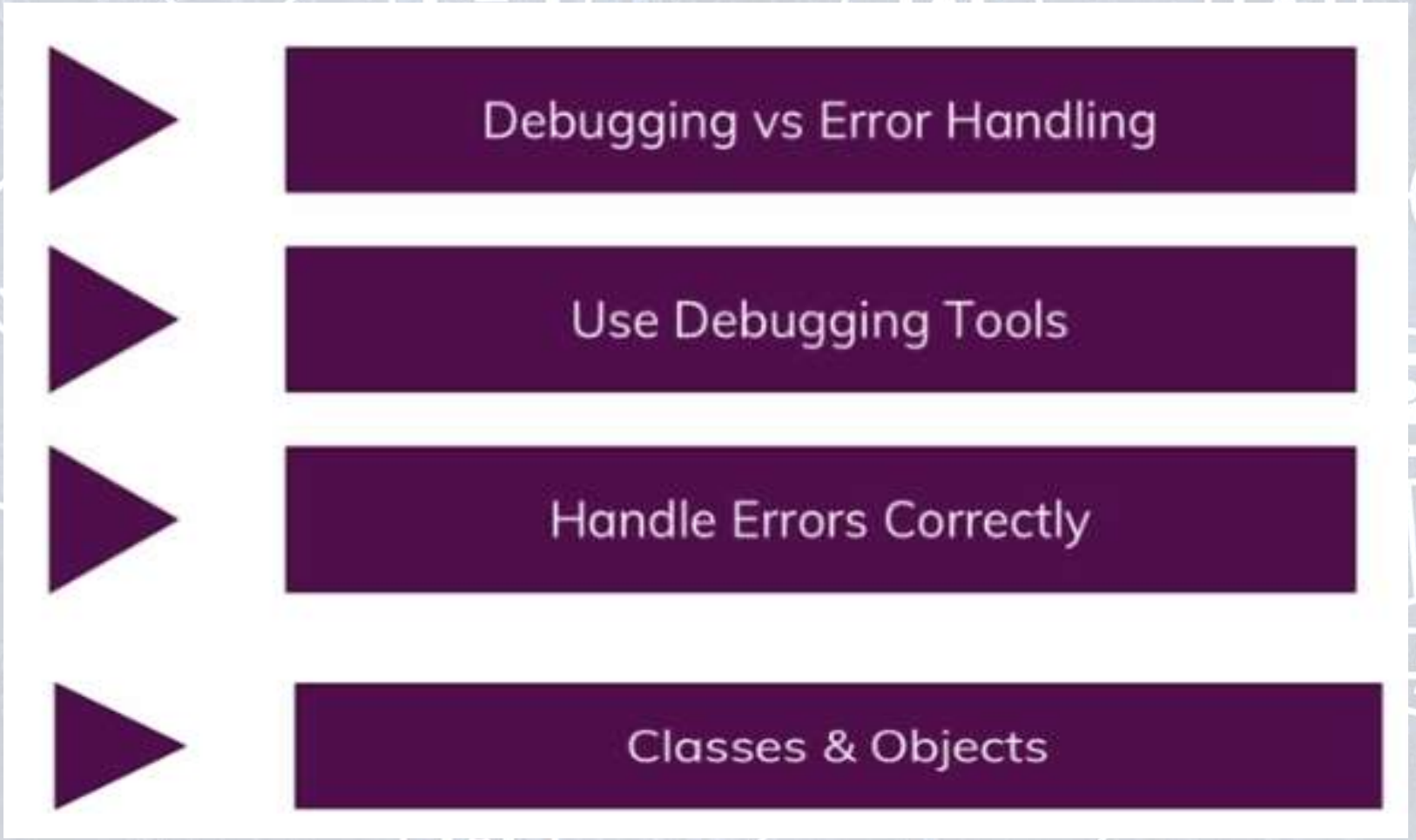

Welcome

Today We Learn [Cont.]

