

IT465: Cryptocurrencies and Blockchain Technologies

Lab Assignment 1

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- 1) A basic Ethereum smart contract for very simple cell phone contract between a cell company and a subscriber.

Contract details:

costPerMonth is initialised during deployment.

depositBalance(): the subscriber pays a monthly fee in ether to the contract

withdrawBalance(): Ability to withdraw funds from the contract so they can be transferred to the company's own accounts

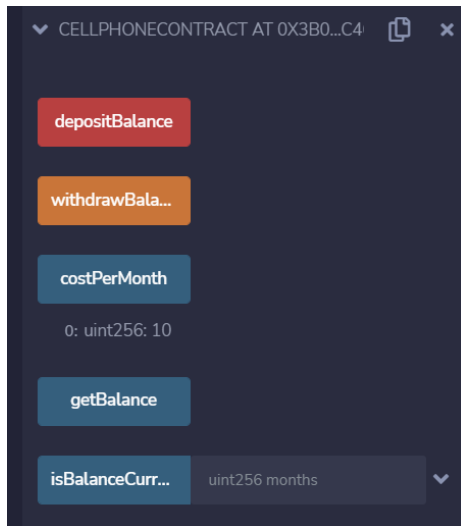
getBalance(): returns the balance of the contract

isBalanceCurrent(uint256 months): allows the cell phone company to check the status of the account on a given date

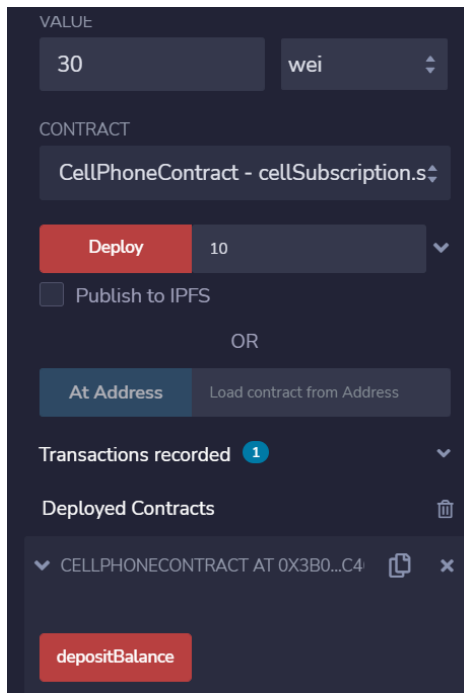
The contract is deployed with an initial cost of 10 wei.

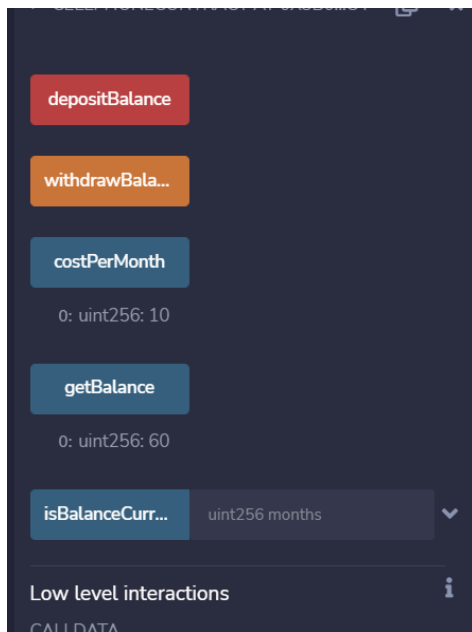
The screenshot shows a web interface for deploying an Ethereum smart contract. It includes the following fields and controls:

- ENVIRONMENT**: A dropdown menu set to "JavaScript VM (London)".
- ACCOUNT**: A dropdown menu showing the account "0x5B3...eddC4 (99.999999%)".
- GAS LIMIT**: A text input field containing "3000000".
- VALUE**: A text input field containing "0" and a unit dropdown menu set to "wei".
- CONTRACT**: A dropdown menu showing "CellPhoneContract - cellSubscription.s".
- Deploy**: A red button to initiate the deployment.
- 10**: A dropdown menu next to the Deploy button, likely for the initial value.
- Publish to IPFS**: A checkbox that is currently unchecked.

