SHARITY

PROJECT REPORT

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BONA FIDE CERTIFICATE

Certified that this project report titled Sharity is the bona fide work of Abbinaya Arivazhagan, Niveta Ashley Anix and Surendhar Palanisamy who carried out project work under my supervision. Certified further that to the best of my knowledge and belief, the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or an award was conferred on an earlier occasion on this or any other candidate.

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PROJECT GUIDE

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ABSTRACT

The abstract shall be typed in one and a half line spacing using Font Style Times New Roman and Font Size 13.

ACKNOWLEDGEMENT

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CHAPTER 1

INTRODUCTION

Sharity is all about creating a portal for connecting charitable donors and beneficiaries for direct transfer of funds, while eliminating middlemen and possibility of fraud.

We took this initiative, to create Sharity, to aid in the sustainable development **goal 3 : Good Health and Well being.** Good health is essential for sustainable development.

With Sharity we can bring awareness of poor people in need of funds and donors can donate to them in time for their timely treatment and medicines.

FACTS:

- At least 400 million people have no basic healthcare.

- Every 2 seconds someone aged 30 to 70 years dies from noncommunicable diseases - cardiovascular disease, chronic respiratory disease, diabetes or cancer.

- 21.7 million people living with HIV were receiving antiretroviral therapy. Yet more than 15 million people are still waiting for treatment.

Such cases arise due to many reasons; One of them being that these people are very poor and aren't in a financial position to get treatment or a basic checkup.

CHAPTER 2

LITERATURE SURVEY/RELATED WORK

2.0.1   Citation of Websites

We have followed many websites to get the knowledge of the tools we have used Django, block chain and using multiple db for storing data, User authentication, cookies management, URL routing, Object relational mapping, hashing algorithm in block chain and validation.

2.0.2   Citation of Media

We have created an algorithm trigger based on certain conditions to order posts and to supervise the block chain to run synchronously.

2.0.3   Citation of Articles

The referenced articles available online helped us learn how to build customized algorithms for our project.

2.1   LIMITATIONS

2.1.1   Gofundme

It is a similar application but it doesn't let the donors know whether the donation amount was fully received by the receiver and no way to upload necessary verification documents.

2.1.2 Common limitations

Online fund raising has the potential to save non-profit groups in the long run. Few charities are looking out for real cost savings yet, because online transactions still produce only a tiny share of gifts for most charities, the vast majority of non-profit groups are continuing to use online solicitations as a supplement, but not as a replacement.

Few charities are doing enough to bring people to their Web sites - or are providing compelling enough information to persuade visitors to give money and to do so repeatedly.

Non-profits are going to have the recurring costs of getting traffic to its site, whether you are talking about managing promotions with companies, buying or getting banner ads on other Internet sites, or getting print and TV ads.

The costs might all be worthwhile if charities start to see an increased share of their gifts coming from the Internet. But so far, even groups that have been the most successful say their online gifts are still only a small percentage of overall gifts.

- It's hard to get noticed among all the other web sites.

- There is a possibility of failure due to unfamiliar technical breakdowns.

- Must know the legal complexities associated with some aspects of online fundraising.

2.1.3   Online Transactions

Payment gateways and third-party payment processors charge service fees. Cyber criminals can disable online payment methods or exploit them to steal people's money or information. Online payment methods can go down due to technical problems.

2.2   OVERCOMING LIMITATIONS

- Implemented Block chain mechanism to store and verify the transactions made in the platform.

- Customized an algorithm for the priority of the posts and displaying it in a prioritized order.

- A feedback mechanism is included where the transactions made by the users is displayed on the profile of the beneficiary. The total amount donated and the account balance of the receiver will be displayed.

- After every transaction the server checks the longest chain in the block chain and takes the transaction data and converts it into the block and appends it. Before every transaction the chain is checked for its authenticity.

