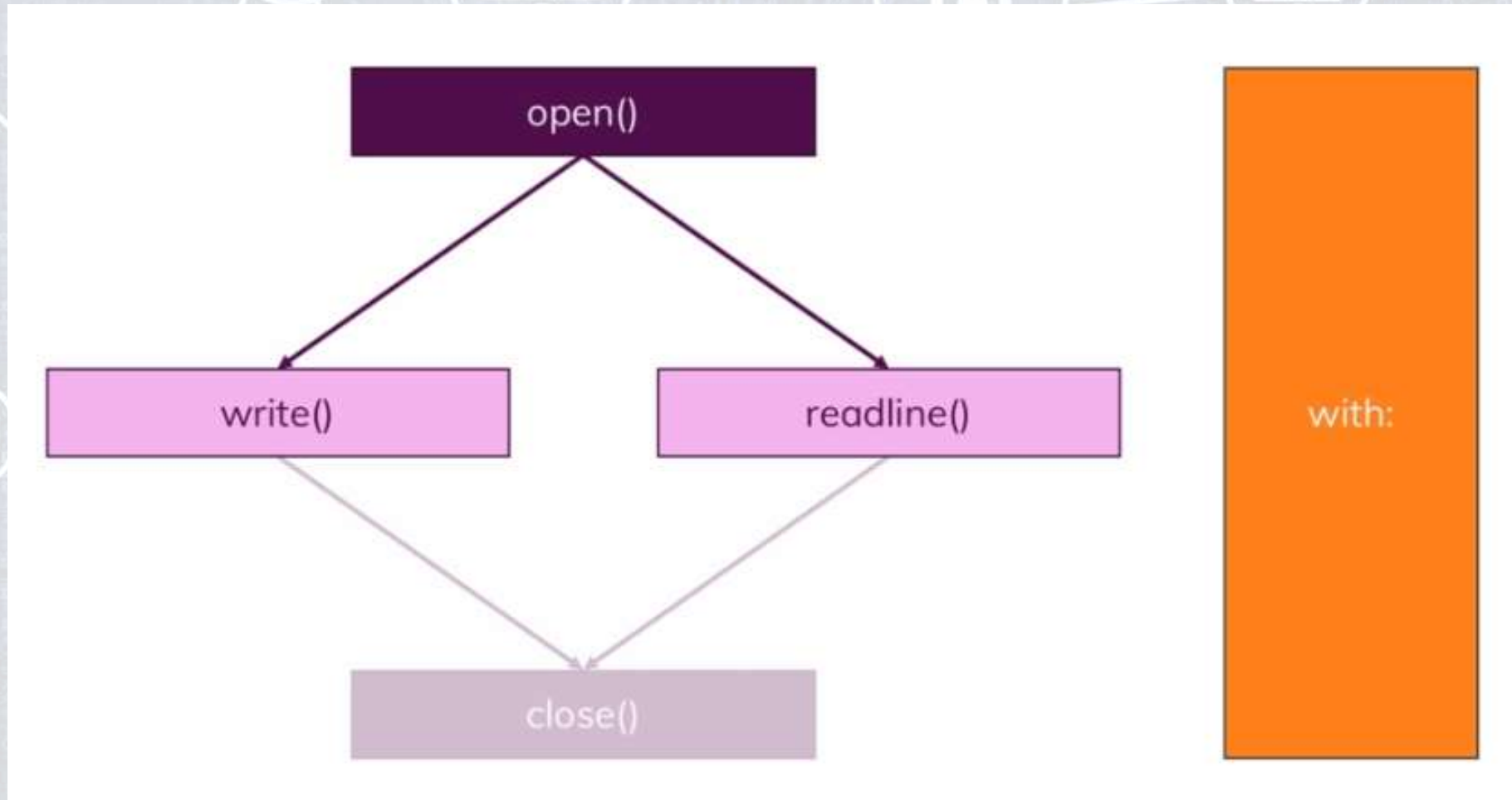
a

Write Access Only: Append to End of File if it Exists

b

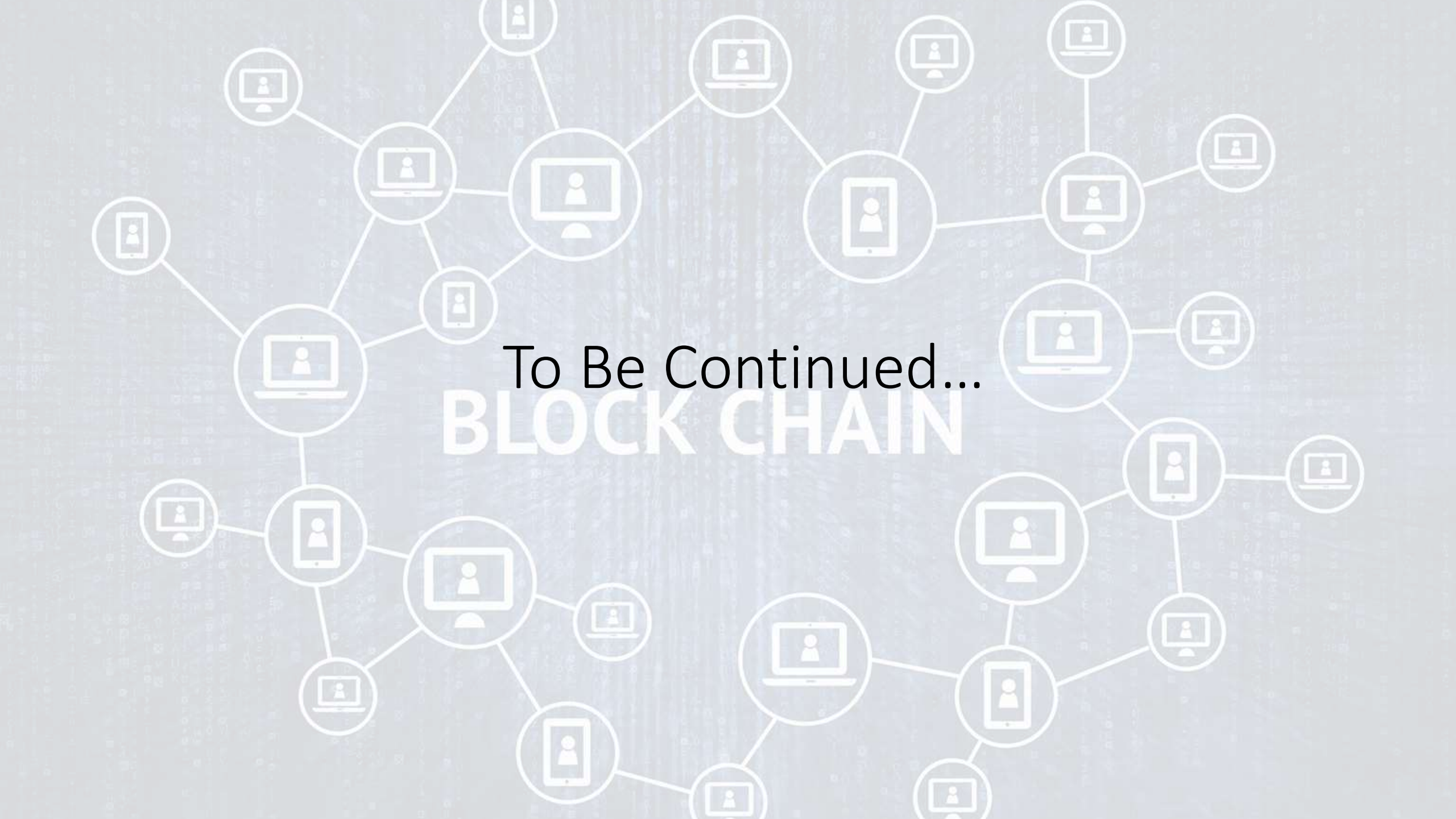
Open in Binary Mode (for Writing Binary Data)

File Handling [More safe way 'with']



To Be Continued...

BLOCK CHAIN



Thank
you

