Python File: disaster\_management\_system.py

import random

import time

import hashlib

# Simulated Datasets

disaster\_types = ['Earthquake', 'Flood', 'Cyclone', 'Tsunami']

zones = ['Zone A', 'Zone B', 'Zone C', 'Zone D']

languages = {'en': 'Stay Safe!', 'ta': 'பாதுகாப்பாக இருங்கள்!', 'hi': 'सुरक्षित रहें!'}

# Blockchain simulation for secure data

blockchain = []

def create\_block(data, previous\_hash='0'):

block\_data = str(data) + previous\_hash

block\_hash = hashlib.sha256(block\_data.encode()).hexdigest()

block = {'data': data, 'hash': block\_hash, 'prev\_hash': previous\_hash}

blockchain.append(block)

return block

# AI-based mock disaster predictor

def predict\_disaster():

print("\n[AI] Running prediction model...")

time.sleep(1)

disaster = random.choice(disaster\_types)

zone = random.choice(zones)

severity = random.randint(1, 10)

print(f"Predicted: {disaster} in {zone} with severity {severity}/10")

create\_block({'disaster': disaster, 'zone': zone, 'severity': severity})

if severity >= 7:

alert\_users(disaster, zone, severity)

else:

print("Status: Monitoring - No immediate threat.\n")

# Simulated multilingual chatbot for alerts

def alert\_users(disaster, zone, severity):

print("\n[ALERT] Emergency Detected!")

for lang, message in languages.items():

print(f"[{lang.upper()}] {disaster} alert for {zone} - Severity {severity}/10: {message}")

print("Dispatching response teams...\n")

# Emergency response simulation

def manage\_response():

print("\n[Response System]")

print("1. Evacuation")

print("2. Medical Aid")

print("3. Resource Distribution")

choice = input("Select an action: ")

actions = {'1': "Evacuation in progress...",

'2': "Medical teams deployed...",

'3': "Distributing food and water..."}

print(actions.get(choice, "Invalid action selected.\n"))

# View blockchain log

def view\_blockchain():

print("\n[Blockchain Log]")

for i, block in enumerate(blockchain):

print(f"Block {i+1}: {block}")

# Main Menu

def main():

while True:

print("\n--- Natural Disaster Prediction & Management System ---")

print("1. Predict Disaster")

print("2. Manage Emergency Response")

print("3. View Disaster Log (Blockchain)")

print("4. Exit")

option = input("Enter your choice: ")

if option == '1':

predict\_disaster()

elif option == '2':

manage\_response()

elif option == '3':

view\_blockchain()

elif option == '4':

print("Exiting system. Stay safe!")

break

else:

print("Invalid option. Try again.")

if \_name\_ == "\_main\_":

main()

How to Run It

1. Save the code above in a file called disaster\_management\_system.py.

2. Run the file using Python:

python disaster\_management\_system.py

Features Included

AI-simulated disaster prediction.

Real-time alert messages in multiple languages.

Emergency response system.

Blockchain-based secure logging of disaster data