Project Report

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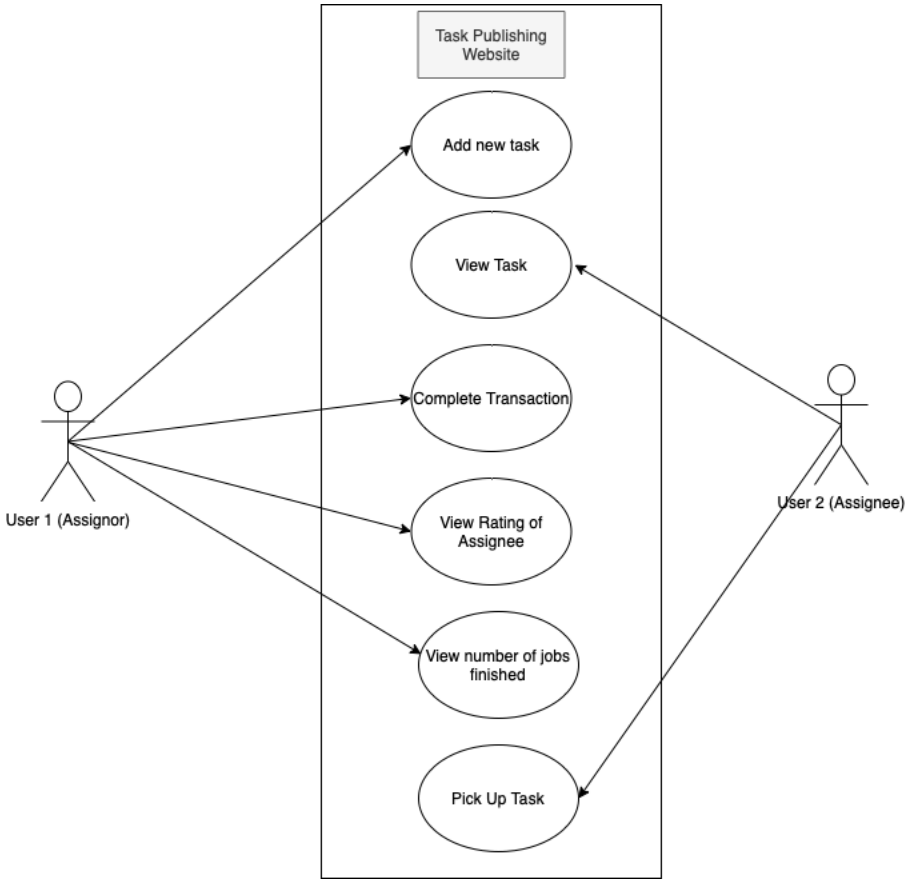
Abstract

A Dapp where users can delegate small but important daily tasks to professionals in exchange for a denomination of ERC tokens. Users(customers) will be uploading small tasks and other users can pick up those tasks in exchange for some ERC tokens. The price that the customers incur for the services will be paid by using our ERC token. The main goal is for us to satisfy all these needs by connecting these customers to professionals on our platform. The price that the customers incur for the services could be paid by using our ERC token. We wish to fix the issues pertaining to gender/racial bias in online platforms. In a decentralized system, participants will be prevented from forming stereotypes about the professionals available on the online platform. This measure will make sure that members belonging to a specific community will not be given any unfair advantage.

1 Use Case:



Description of use case diagram:

- There will be 2 users: Assignor and Assignee. The Assigner will be adding a new task on the website, which will be picked up by the Assignee.
- Once the task is picked the token amount can be sent from the Assignor to the Assignee.
- Both the users will be able to see the number of jobs completed by the Assignee and the rating of the Assignee.
- The users will not be able to see the name/gender or any form of identification of the other user, hence avoiding any kind of bias while assigning a task

2 What is the idea of the project?

- The basic concept of the project is to create a task publishing application which will be free of any bias and users will be able to get their tasks done.
- Tasks like making a small presentation can be published on the website, the Assignees can pick up the task and complete it for a certain number of tokens.
- Using IFPS the assignor can upload specific instructions or files for the assignee. A hash or a link of the file can be shared to the assignee where details of the task can be found. However, the IPFS application has to be installed and setup on both the assignee and the assignors computers.

3 Why use our tokens over normal transaction using USD?

- The main advantage of using a cryptocurrency or a blockchain token is that it does not have to go through a third party.
- Using a third-party financial institution like PayPal has its own disadvantages like data insecurity and prone to hacking.
- Using a blockchain token also ensures a smart contract can be run for a transaction which is not possible when using cash or digital currency (Eg: USD).

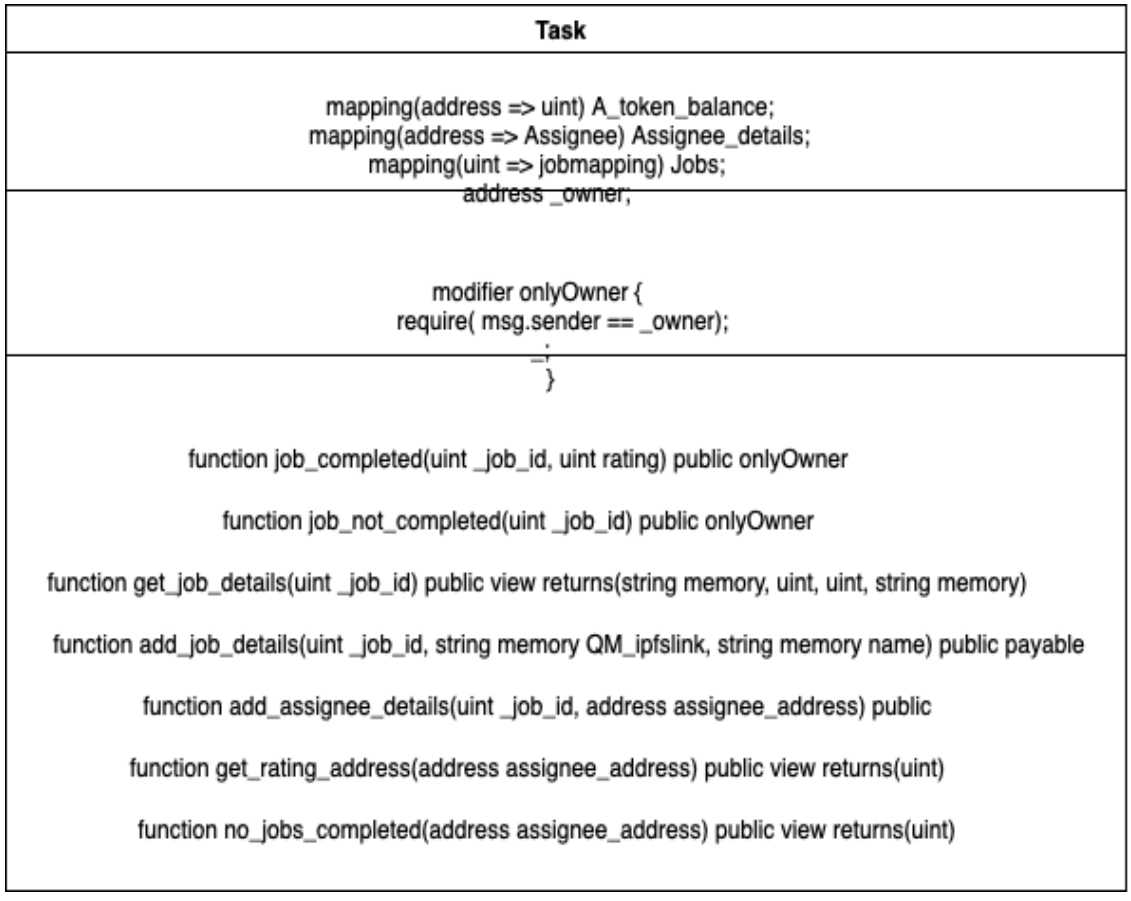
4 How is our website different than another task publishing website?