Today We Learn [New]



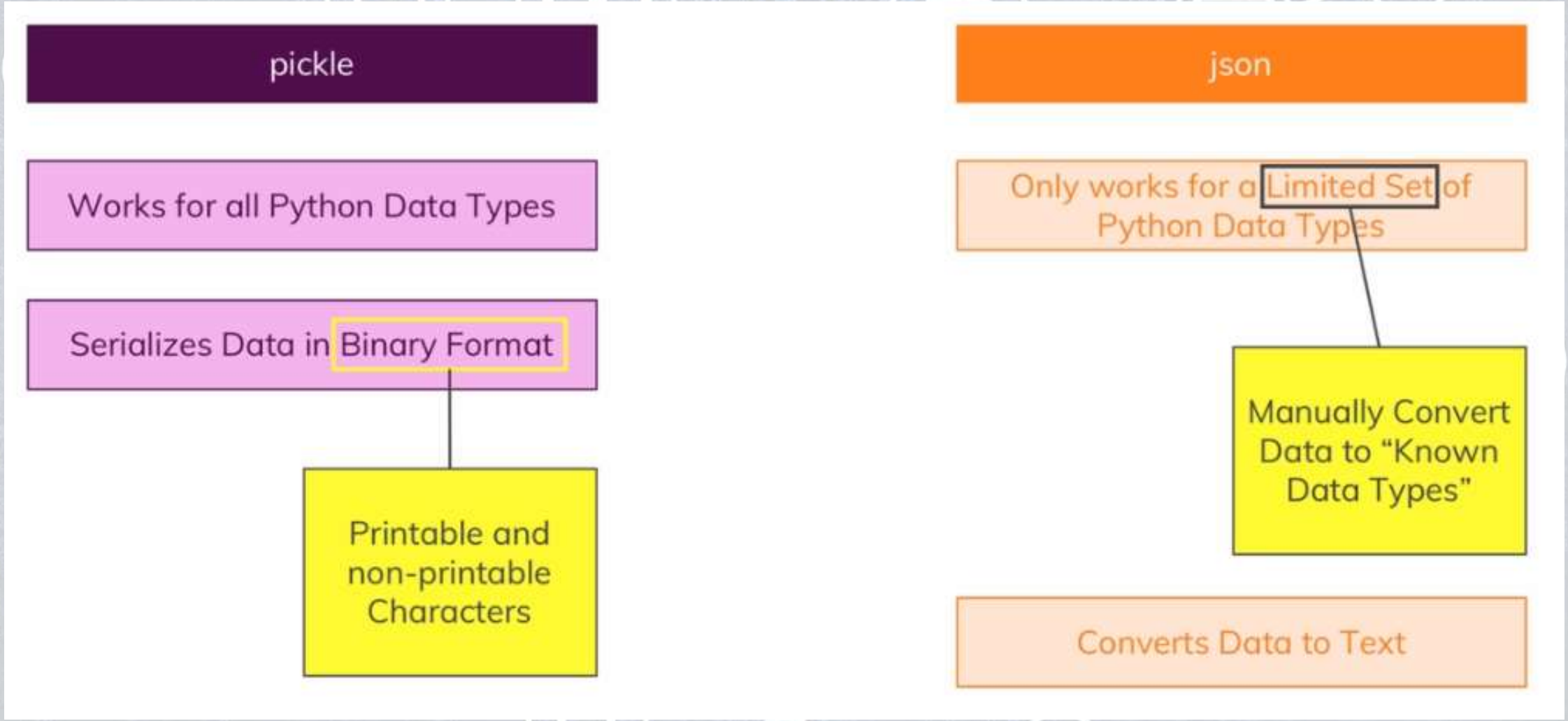
Blockchain [Continue]

