“Hello World” smart contract

solidity code

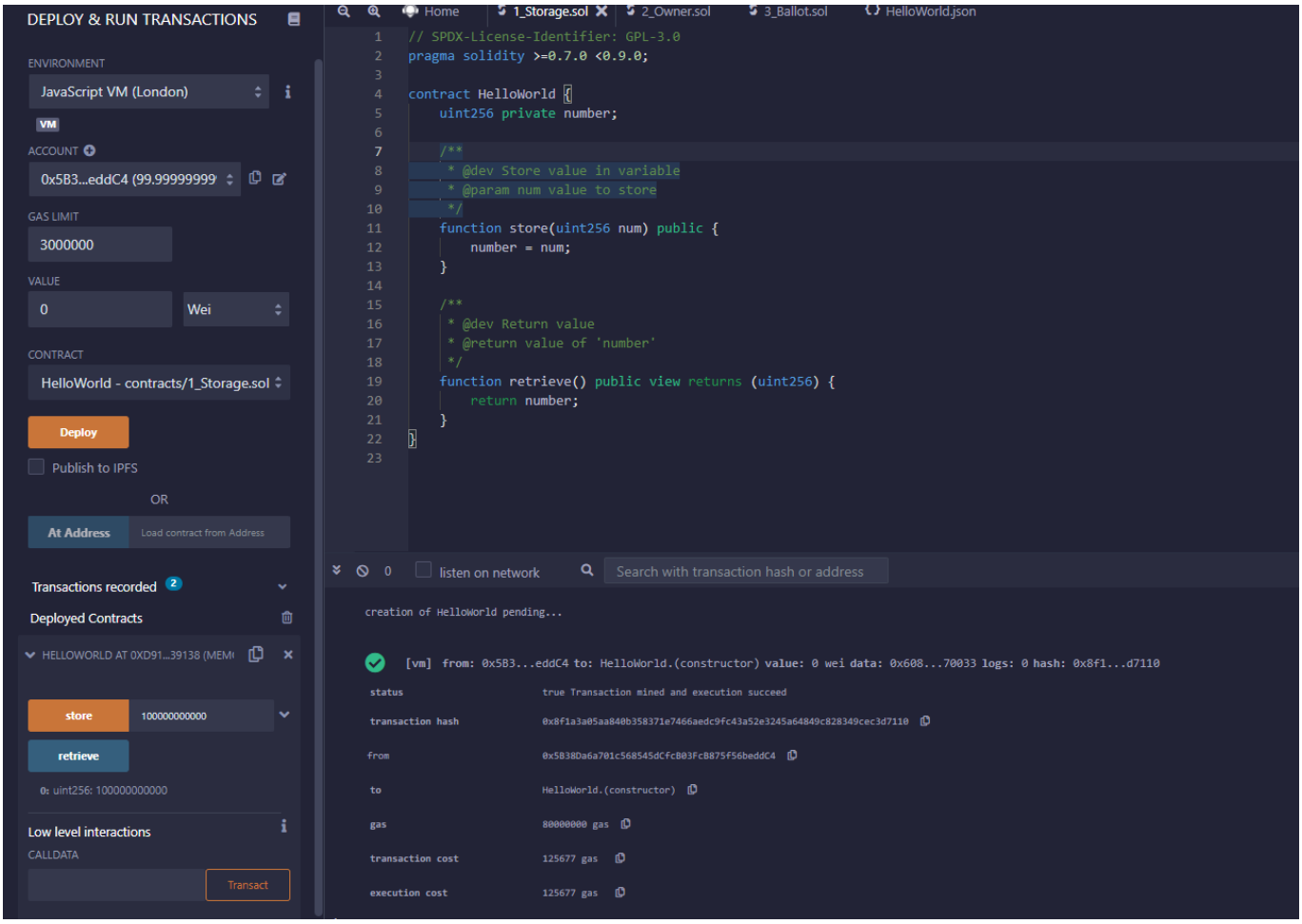
```
// SPDX-License-Identifier: GPL-3.0
pragma solidity >=0.7.0 <0.9.0;

contract HelloWorld {
    uint256 private number;

    /**
     * @dev Store value in variable
     * @param num value to store
     */
    function store(uint256 num) public {
        number = num;
    }

    /**
     * @dev Return value
     * @return value of 'number'
     */
    function retrieve() public view returns (uint256) {
        return number;
    }
}
```