- The other task publishing websites do not use blockchain technology, blockchain has its own advantages which makes the websites significantly better than any other website.
- Few websites may use blockchain, we differentiate ourselves by focusing on using the decentralized ID to keep the names and identify of the user hidden which makes our website free from any kind of racial/gender bias created by users

5 Why use blockchain technology in our project?

- In large organizations where a lot of data is generated, the data gets stored at a single source, which poses high risk
- Using a third-party financial institution like PayPal has its own disadvantages like data insecurity and prone to hacking.
- Using a blockchain token also ensures a smart contract can be run for a transaction which is not possible when using cash or digital currency (Eg: USD).

6 Contract Diagram



Description of the Contract Diagram:

Contract 1 TaskToken.sol:

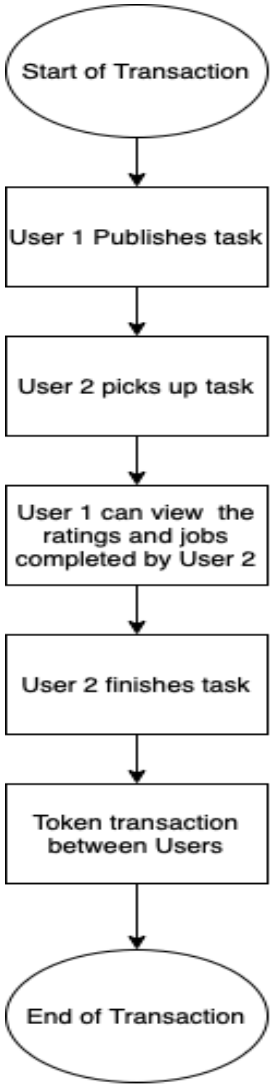
- Function TotalSupply(): Used to get the total supply of the token
- Function balance(): Used to get the balance of tokens in the selected account
- Function transfer(): Transfer tokens from one account to another or vice versa
- Function approve(): Gives permission to transfer funds within a specified limit from a selected account to another account.
- Function allowance (): Used to provide the limit on the funds to use in approve() function.

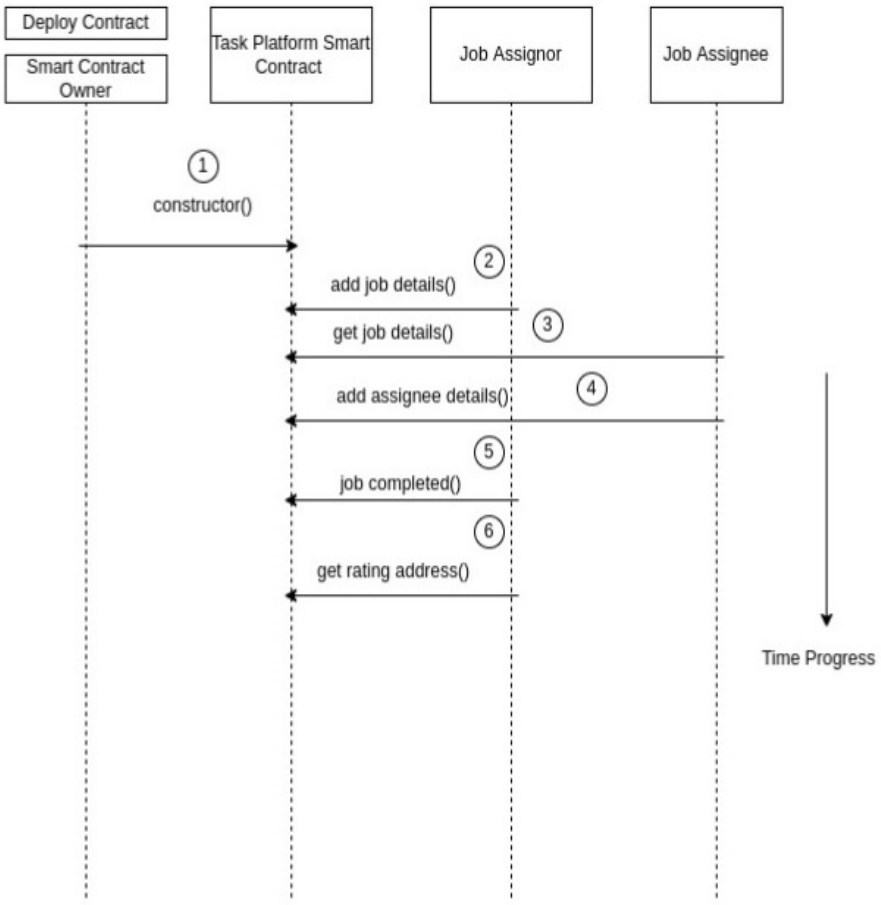
Contract 2 SmartContract.sol:

- Function job_completed(): Transfers the money(token) to the assignee from the contract after job is completed.
- Function job_not_completed(): Transfers the money(token) back to the assignor as the job is not completed.
- Function add_job_details(): Adds the job description, job ID and any instructions using IPFS.
- Function get_job_details(): Returns the details of the job.
- Function add_assignee_details(): Takes input for the ID of the assignee and the Job_ID.
- Function get_rating(): Returns the rating of the assignee after the job is completed
- Function no_jobs_completed(): Returns the total number of jobs completed by the assignee.

