

SMART CONTRACTS ON THE XRP LEDGER (XRPL)



XRP LEDGER

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EXECUTIVE SUMMARY

- 1 **INTRODUCTION TO SMART CONTRACTS.**
- 2 **XRP LEDGER AND HOOKS.**
- 3 **KEY CONCEPTS OF ESCROW AND ORACLE.**
- 4 **PROCESS OF CREATING A SMART CONTRACT.**
- 5 **CREATING A SMART CONTRACT.**
- 6 **NFTS IN XRP LEDGER**

INTRODUCTION TO SMART CONTRACTS.

DEFINITION OF SMART CONTRACTS

"Digital contracts stored on a blockchain that are automatically executed when predetermined terms and conditions are met" - IBM



INTRODUCTION TO SMART CONTRACTS.

HOW DO SMART CONTRACT WORK?



SOME APPLICATIONS



INTRODUCTION TO SMART CONTRACTS.

BENEFITS OF THE SMART CONTRACTS.



TRANSPARENCY



SPEED



AUTONOMY



SECURITY

XRP LEDGER AND HOOKS



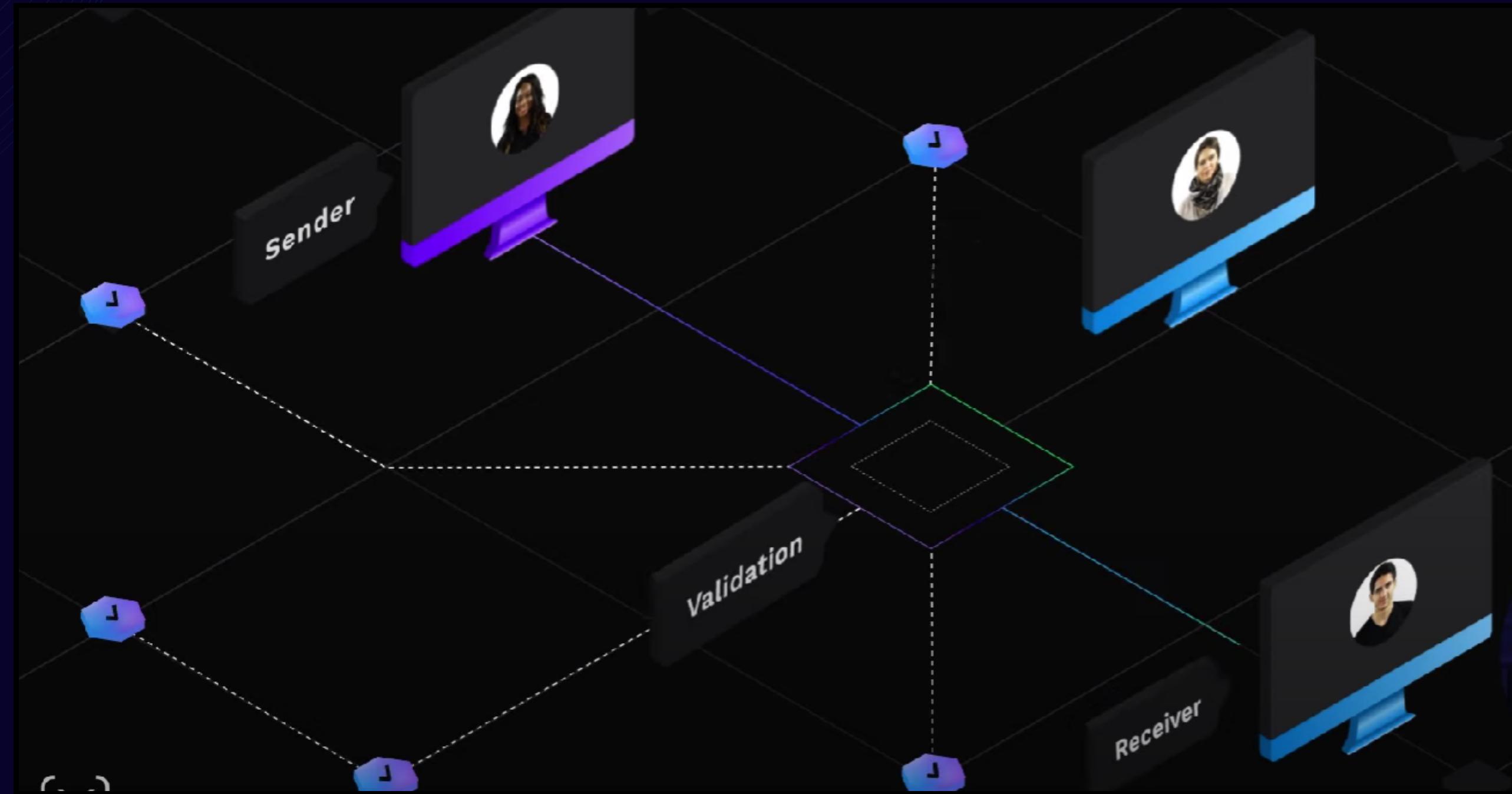
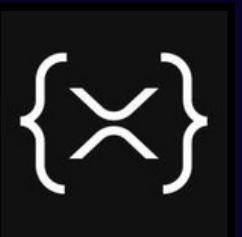
DEFINITION OF XRP LEDGER

