Wakanda Forever

The Kingdom of Wakanda is organizing an election for officials who will represent King T'Challa at future United Nation summits. Being very modern and forward-thinking, King T'Challa has decided to leverage the power of blockchain technology to make sure these elections are unhindered, and more importantly, secure.

In order to make sure all 6 million residents have access to voting, multiple voting centres have been opened across the country. These centres are places where Wakandans can come and cast their ballot for officials of their choice.

As the team lead for the voting committee, your task is to implement the following features in these voting centres:

- A simple UI that allows Wakandans to register for voting, displays the candidates and allows Wakandans to vote
- A Smart Contract that keeps track of who voted for which candidates
- An ERC20 token required for voting (called WKND)
- A local NodeJS Server that acts as an intermediary between the UI and the Smart Contract. This server serves more as a backup in case of internet failure

The User Interface (UI)

Registration page

Each Wakandan has a unique Ethereum address that they use to vote.

In order for them to vote in the election, they must have a balance of at least 1 WKND (ERC20 token described later). To get this token, they must register to vote on a special page.

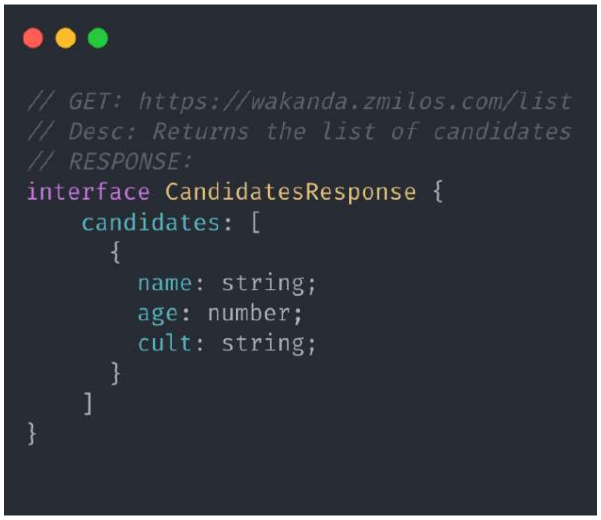
The registration page needs to contain only 1 input field and a REGISTER button. The input field is where Wakandans will input their Ethereum address.

When the REGISTER button is clicked, 1 WKND token should be sent to the inputted address.

Voting page

Only 3 candidates can be chosen as UN officials. This means that Wakandans can only choose at most 3 candidates to represent them.

To help speed things along, King T'Challa's sister - Shuri, has already implemented a server with the following endpoint:



```
// GET: https://wakanda.zmilos.com/list
// Desc: Returns the list of candidates
// RESPONSE:
interface CandidatesResponse {
    candidates: [
      {
        name: string;
        age: number;
        cult: string;
      }
    ]
}
```

The voting / register pages can be done using regular HTML / CSS / JS, there is no need to use a front-end framework.

The voting page needs to have the following elements:

- List of candidates with checkboxes (or radio buttons)
- Input field for the Wakanda citizen Ethereum address (can be placed in a modal, etc.)
- Input field for the number of WKND tokens to be spent for voting
- VOTE button that casts the vote
- Show Leads button that displays the top 3 candidates (explained later). This button should trigger the winningCandidates SC call. If someone attempts to vote twice, an error message should appear. Likewise, an error message should be displayed if, for whatever reason, voting is not possible at the moment.

Smart Contract

The Wakanda Voting Smart Contract, among other things, needs to implement the following elements:

- *(function)* winningCandidates - Returns the top 3 candidates by vote count
- *(Event)* NewChallenger - Emitted whenever a new candidate enters one of the top 3 spots. For example, the first votes for 3 different candidates will trigger this event (because the top 3 slots were empty). If candidates A, B and C are holding the top 3 spots, and a candidate D surpasses C in *vote count*, this event should be emitted

WKND ERC20 Token

The WKND token is an ERC20 token used for casting votes. It serves as proof of voter registration. It is safe to assume that 1 WKND = 1 vote, and that each Ethereum address (citizen) can vote only once.

The WKND token doesn't exist yet, and its creation is part of the overall task.

The Server

The server acts as a backup device that assists in voting.

Each vote that is cast needs to be relayed through the server. If the server is unable to contact the Smart Contract (the internet is down), the server needs to cache / store the voting data *securely*, and attempt to cast the vote once the connection is back online.