7 Sequence Model of project:

Flowchart and sequence diagram





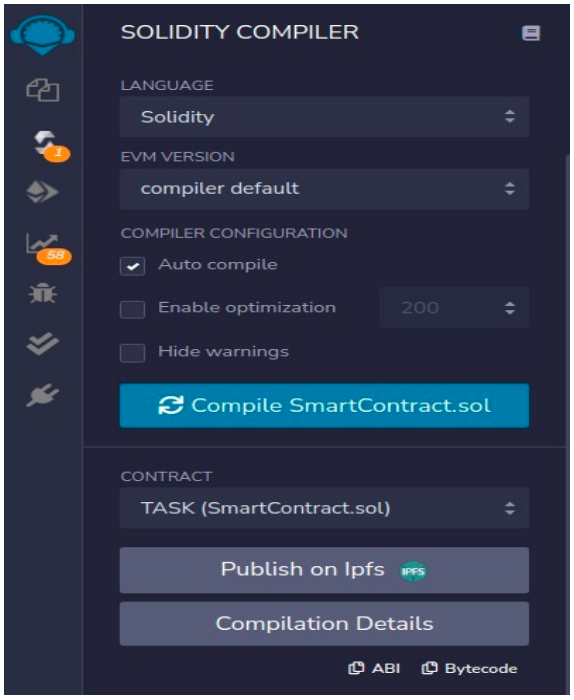
Task Platform Sequence Diagram

8 How to run the code:

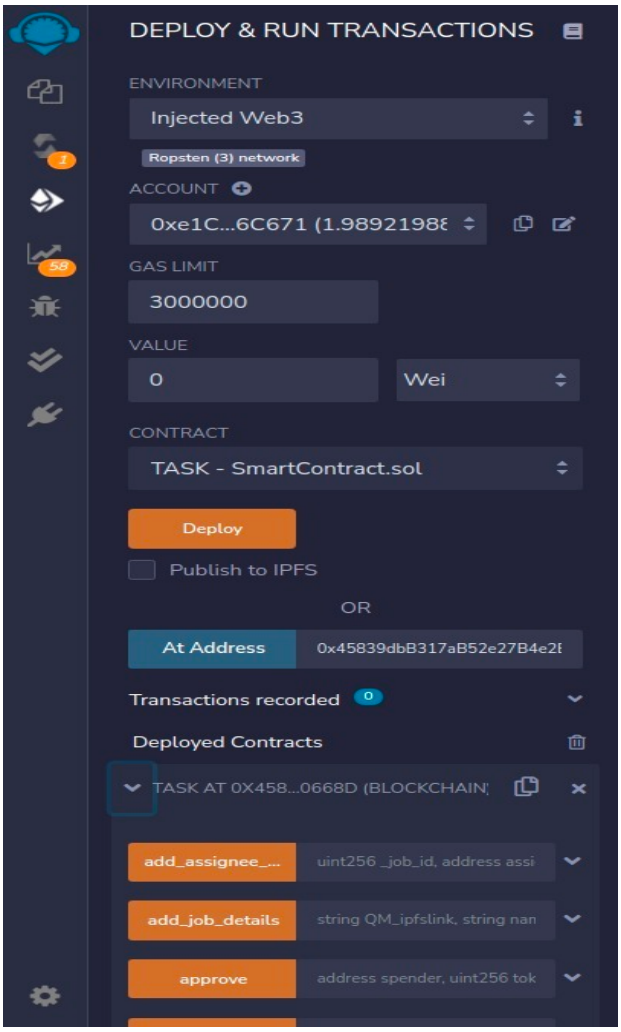
Important terms to understand before start:

- **Assignor: Person who puts the task on the platform**
- **Assignee: Person who completes the task from the platform.**
- **Job_Id: Unique ID for a job.**

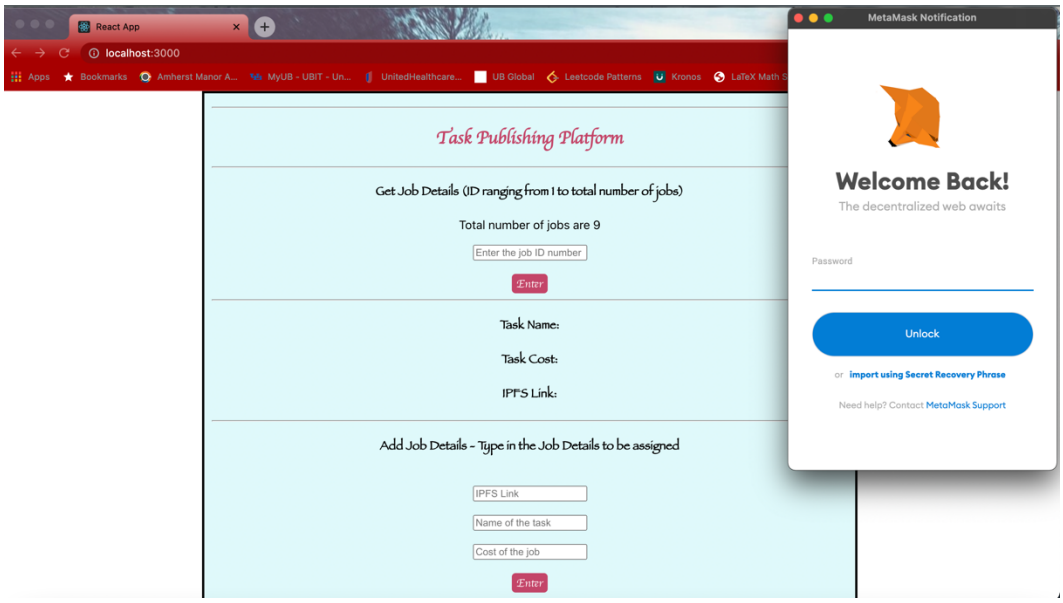
1. First, we need to connect the smart contract to React.
2. Deploy the contract on Remix.



3. Copy the ABI (application binary interface) from the Solidity compiler tab.
4. Copy the address from the deployed contract section.

