

```

contract EVoting{

    address public electionCommission;

    bool public votingStarted;

    bool public votingEnded;

    struct Candidate {

        uint id;

        string name;

        uint voteCount;

    }

    struct Voter {

        bool isRegistered;

        bool hasVoted;

        uint votedCandidateId;

    }

    mapping(uint => Candidate) public candidates;

    mapping(address => Voter) public voters;

    uint public candidatesCount;

    modifier onlyEC() {

        require(msg.sender == electionCommission, "Only Election Commission allowed");

        _;

    }

    constructor() {

        electionCommission = msg.sender;

    }

    // Add candidate before voting starts

    function addCandidate(string memory _name) public onlyEC {

```

```
require(!votingStarted, "Cannot add candidate after voting starts");  
candidatesCount++;  
candidates[candidatesCount] = Candidate(candidatesCount, _name, 0);  
}
```

// Register a voter before voting starts

```
function registerVoter(address _voter) public onlyEC {  
    require(!votingStarted, "Cannot register after voting starts");  
    voters[_voter].isRegistered = true;  
}
```

// Start voting

```
function startVoting() public onlyEC {  
    require(!votingStarted, "Voting already started");  
    votingStarted = true;  
}
```

// End voting

```
function endVoting() public onlyEC {  
    require(votingStarted, "Voting not started yet");  
    votingEnded = true;  
}
```

// Vote for candidate

```
function vote(uint _candidateId) public {  
    require(votingStarted, "Voting has not started");
```

```
require(!votingEnded, "Voting has ended");  
require(voters[msg.sender].isRegistered, "Not a registered voter");  
require(!voters[msg.sender].hasVoted, "Already voted");  
require(_candidateId > 0 && _candidateId <= candidatesCount, "Invalid candidate");
```

```
voters[msg.sender].hasVoted = true;  
voters[msg.sender].votedCandidateId = _candidateId;  
candidates[_candidateId].voteCount++;  
}
```

```
// Get results (only after voting ends)
```

```
function getResults() public view returns (string memory winnerName, uint winnerVotes)  
{
```

```
    require(votingEnded, "Voting is not yet ended");
```

```
    uint maxVotes = 0;
```

```
    uint winnerId;
```

```
    for (uint i = 1; i <= candidatesCount; i++) {
```

```
        if (candidates[i].voteCount > maxVotes) {
```

```
            maxVotes = candidates[i].voteCount;
```

```
            winnerId = i;
```

```
        }
```

```
    }
```

```
    winnerName = candidates[winnerId].name;
```

```
winnerVotes = candidates[winnerId].voteCount;  
}  
}
```