screenshot



Ballot

solidity code

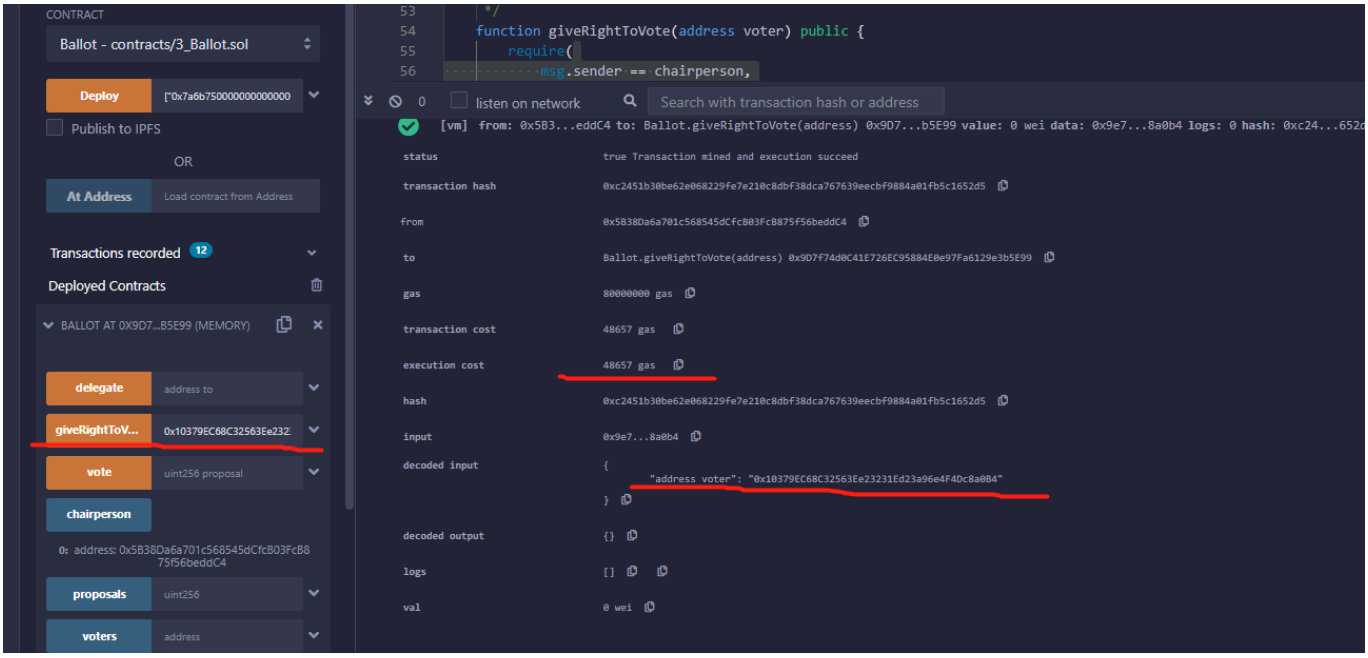
write a batch function(giveRightToVoters) for reducing the number of transactions in the “giveRightToVote” function.The code is as follows:

```
/**
* @dev Give 'voters' the right to vote on this ballot. May only be called by
'chairperson'.
* @param _voters addresses of voters
*/
function giveRightToVoters(address[] memory _voters) external {
    require(
        msg.sender == chairperson,
        "Only chairperson can give right to vote."
    );
    for (uint256 i = 0; i < _voters.length; i++) {
        address  voter = _voters[i];
        if (!voters[voter].voted && (voters[voter].weight == 0)) {
            voters[voter].weight = 1;
        }
    }
}
```