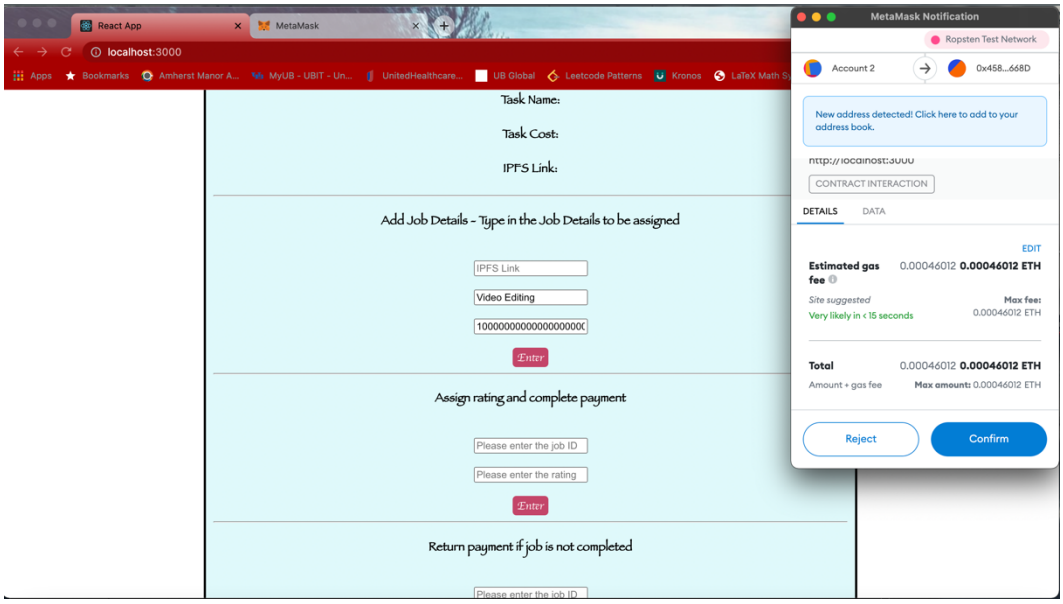


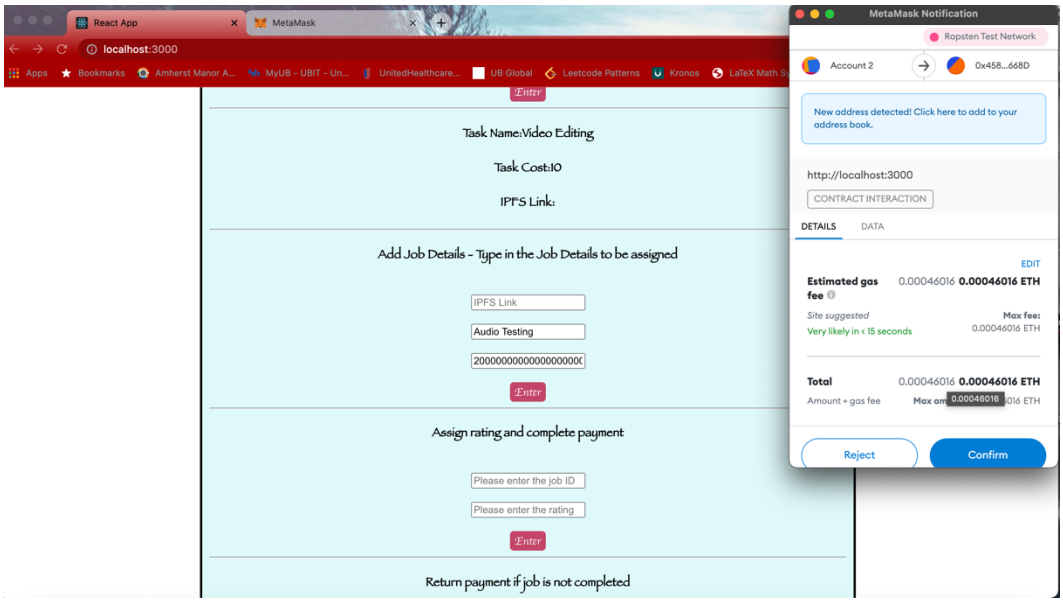
5. Paste the address in taskplatform.js as the value for const address
6. Paste the ABI as value for const ABI.
7. Use the contract address and get 1500 tokens (total supply) into the contract owners account and send some tokens into 2 other others for assignor and assignee to implement the project.
8. Start app using npm start on the terminal, and login into the metamask wallet.

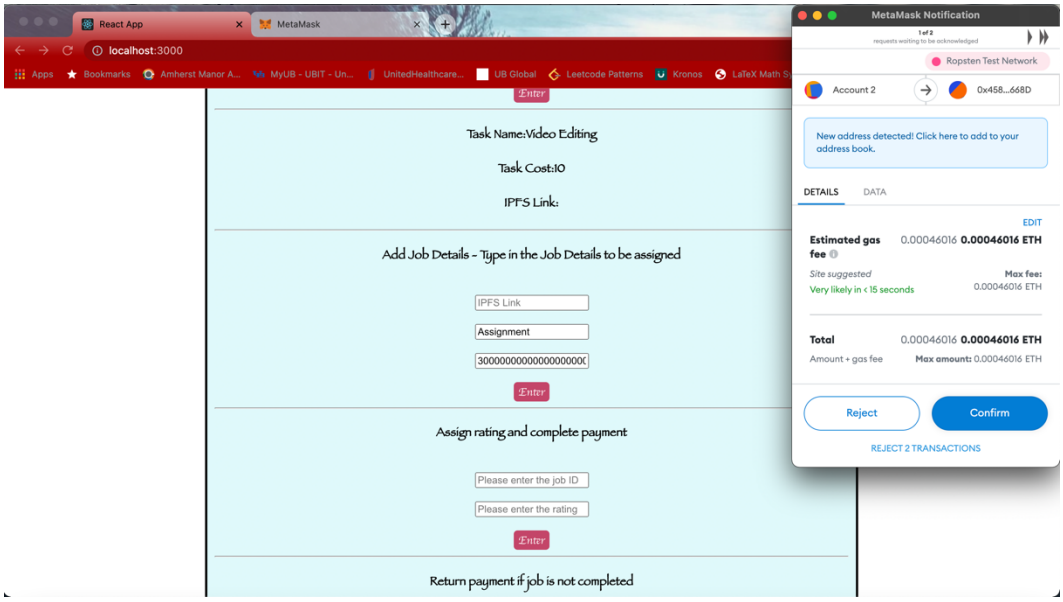


9. Go to Account of your Assignor and add the tasks and give IPFS link, task name and cost.

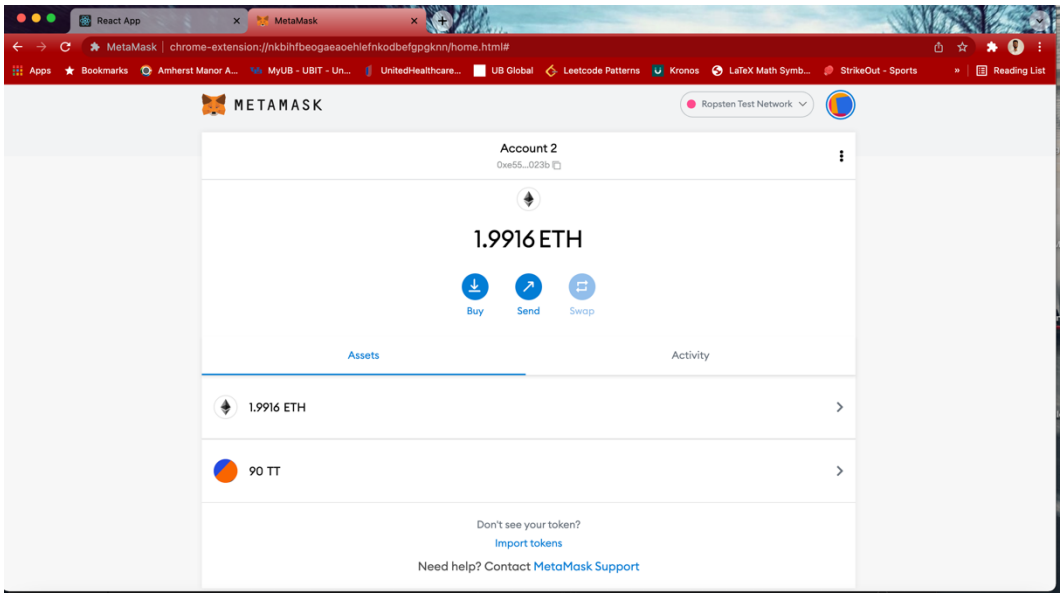
10. For our example we will be adding 3 tasks