CHAPTER 3

DESIGN OF YOUR WORK

3.1 ARCHITECTURE
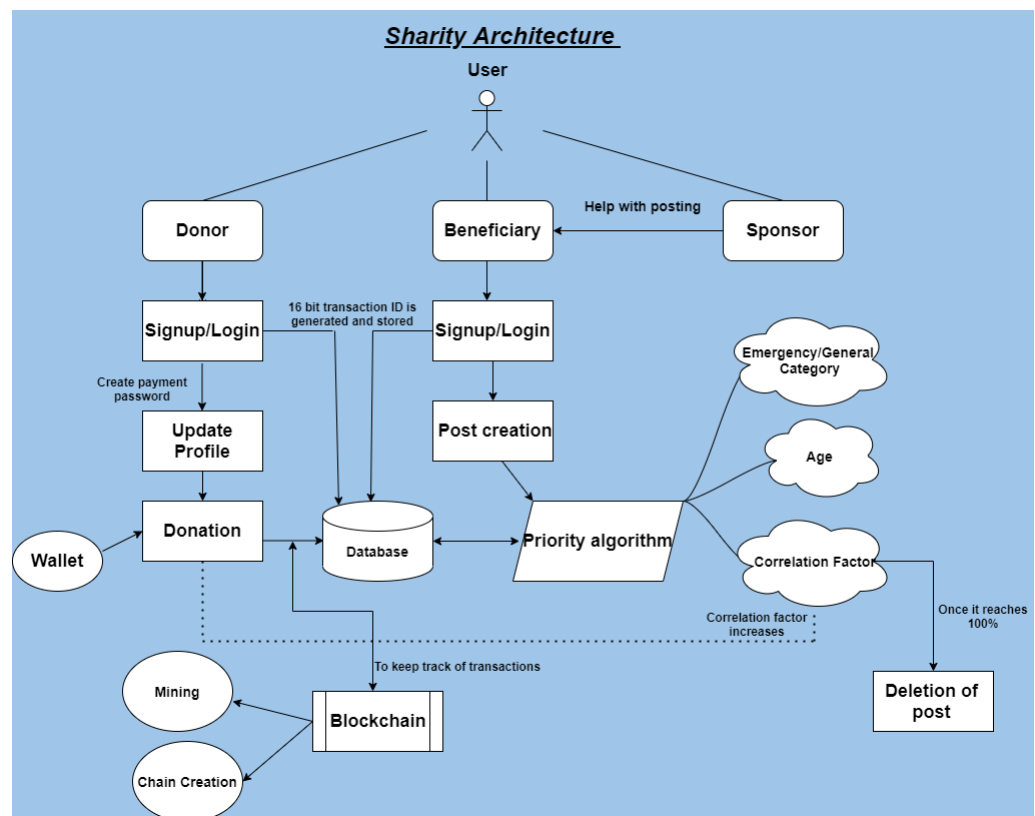
There are 6 modules in total in this project.

3.2 USER MODULE

The user module consists of 3 main roles:

- Donor - Charitably donates to the beneficiaries

- Beneficiaries - Puts forth their needs for funds

- Sponsor - Puts forth the need instead of the beneficiary in order to collect funds for really poor people

3.3   PROFILE CREATION MODULE

- Creating a profile to get to know more about the user. The details gets stored in the database.

- Each user is assigned a unique payment ID when he/her creates a profile. It is used for identifying the user when a transaction is made.

- Before making a payment, the donor needs to update the profile to set a payment password.

3.4   POST CREATION MODULE

- Beneficiary/sponsor has to fill a form with the needs and condition of the beneficiary in order to put forth the need.

- A beneficiary is categorized into emergency or general if he attaches proof of some kind; for example a hospital bill.

3.5   PRIORITIZATION ALGORITHM

- The profiles of the receivers are listed in order of priority.

3.6   PAYMENT MODULE

- Once the donor clicks the post he will be redirected to page with a form and user data The user data displayed will be wallet id's of both donor and receiver and their usernames

- The donor has to fill a form in order to donate to the beneficiary. There are 2 fields in this module. Namely, amount to be donated and payment password field (which the donor created when he updated his profile).

- The donor can pay from his wallet and donate into the beneficiaries wallet.

- Once the payment is made the page is redirected to the profile page of the beneficiary where the donor's payment ID and the amount donated will be displayed.

3.7   BLOCK CHAIN MODULE

- Once a donor makes a payment an object consisting of transaction data is generated

- The transaction data is used by the blockchain algoritm to generated a 64 character string using an algorithm called Secure hashing 256 (SHA 256)

- After generating the hash value the hash needs to be appended to as block header with payment object in the exsisting chain

- The generated hash is then checked for its validity whether it is generated based on the conditions set for the miner

- If the hash value is not the desired result the nonce value is incremented and the process repeats until the conditions set for a block satisfies

- After mining a valid block the algorithm request for the exsisting chains in the network and its length

- If the chain used by algorithm is shorter than the chain from the nodes the original chain is dropped and the chain from the nodes is replaced as longest chain in the network

- After determining the longest chain the chain is passed an argument to the hash validator function

- Whenever another transaction is made the previous hash value is retrieved from and it is stored with the new hash value representing the previous block.

