BlocarcpayrollSystem Smart Contract Test Plan

We plan to use the deploy and test function on Remix to test whether the contract function works, whether the result meets the expectation, and whether there are any errors. Virtual digital currency can be used for testing. Our smart contract has 12 functions as of now.

There are

1. changeCompanydetail
2. addFunds
3. contractBalance
4. addEmployee
5. removeEmployee
6. getEmployeeAddress
7. setEmployeesalary
8. getEmployeesalary
9. getEmployeebalance
10. setEmployeepayment
11. payrollSystem
12. etherlocal
13. destroy

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1. changeCompanydetail function test
2. Input simulated company data in the following format: address \_companyAddress, uint balance, uint newfunds, string memory lastaddtime. The address can be one of the Remix IDE addresses provided.
3. Check the execution box to see if the input was successful
4. We set companyaccount as 0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2,

Company account Balance as ‘99’, newfunds as 0 as company have not deposit funds into this contract, last deposit time as “2022-12-01”

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1. addFunds function test
2. This function allows company sent money to smart contract
3. We first deposit 5 Ether from company account to smart contract
4. You can see now company account balance reduce from 99.99 to 94.99 after we execute the function
5. Now we successfully deposit 5 ETH into contract account

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1. contractBalance function test
2. Use this function to check contract balance after company depositing new fund to smart contract
3. We can see now we have 5 ETH for our smart contract

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1. addEmployee function test
2. Input simulated employee data in the following format: address \_employeeAddress, uint salary, string memory name, string memory department, uint balance, string memory lastPaytime. The address can be one of the addresses provided by REMIX IDE.
3. Check the execution box to see if the input was successful
4. We add

‘0x5B38Da6a701c568545dCfcB03FcB875f56beddC4, 0, Benny ,IT, China, 0, 0, '11-30-2022' ,TRUE, 9087,0’ to account

1. Company successfully adds Benny’s information into the employeeDetails, and Benny’s address has already on the employeeList.

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1. removeEmployee function test
2. Use this function to remove the employee that already left the company(bool active=false)
3. getEmployeeAddress function test
   1. After executing the first test, input number 0 into the getEmployeeAddress function. The function should work and return the previous address we entered.
   2. When we input 0, the output under the execution box is Benny’s employee account address

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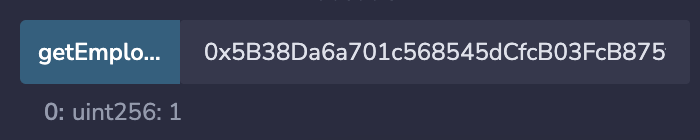
1. setEmployeesalary function test
2. Enter employee’s address and the amount that company will pay to the employee
3. We set Benny’s salary as 1 ETH

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1. getEmploeesalary function test

After we set salary for Benny, we use getEmploeesalary function to see if now the salary appear on benny’s account equals to 1



1. getEmployeebalance function test
   1. Enter the address of the employee information we previously entered,
   2. the function should return the payment we transfer to the corresponding employee plus the balance originally with an employee’s account
   3. Now company just set Benny’s salary and has not transferred to benny’s account, so the account balance still equal to ‘0’

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1. setEmployeepayment function test
2. We will set the payment amount=employee’s newly updated balance

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1. payrollSystem function test
2. Enter a numeric salary amount and click payrollSystem. The function should send the amount of money to all the employees we entered in to the addEmployee function. We can test it by reclick the getBalance function to see if there is an exact increase amount in the employee’s salary or not.
3. Pay attention, the amount we enter should not exceed the amount of money we have in the company’s address.
4. We now pay benny his salary, the amount **‘1ETH’** successfully transfer from contract account to Benny’s account, and the exact paytime appear on the account

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1. Use getEmployeebalance function test again
   1. Enter the address of the employee information we previously entered,
   2. the function should return the payment we transfer to the corresponding employee plus the balance originally with an employee’s account
   3. Now company has already transfer ‘1 ETH’ to Benny’s account, so the account balance equal to ‘1 ETH’

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1. etherlocal function test
2. Employee can convert the ether paid to local currency
3. In this test plan, Benny is from China so he successfully convert to 1 ETH to CNY, 1 ETH =9087CNY

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1. Destroy function

Use destroy function to destroy this smart contract if company would like to create a new one

In general, the contract should work together to allow a company editor to add employee information, set salary amount, and send a specific amount of salary to the employee’s wallet address.