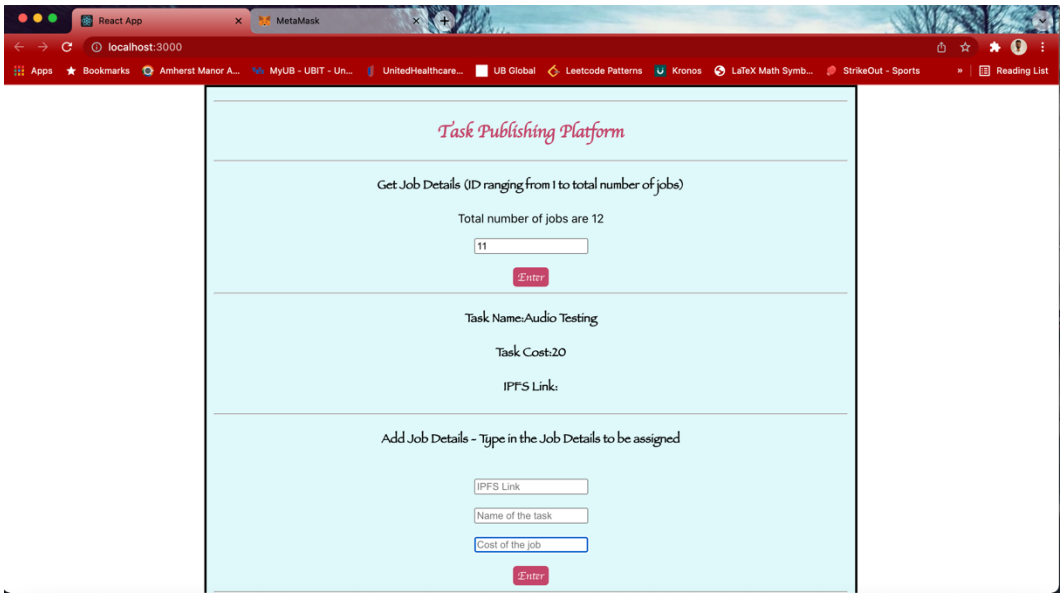




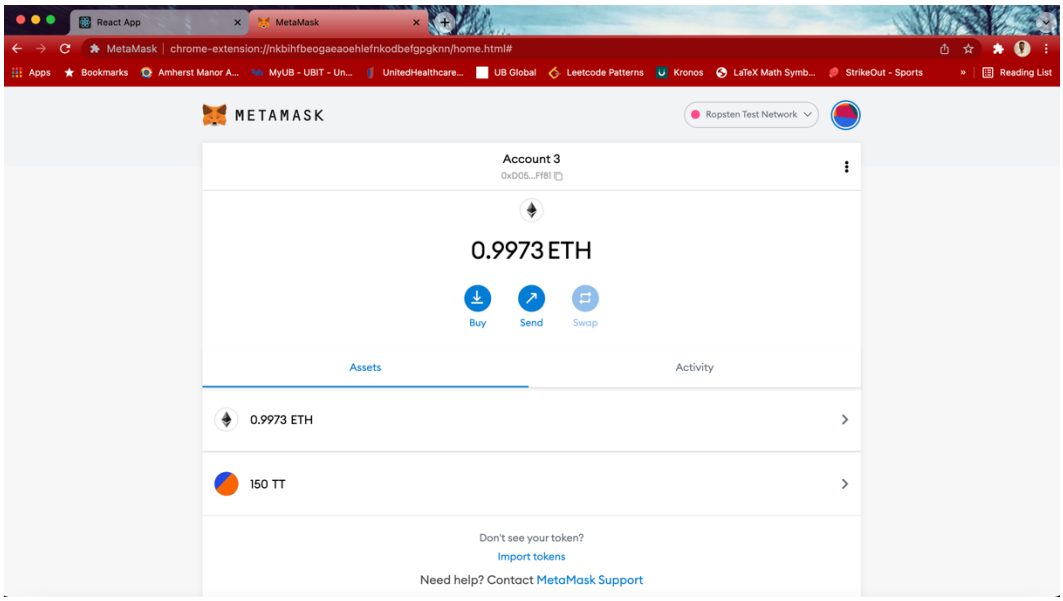
11. We can see that the balance in account 2 has reduced from 150 TT to 90 TT as we added 3 tasks for 10, 20, 30 TT each.



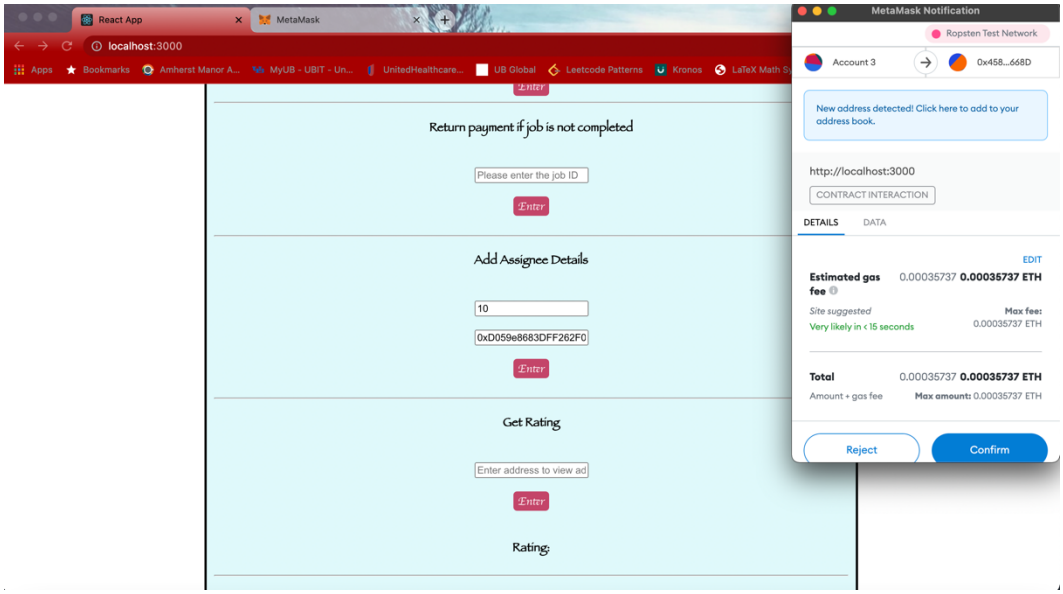
12. We can view the tasks on the website.