- IS A PUBLIC DECENTRALIZED BLOCKCHAIN.
- WAS LAUNCHED IN JUNE 2012 BY RIPPLE LABS.
- IT USES A "RIPPLE PROTOCOL CONSENSUS ALGORITHM" OR "RPCA".
- THE PLATFORM CAN BE USED FOR: PAYMENTS, TOKENIZATION, NFTS AND DEFI (DECENTRALIZED FINANCE)
- IT ALSO HAS AN ORIGINAL CRYPTOCURRENCY WHOSE NAME IS XRP.

RIPPLE PROTOCOL CONSENSUS ALGORITHM

- XRPL USES A GROUP OF "VALIDATORS" WHO RECEIVE THE INFORMATION AND APPROVE OR DISAPPROVE IT IN A FAST WAY.
- THERE ARE MORE THAN 120 VALIDATORS OPERATED BY DIFFERENT INSTITUTIONS SUCH AS UNIVERSITIES, COMPANIES AND INDIVIDUALS.

XRP LEDGER AND HOOKS

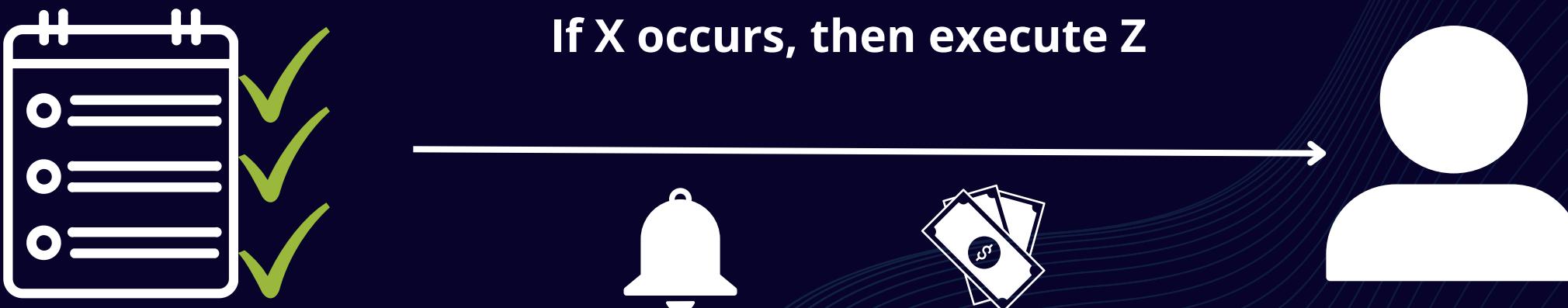


XRP LEDGER AND HOOKS



DEFINITION OF HOOKS

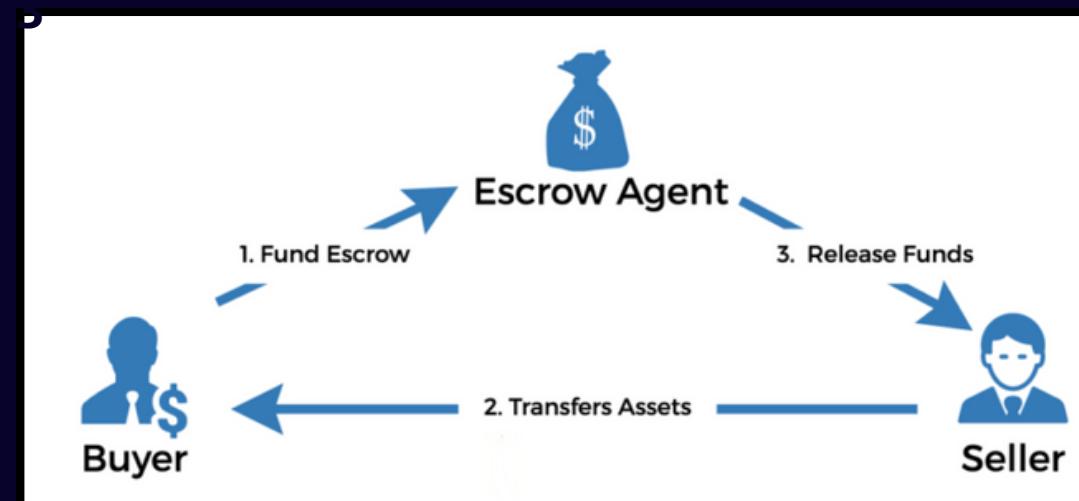
- ARE CODES THAT ALLOW DEVELOPERS USING XRPL TO CUSTOMIZE OR ADD TASKS OR CONDITIONS TO ACTIVITIES TO BE DEVELOPED DIRECTLY IN XRPL.
- THEY CAN BE WRITTEN IN ANY LANGUAGE AND THEN BE COMPILED WITH WEBASSEMBLY.
- THEY ALLOW GREATER FLEXIBILITY AND CUSTOMIZATION IN THE DEVELOPMENT OF ACTIVITIES IN XRPL, WHICH GUARANTEES THEIR CORRECT DEVELOPMENT.



