|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Author | Year | Parameters | | | | Key Contributions |
|  | | 1 | 2 | 3 | 4 |  |
| Angraal et al. | 2017 | N | Y | Y | Y | The security of blockchain transactions and scalability for decentralised systems is challenging to achieve. |
| Crosby et al. | 2015 | N | Y | Y | Y | For a decentralised or partially centralised blockchain, distributed consensus will revolutionize our digital world. |
| Garry Gabison | 2020 | Y | Y | N | Y | Data transfer utilising secure blockchain (bitcoin's blockchain) in a peer-to-peer format at a low cost. |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Parameters

1. Node latency
2. Blockchain Scalability
3. Transaction and Consensus
4. Centralisation

-- Data dictionary:

Hidden data details

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Fieldname | Field type | Field size | Constraint | Description |
| 1 | User\_id | Int | 10 | Primary key,  Auto Increment |  |
| 2 | Contact\_no | Long Int | 10 | Not Null |  |
| 3 | Email\_id | VARCHAR | 128 | Not Null,  Foreign Key |  |
| 4 | Password | VARCHAR | 16 | Not Null |  |
| 5 | Account\_no | VARCHAR2 | 64 | Not Null |  |
| 6 | Address | VARCHAR2 | 256 |  |  |
| 7 | Issued | Boolean | 2 | Not Null |  |
| 8 | Cast | VARCHAR | 32 |  |  |

Displayed data details

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Fieldname | Field type | Field size | Constraint | Description |
| 1 | Age | Int | 3 | Not Null |  |
| 2 | Gender | VARCHAR | 16 | Not Null |  |
| 3 | Cast | VARCHAR | 32 | Not Null |  |
| 4 | Marks | Int | 4 | Not Null |  |
| 5 | Time | Timestamp | 8 | Not Null |  |
| 6 | IFSC code | Long Long Int | 128 | Not Null,  Unique |  |

Functionality Testing of Blockchain.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case\_id | Test Name | Input | Output | Test result |
| 1 | Home page | - Check User able see home page by run the app on click. (<http://127.0.0.1:5000/>)  - Check whether user can able to see the buttons on the navigator and it is clickable or not at home page (block, blockchain & upload data set. | User can see  User able to see and its clickable. | Pass  Pass |
| 2 | -Upload data set  -Uploading Csv file page  -Upload | - Check User can able to click on upload data set button  - check whether user  can able to see uploading file page and check if the file can able to select or not from the drive by clicking on choose file button.  - Check User able to click the upload button. | User able to click the button.  User see the file page and also able to select the file from the drive.  User can able to click. | Pass  Pass  Pass |
| 3 | - Masking columns  - Submit Button | - Check whether user can able to see the masking columns of the data set after click on upload button and user able to select the random check box.  - Check whether the submit button is clickable or not. | User able to see all the columns and able to select the random checkbox.  Button is clickable | Pass  Pass |
| 4 | - Block page  - Hashed data | - Check whether user can able to see the masking columns and can able to see the masked columns and unmasked columns in the block or not.  Check weather user able to see the hashed data of the columns by clicking on toggle button. | User can able to see the masked unmasked columns  User able to click the toggle button and see the hashed data. | Pass  Pass |
| 5 | - Full blockchain | Check whether the user can able to see the full chain blocks with the date, timestamp, node of the block and hashed of the particular block | User can able to see the full chain of the particular blocks with its necessary details. | Pass |

Modules:

1. Transaction:- In this project the transaction function to initialize new transaction of data of our block chain. On chain transaction are those that have been validate or authenticated and lead to an update to overall block chain.

* Proof of work:- In this it will validate the blockchain by consecutive blocks with the help of proof of last block. This algorithm is to be used the confirm the transaction and creates a new blocks in the chain and compete against each other to complete the transaction on the network.
* Consensus method:- we have used this function to verify or check in proof of work that the chain has been replaced or not.

1. Administration:- In this we have developed a UI for the blockchain.

* Full chain:- In this it will show the all transaction of the chain with its timestamp, full block hashed data, date, node etc
* Last block:- In this it will mine the data with the previous block with its hash key.
* Data allowance:- In our project the data allowance is used for to check the datatypes of the row which user selected (STR, INT, Float) for respective hidden columns.
* Security:- for the security we have used SHA-256 for to create a hashed data or encrypt data of all row in the column and also we have created a particular encrypt data for the whole single block.
* Masking :- we have done masking when the user select the particular columns from the check box it will hide the data in the blocks.

3. Dataset:- In this we have create dynamic data for CSV formats so we can add any of the data set of CSV for data input into the blocks.