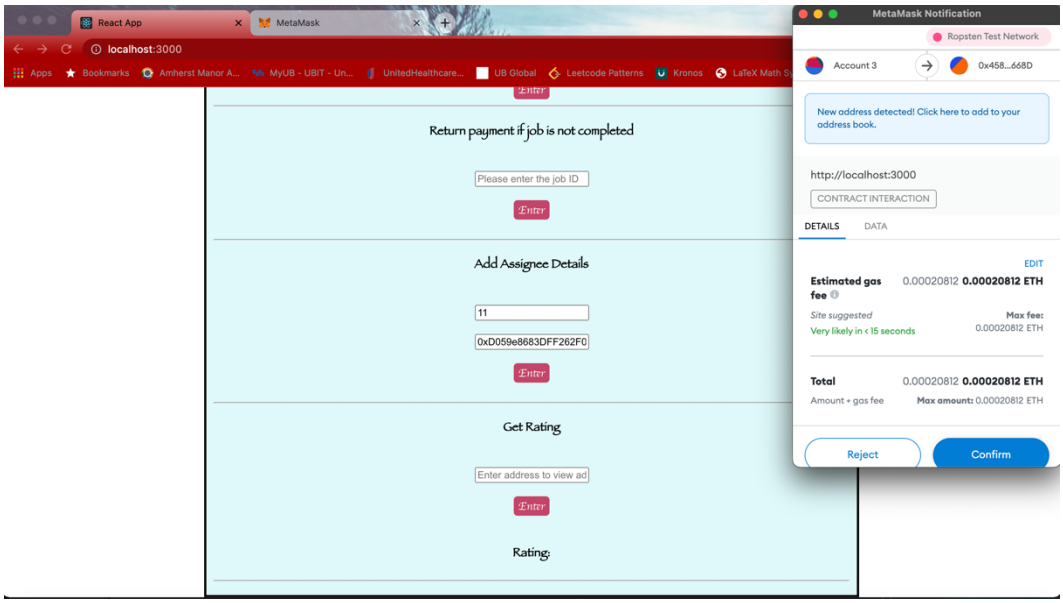


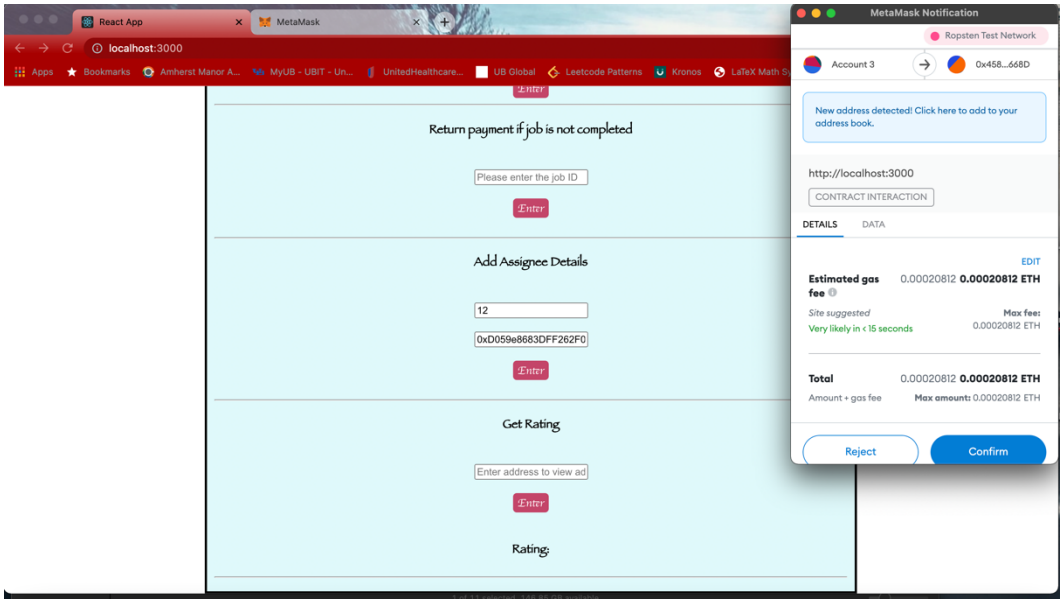
13. Go to Account 3 so we can start beginning taking tasks as a assignee.



14. Now start picking up tasks using assignee account.





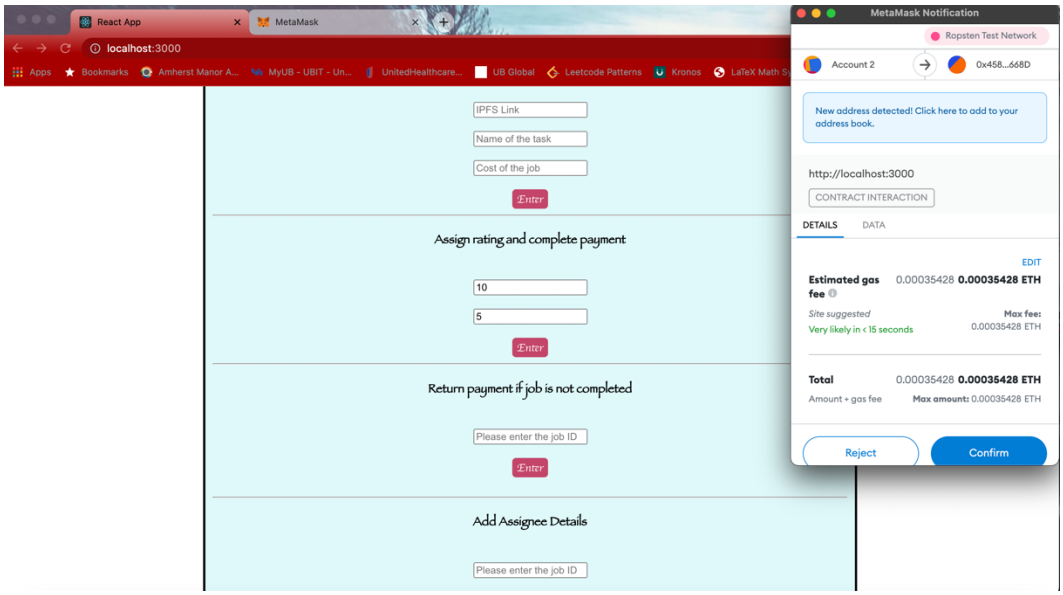


15. Now go to Account 2(Assignor account) and use job completed and give a rating.

    job_id = 10 and rating= 5

    job_id = 11 and rating= 3

    USE JOB_NOT_COMPLETED for job_id = 12


React App
MetaMask
localhost:3000
IPFS Link
Name of the task
Cost of the job
Enter
Assign rating and complete payment
10
5
Enter
Return payment if job is not completed
Please enter the job ID
Enter
Add Assignee Details
Please enter the job ID
MetaMask Notification
Ropsten Test Network
Account 2
0x458...668D
New address detected! Click here to add to your address book.
http://localhost:3000
CONTRACT INTERACTION
DETAILS
DATA
EDIT
Estimated gas fee
0.00035428 0.00035428 ETH
Site suggested
Very likely in < 15 seconds
Max fee:
0.00035428 ETH
Total
0.00035428 0.00035428 ETH
Amount + gas fee
Max amount: 0.00035428 ETH
Reject
Confirm