- Store Blockchain Locally

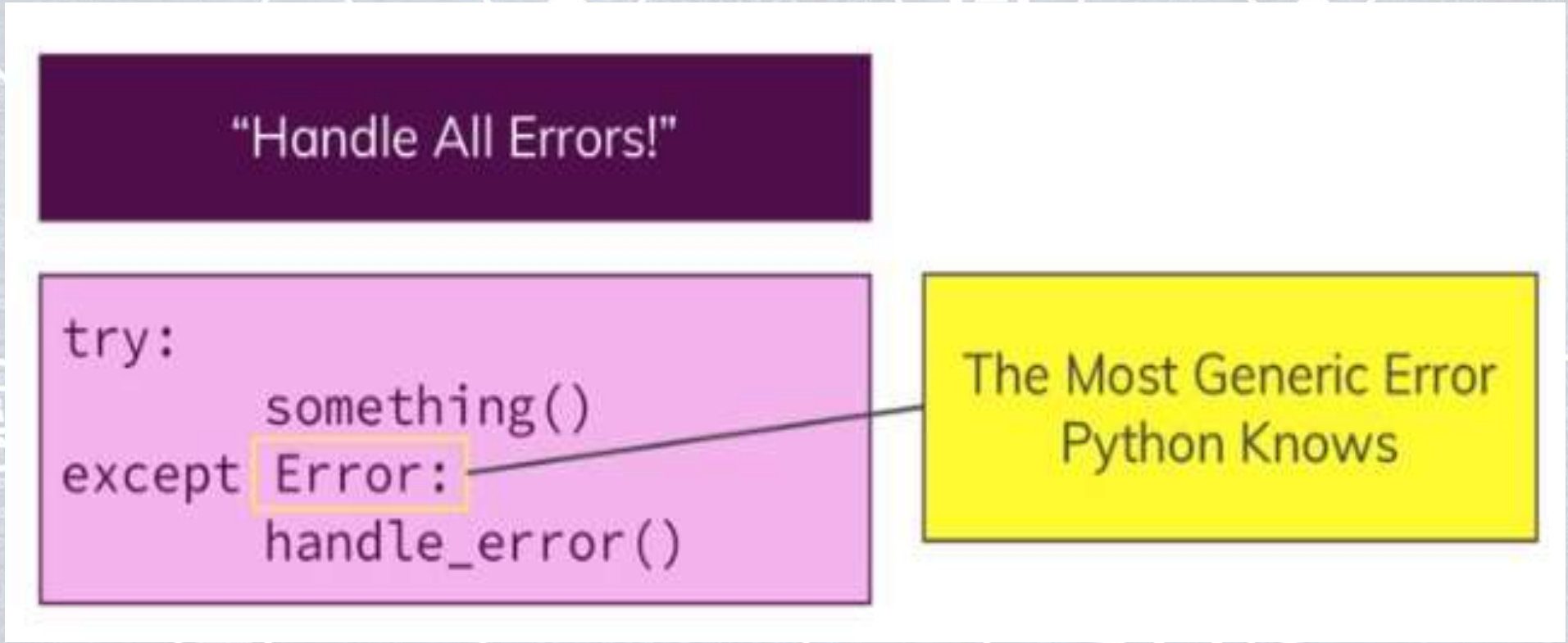
New in Blockchain

- Ensure Save File Access
- Cleaner Structure with Objects

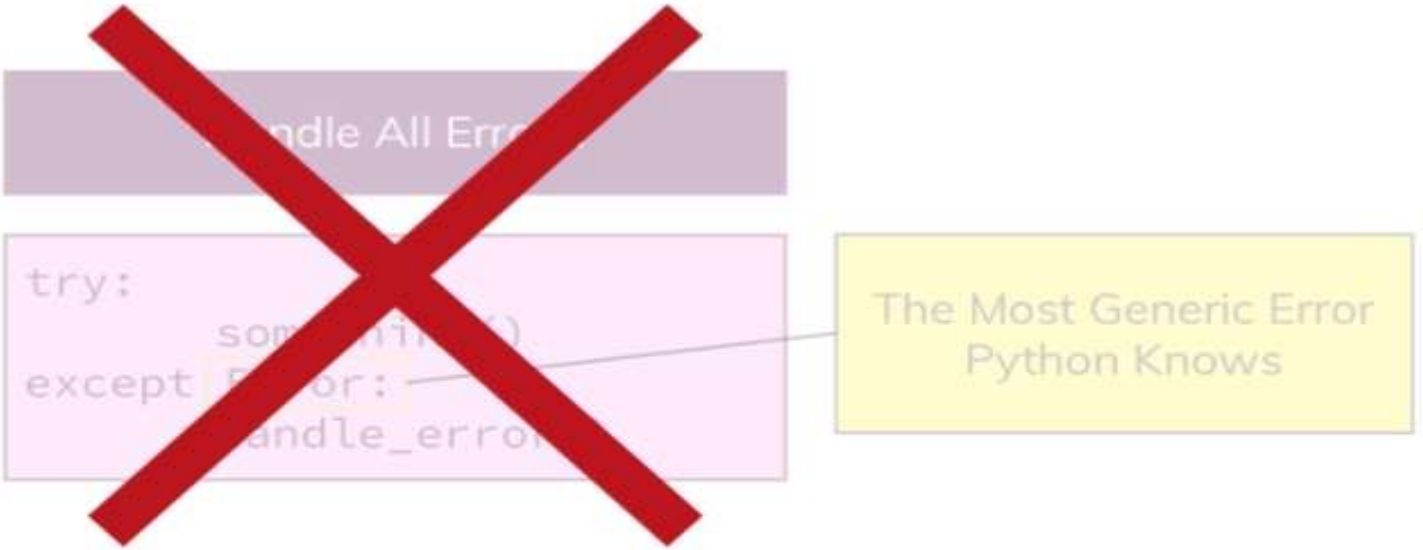
pickle vs json



:Which Error We Should Handle:



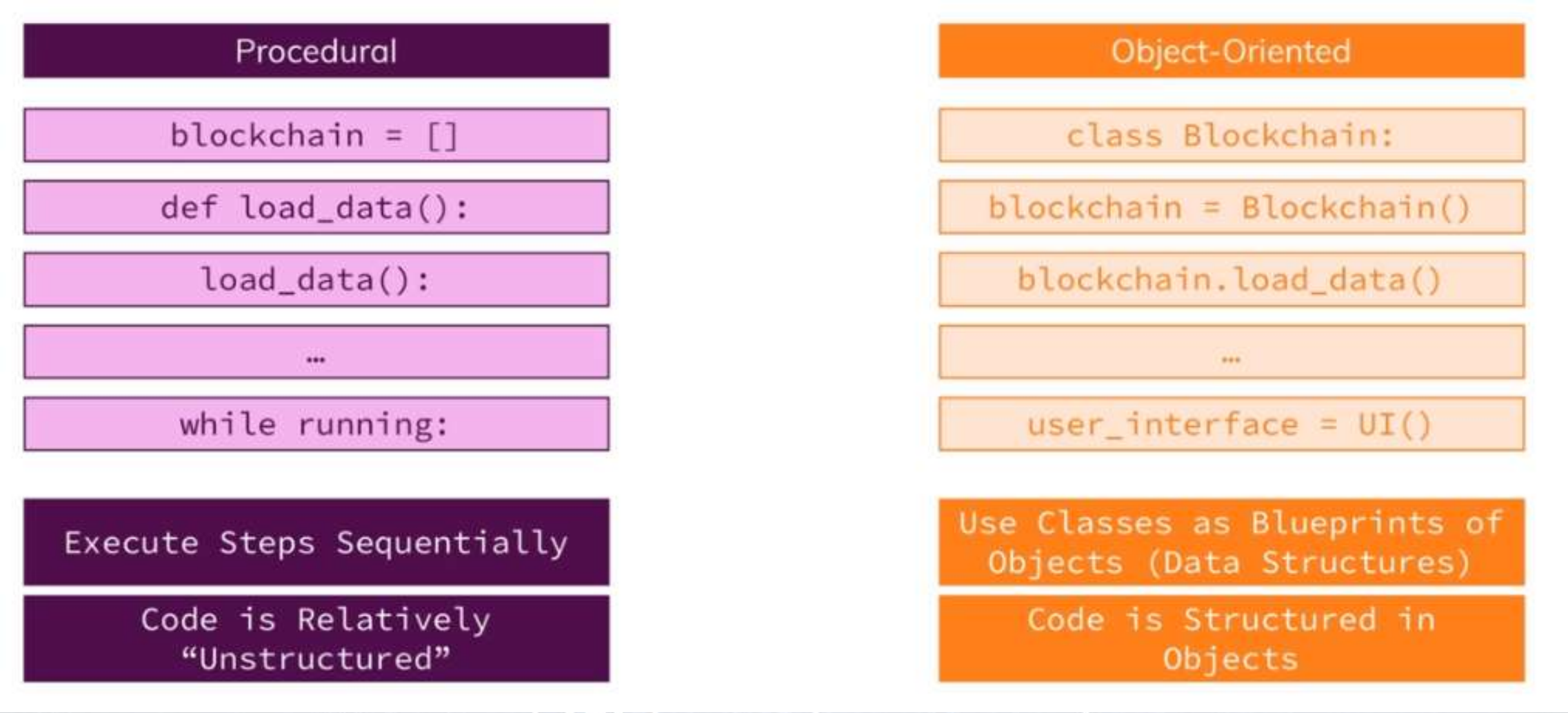
Error Handling



