from web3 import Web3

import json

# Initialize a Web3.py instance connected to your Ethereum blockchain of choice

web3 = Web3(Web3.HTTPProvider('YOUR\_ETHEREUM\_NODE\_URL'))

# Load the ABI and contract address of your climate tracking smart contract

contract\_address = 'YOUR\_CONTRACT\_ADDRESS'

contract\_abi = json.loads('YOUR\_CONTRACT\_ABI\_JSON')

# Define your Ethereum wallet's private key and address for deploying and interacting with the contract

your\_private\_key = 'YOUR\_PRIVATE\_KEY'

your\_wallet\_address = 'YOUR\_WALLET\_ADDRESS'

# Deploy or connect to the smart contract

contract = web3.eth.contract(address=contract\_address, abi=contract\_abi)

# Example: Deploy a new contract

# Only do this if you are deploying a new contract. Use the appropriate constructor parameters.

# deploy\_txn = contract.constructor(...).transact({'from': your\_wallet\_address, 'gas': 1000000})

# deploy\_receipt = web3.eth.waitForTransactionReceipt(deploy\_txn)

# contract\_address = deploy\_receipt.contractAddress

# Interact with the smart contract

def recordClimateData(data):

# Encode the function call

function\_signature = contract.encodeABI('recordClimateData', [data])

# Create a transaction

transaction = {

'to': contract\_address,

'data': function\_signature,

'gas': 2000000, # Adjust the gas limit as needed

'gasPrice': web3.toWei('20', 'gwei'), # Set an appropriate gas price

'nonce': web3.eth.getTransactionCount(your\_wallet\_address),

}

# Sign the transaction

signed\_transaction = web3.eth.account.signTransaction(transaction, private\_key=your\_private\_key)

# Send the transaction

tx\_hash = web3.eth.sendRawTransaction(signed\_transaction.rawTransaction)

# Wait for the transaction to be mined

tx\_receipt = web3.eth.waitForTransactionReceipt(tx\_hash)

return tx\_receipt

# Example: Record climate data

climate\_data = 'Your climate data in JSON format'

tx\_receipt = recordClimateData(climate\_data)

print(f'Transaction receipt: {tx\_receipt}')

# Read data from the contract

def getClimateData():

climate\_data = contract.functions.getClimateData().call()

return climate\_data

# Example: Retrieve climate data from the contract

retrieved\_data = getClimateData()

print(f'Retrieved climate data: {retrieved\_data}')