The full code is here

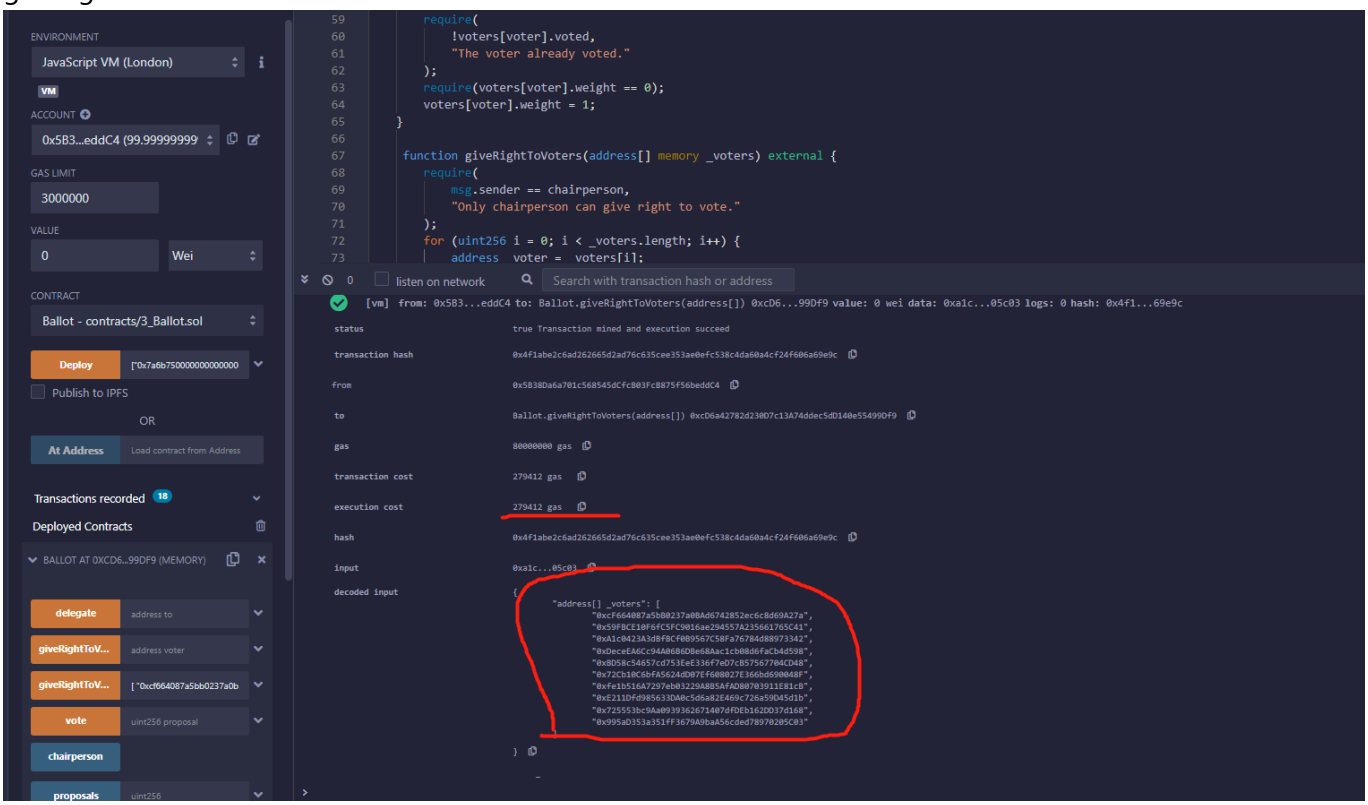
gas cost

giveRightToVote:



the gas cost of giving 1 voter the right to vote is 48657.So the gas cost of giving 10 voters the right to vote is 486570.

giveRightToVoters:



the gas cost of giving 10 voters the right to vote is 279412.