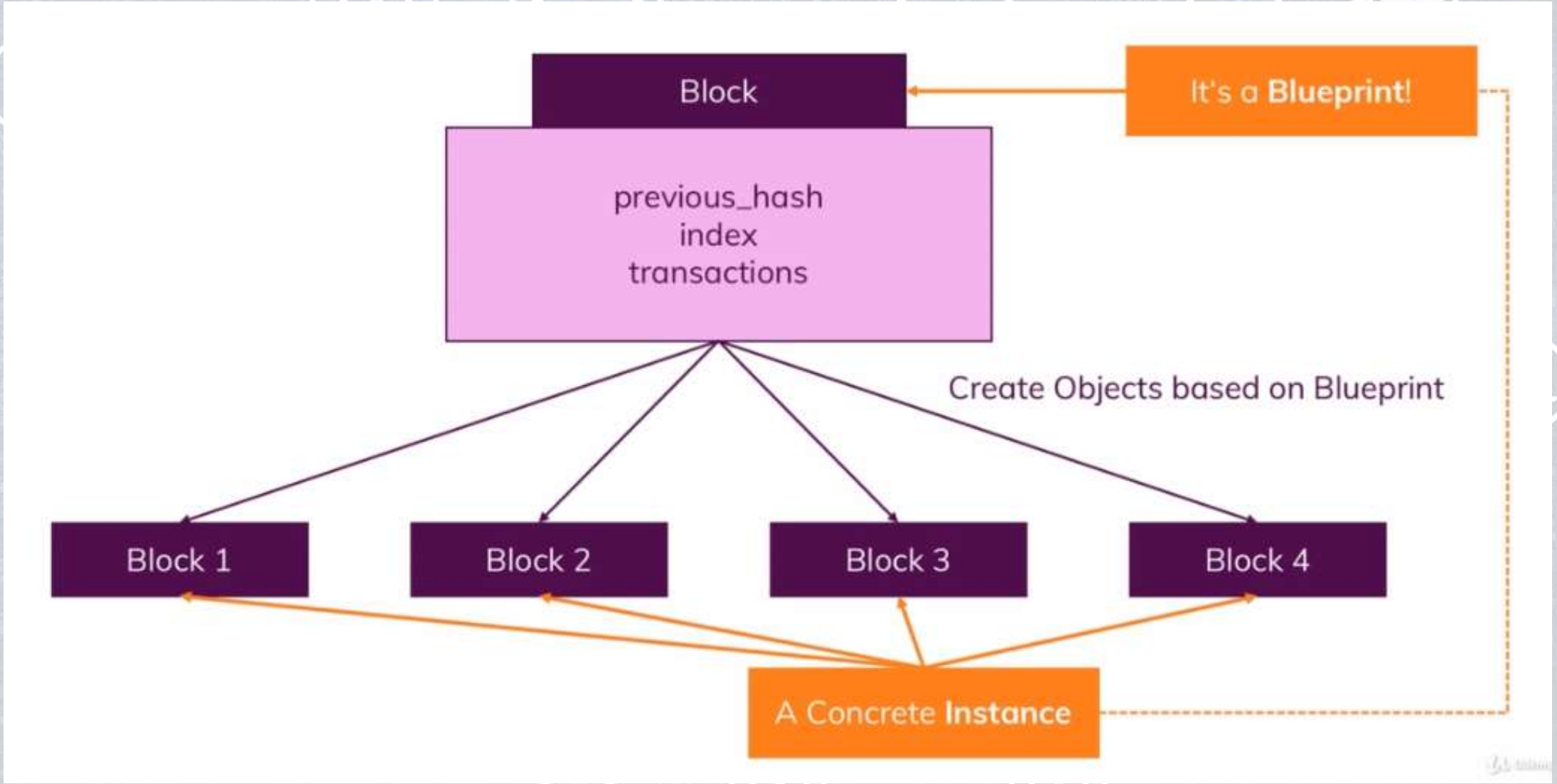
Only Handle Errors That You Can't Predict/ Avoid!