KEY CONCEPTS - ESCROW AND ORACLE

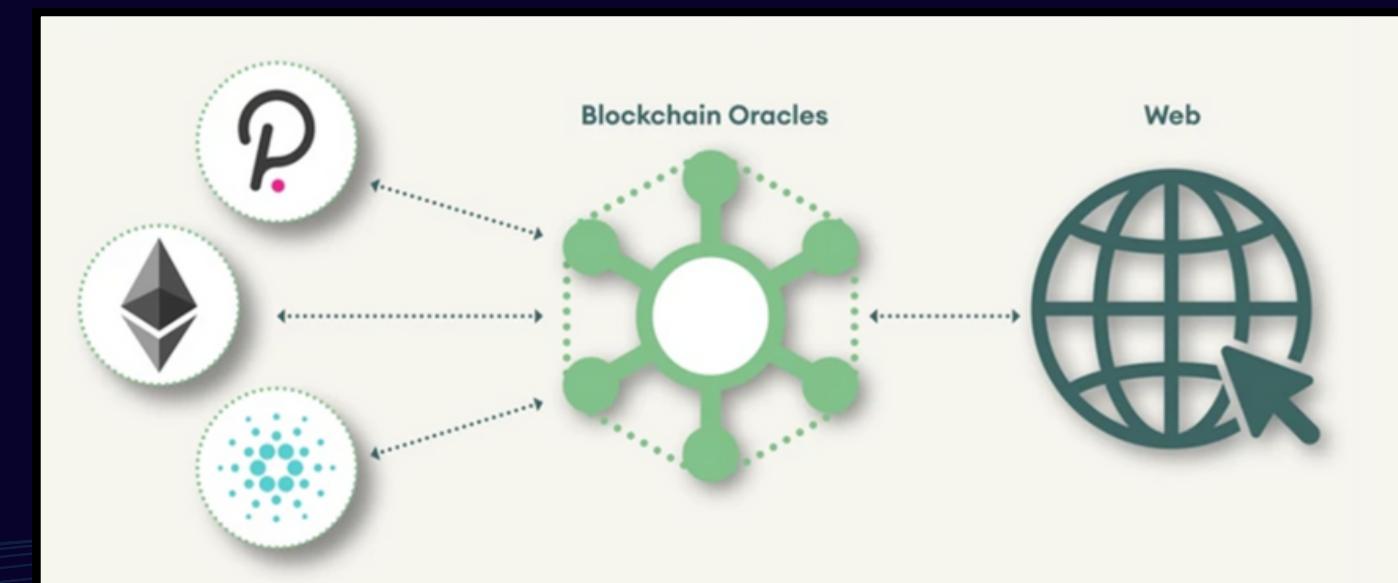
ESCROW

- IS A SECURITY MECHANISM WHERE XRPL AMOUNTS CAN BE BLOCKED UNTIL THE TERMS OF THE CONTRACT ARE FULFILLED.
- IT ENFORCES THE PARTICIPATION OF A THIRD PARTY WHO WILL HOLD THE ASSETS UNTIL THE TERMS OF THE CONTRACT ARE FULFILLED