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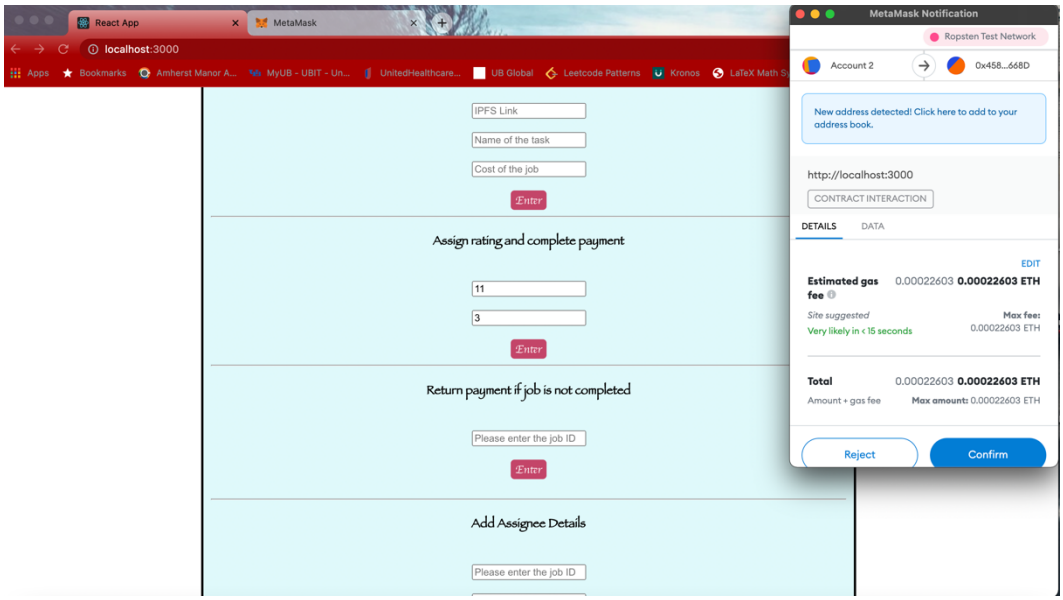
React App
MetaMask
localhost:3000
IPFS Link
Name of the task
Cost of the job
Enter
Assign rating and complete payment
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3
Enter
Return payment if job is not completed
Please enter the job ID
Enter
Add Assignee Details
Please enter the job ID
MetaMask Notification
Ropsten Test Network
Account 2
0x458...668D
New address detected! Click here to add to your address book.
http://localhost:3000
CONTRACT INTERACTION
DETAILS
DATA
EDIT
Estimated gas fee
0.00022603 0.00022603 ETH
Site suggested
Very likely in < 15 seconds
Max fee:
0.00022603 ETH
Total
0.00022603 0.00022603 ETH
Amount + gas fee
Max amount: 0.00022603 ETH
Reject
Confirm

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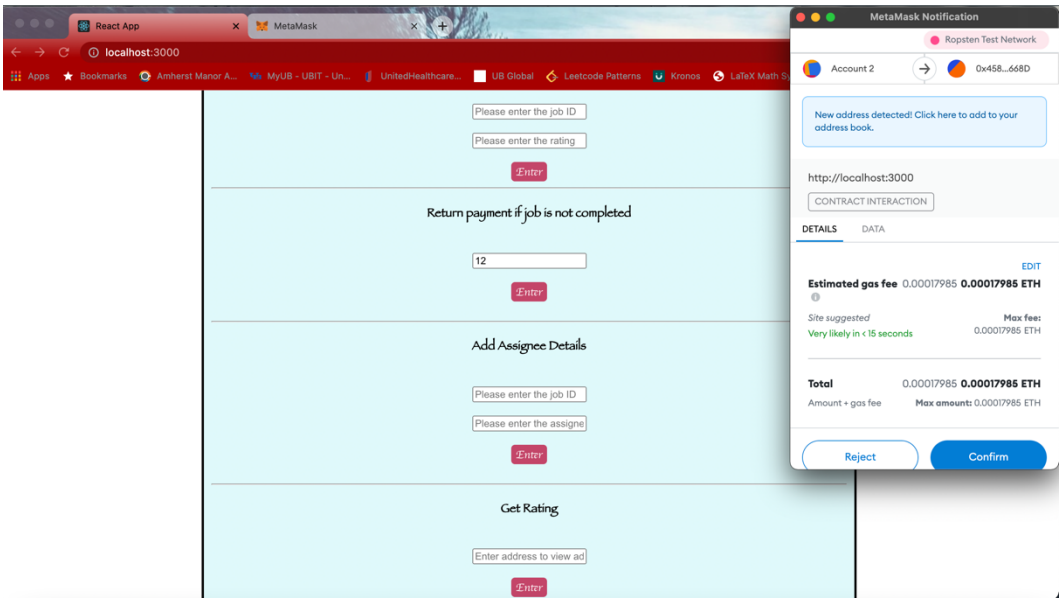
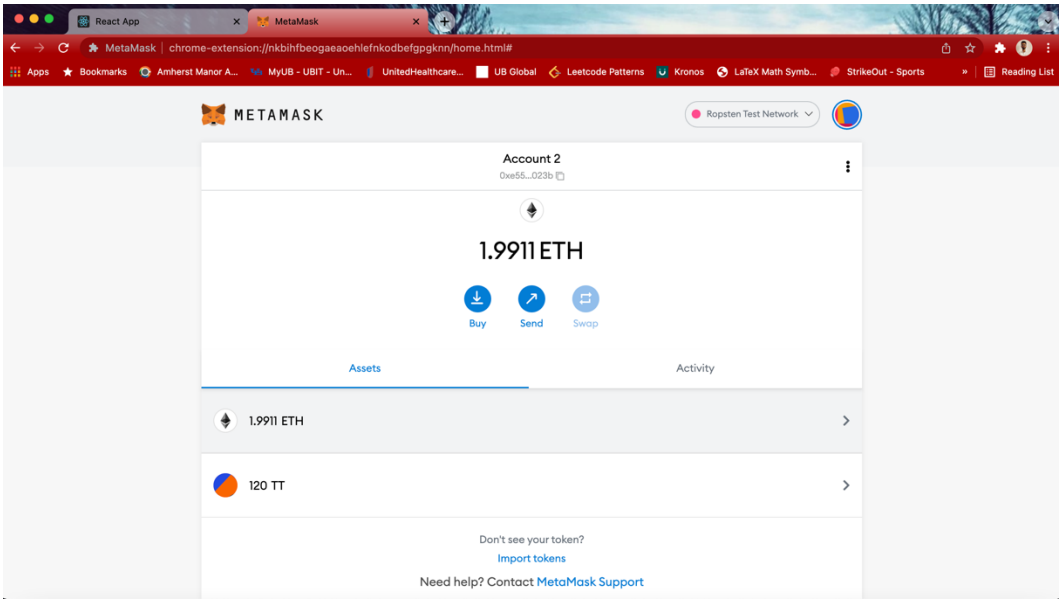
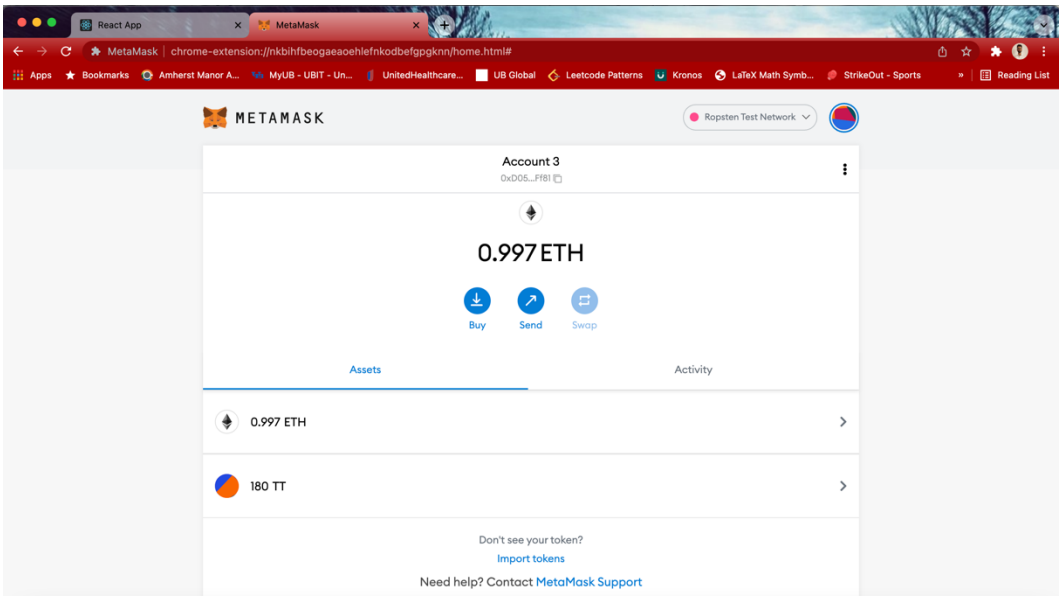
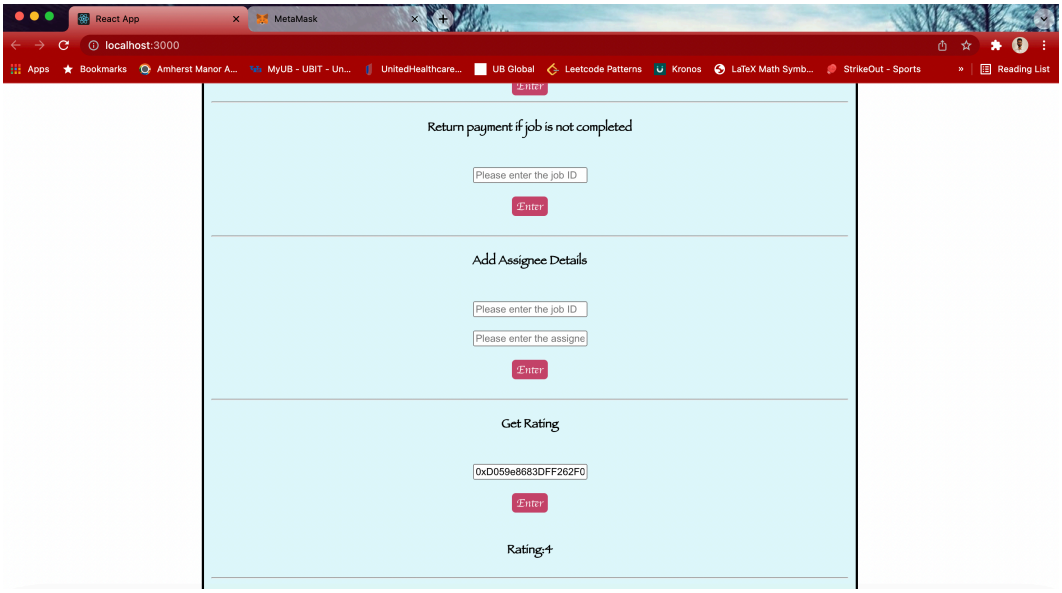