IOError (File Access), OSError (OS-related Error), ...

Applying OOP's to Our Blockchain [Task]



What one can do?



Help!

```
# Block Chain Object
class BlockChain:
    def __init__(self):
        self.chain = [self.createGenesisBlock()]

    def createGenesisBlock(self):
        return Block(0, "10/01/2017", "Genesis Block", "0")

    def getLatestBlock(self):
        return self.chain[len(self.chain)-1]

    def addBlock(self, newBlock):
        newBlock.previousHash = self.getLatestBlock().hash
        newBlock.hash = newBlock.calculateHash()
        self.chain.append(newBlock)

    def isChainValid(self):
        for i in range (1, len(self.chain)):
            currentBlock = self.chain[i]
            previousBlock = self.chain[i-1]
            # checks whether data has been tampered with
            if currentBlock.hash != currentBlock.calculateHash():
                return False
            if currentBlock.previousHash != previousBlock.hash:
                return False
        return True

    def printBlockChain(self):
        for i in range(1, len(self.chain)):
            self.chain[i].printBlock()
```

Help! [main()]

```
def main():
    annaCoin = BlockChain()
    annaCoin.addBlock(Block(1, "10/10/2017", {"account": "Anna","amount": 25,"action": "buy"}))
    annaCoin.addBlock(Block(2, "11/01/2017", {"account": "Joe","amount": 10,"action": "buy"}))
    annaCoin.addBlock(Block(3, "12/01/2017", {"account": "Katie","amount": 20,"action": "buy"}))
    annaCoin.addBlock(Block(4, "12/07/2017", {"account": "Ethan","amount": 4,"action": "buy"}))
    annaCoin.printBlockChain()
    # no tampering in our block chain yet so should be true here
    print "Chain valid? " + str(annaCoin.isChainValid())
    # now lets tamper the block chain and see what happens
    annaCoin.chain[1].data = {"account": "Anna","amount": 100,"action": "buy"}
    print "Chain valid? " + str(annaCoin.isChainValid())
```

:Summing All Up:

python

blockchain


Thank you