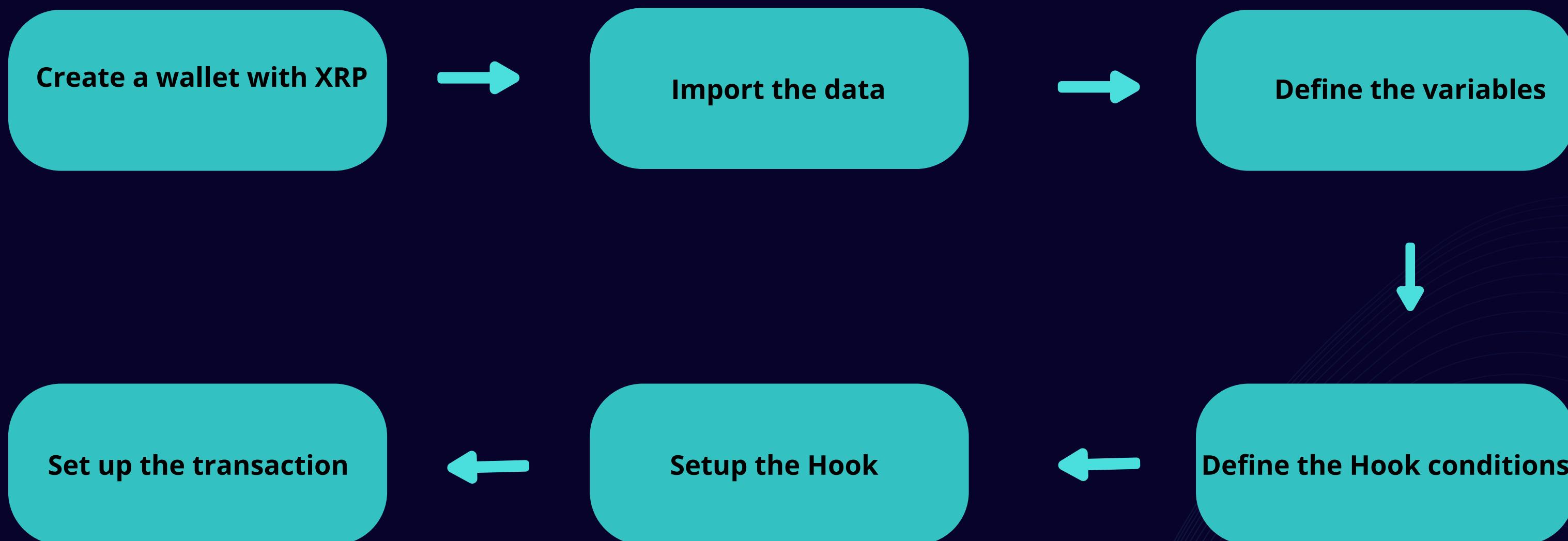


ORACLE

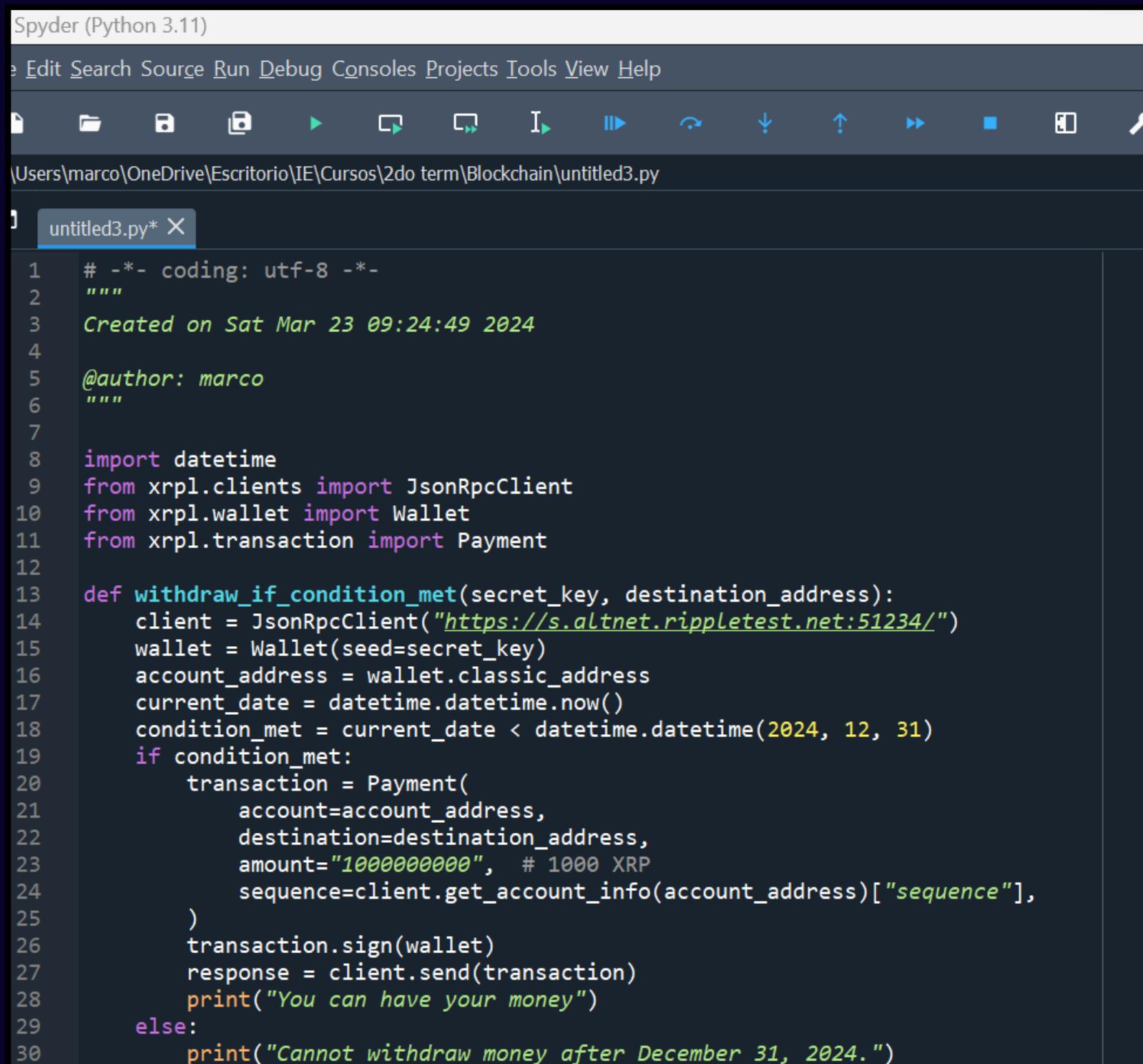
- ORACLES ARE THIRD PARTY PARTICIPANTS THAT ALLOW BLOCKCHAINS TO ACCESS AND VERIFY REAL MARKET INFORMATION TO COMPLETE VALIDATE OR INVALIDATE SMART CONTRACTS.