16. Now we will see that Account 2 has a balance of 120 and Account 3 has a balance of 180 as the task 10, 11 got completed which was confirmed by Account 2 and hence money was transferred from the contract to Account 3 while for task 12 money was transferred back to Account 2.

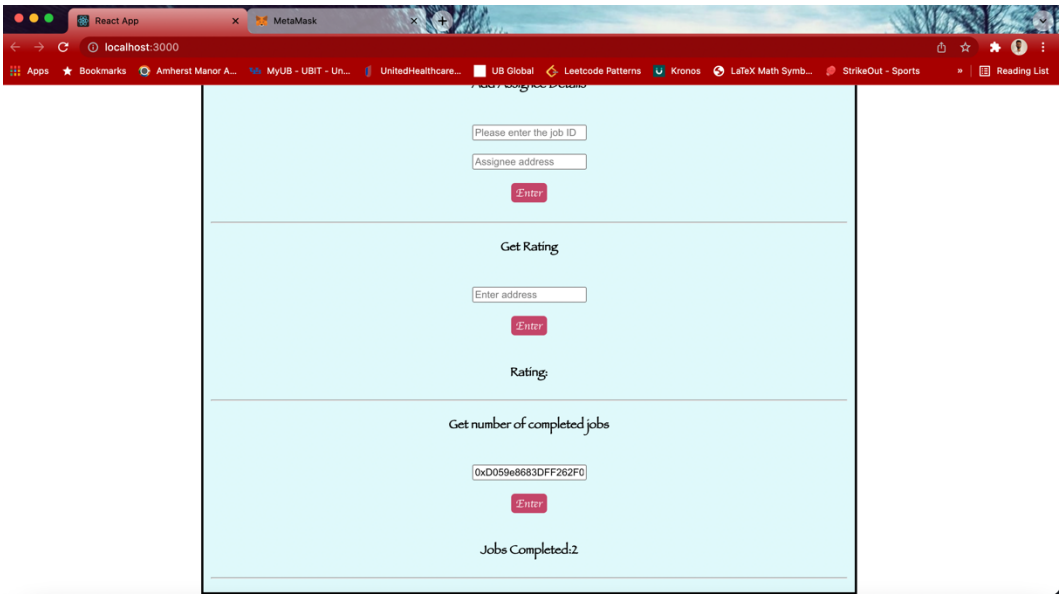




17. Now we can view the average rating of the assignee using their address.



18. Now we can view the average rating of the assignee using their address.


React App
MetaMask
localhost:3000
Apps
Bookmarks
Amherst Manor A...
MyUB - UBIT - Un...
UnitedHealthcare...
UB Global
Leetcode Patterns
Kronos
LaTeX Math Symb...
StrikeOut - Sports
Reading List
Please enter the job ID
Assignee address
Enter
Get Rating
Enter address
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Rating:
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Enter
Jobs Completed:2

19. The End