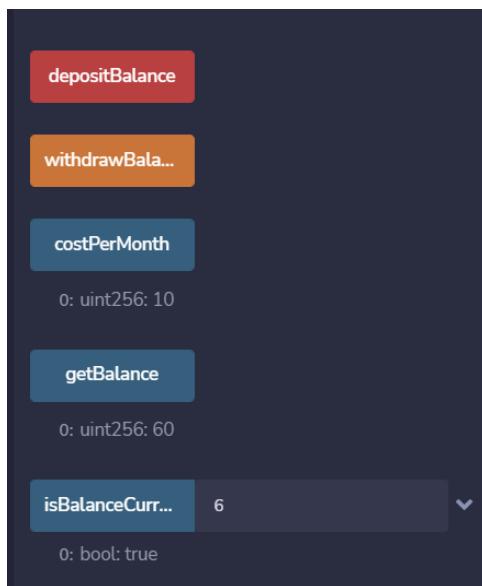


Then, 60 wei is deposited to the contract and can be seen below in the getBalance function.

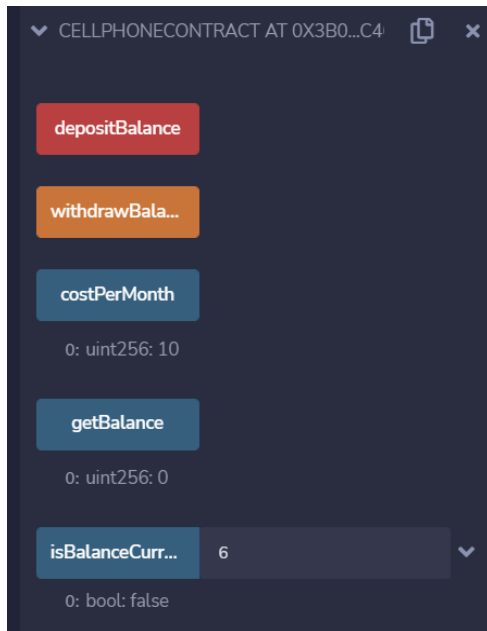




Before withdrawing



After withdrawing, the balance becomes 0.



2) A Simple Bank smart contract code in Solidity programming language.

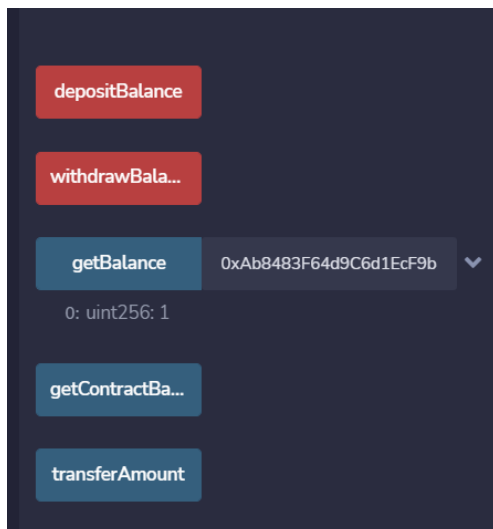
getContractBalance(): returns balance in the contract

depositBalance(): deposits a specified amount to the contract

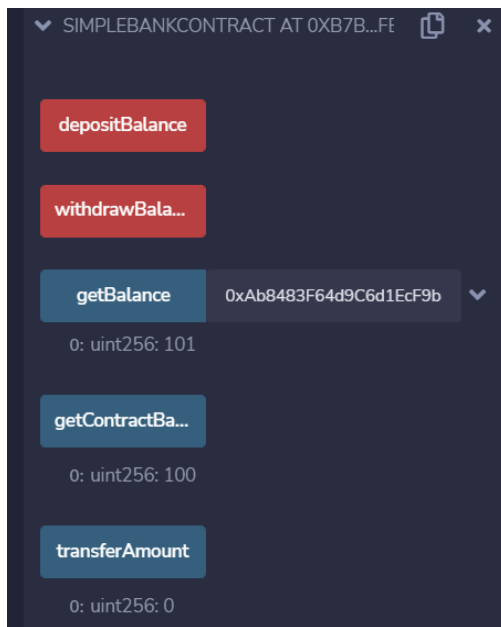
getBalance(address userAddress): returns balance in the user address

withdrawBalance(): withdraws the amount from the contract and transfers sender account.

The initial balance in the user address is 1 wei.



After depositing 100 wei.



After withdrawing from the account.