PROCESS OF CREATING A SMART CONTRACT



CREATING A SMART CONTRACT



The screenshot shows a Python script named `untitled3.py` in the Spyder IDE. The code defines a function `withdraw_if_condition_met` that checks if the current date is before December 31, 2024, and then signs and sends a payment transaction to a destination address.

```
# -*- coding: utf-8 -*-
"""
Created on Sat Mar 23 09:24:49 2024
@author: marco
"""

import datetime
from xrpl.clients import JsonRpcClient
from xrpl.wallet import Wallet
from xrpl.transaction import Payment

def withdraw_if_condition_met(secret_key, destination_address):
    client = JsonRpcClient("https://s.altnet.ripple.com:51234/")
    wallet = Wallet(seed=secret_key)
    account_address = wallet.classic_address
    current_date = datetime.datetime.now()
    condition_met = current_date < datetime.datetime(2024, 12, 31)
    if condition_met:
        transaction = Payment(
            account=account_address,
            destination=destination_address,
            amount="1000000000", # 1000 XRP
            sequence=client.get_account_info(account_address)[ "sequence" ],
        )
        transaction.sign(wallet)
        response = client.send(transaction)
        print("You can have your money")
    else:
        print("Cannot withdraw money after December 31, 2024. ")
```

Importing commands

Defining the variables

Programming the conditions

NFTS IN XRP LEDGER

XRP Ledger is a platform that does allow to have NFTs thanks to the XLS-20 functionality that allows the creation and management of NFTs with efficiency and security.

The screenshot shows the DappRadar interface for the XRP Ledger network. The left sidebar has a 'NFTs' section selected, with 'Collections' highlighted. The main area displays a table of top NFT collections, including Anti-Social Media, XPUNKS, UNXPUNKS, Bored Apes XRP Club, Pixel Ape Rowboat Club (PARC), FUTURE CREATURE, and DP Camel Collection. Each row provides details like floor price, average price, market cap, volume, percentage volume, traders, and sales.

#	Collection	Floor price	Avg. price	Mkt Cap	Volume	% Volume	Traders	Sales
1	Anti-Social Media (x) XRP Ledger	\$19.83 +100%		\$1.86k +100%	+100%	52 +100%	85 +100%	
2	XPUNKS (x) XRP Ledger	\$418.86 -8.17%		\$1.25k -85.48%	-85.48%	6 -72.72%	3 -84.21%	
3	UNXPUNKS (x) XRP Ledger	\$47.97 -30.7%		\$623.73 +197.85%	+197.85%	11 +120%	13 +333.33%	
4	Bored Apes XRP Club (x) XRP Ledger	\$183.87 +63.59%		\$551.62 +63.59%	+63.59%	6 0%	3 0%	
5	Pixel Ape Rowboat Club (PARC) (x) XRP Ledger	\$12.04 +100%		\$377.2 +100%	+100%	15 +100%	29 +100%	
6	NEW FUTURE CREATURE (x) XRP Ledger	\$29.77 -29.27%		\$327.52 -22.2%	-22.2%	8 +14.28%	11 +10%	
7	DP Camel Collection (x) XRP Ledger	\$46.34 +100%		\$324.41 +100%	+100%	6 +100%	7 +100%	

THANK YOU