- The validator function takes three input previous hash from the current block , transaction data of the previous block and winning factor(nonce)

- The Block objects consist following fields

    - Sender

    - Receiver

    - Cash

    - Date time

    - Previous hash

    - Current hash

    - Payment header

    - Winning factor(nonce)

- The validator recalculates the hash for all the nodes present in the blockchain

- After every data is proven geniune the payment made by the user is added as a new block

- After the block is added in the longest chain now the longest chains altered value is added to the node's chain
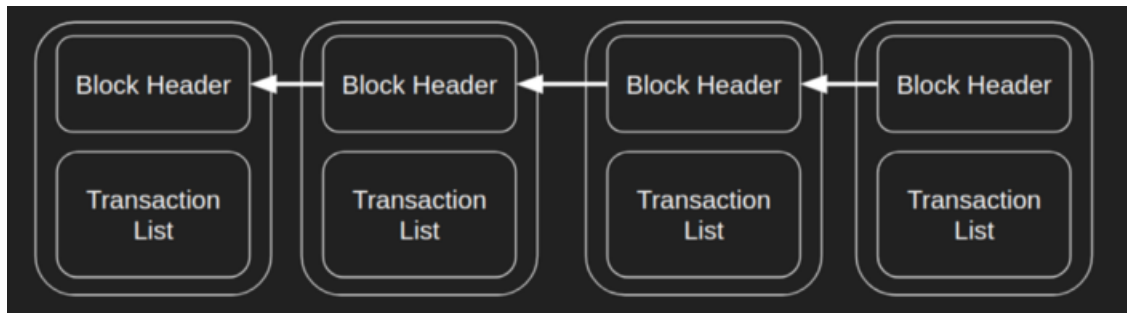
CHAPTER 4

IMPLEMENTATION OF YOUR WORK

4.1   IMPLEMENTATION

In our web application, the beneficiaries have to sign up and create a profile to put forth their conditions and request for a donation. The beneficiaries are to fill a form with the required details to create the request. The beneficiary details get stored in a database.

When the beneficiary is creating a post he/she can upload any kind of proof to come under the emergency category.

The profiles of the receivers are listed in order of priority, which will be calculated based on a customised algorithm that will be explained in detail in the next section.

Each account has a wallet which has a unique 16 character payment id and every transaction is mapped to this unique id. When a donor donates an amount, his unique payment id and the amount he donated is displayed in the profile of the beneficiary.

4.2 ALGORITHM

```
factor = data.cashreceived/int(data.cashrequired)*100
final = (100-data.age)*0.4+data.category*0.35*100+factor*0.25
myformatter = "0:.2f"
Final = myformatter.format(final)
data.sortfactor = Final
```

Overall to prioritise the posts we are using three factors:

1) Age:

The DOB of the beneficiary is taken from his profile in order to calculate his/her age. So the posts get prioritised in such a way that people with a lower age get prioritised first.

2) Category:

Beneficiaries who attach any kind of hospital bill proof comes under the emergency category and others come under the general category. The Emergency category will take value 1 and the General category will take 0. These values will later be used in the prioritisation algorithm.

3) Percentage factor:

Percentage factor is calculated as: Amount received/Amount required*100 Higher this factor higher it is prioritised.
Based on all these 3 factors a final value is calculated for which

- age is given 40 percentage importance,

- category is given 35 percentage importance and

- percentage factor is given 25 percentage importance.

CHAPTER 5

RESULTS AND PERFORMANCE ANALYSIS

- We have created a reliable application to connect donors and receivers of money.

- We make sure that the full amount of the donation is received by the receiver.

- We have made it possible for the donors to donate funds without revealing their identity.

- Receivers with urgent need of money will be prioritised first.

- Thereby as a result of creating our app the receivers are not forced to apply for a bank loan and they don't have to suffer to pay the money back to the bank.

- The probability of applying for a bank loan is reduced.

CHAPTER 6

CONCLUSION AND FUTURE WORK

6.1   CONCLUSION

In our project we have taken the good things from existing solution and added our work to make the solutions better. The donor can easily find and donate to the receiver based on an intuitive way .Payments records are kept safe and the identity of the users will remain anonymous.

6.2   FUTURE WORK

We have plans to extend the project to include new features such as:

- Identifying the usage of same documents for different cases,

- Image recognition to allow only one identity card to have one donor/receiver account,

- Adding multiple parameters to the algorithm to categorize requests in an effective way and

- Further decentralization of the data by adding new nodes and hosting them.

APPENDIX A

SHARITY

A.1 DJANGO

Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design.

A.2 SQLLITE3

SQLite is a C-language library that implements a small, fast, self-contained, high-reliability, full-featured, SQL database engine

A.3 PRIORITY ALGORITHM

Used to sort and display the posts to the users based on certain variables

A.4 SECURE HASH ALGORITHM

Secure Hash Algorithms, also known as SHA, are a family of crypto graphic functions designed to keep data secured

A.5 DJANGO TEMPLATE ENGINE

A Django template is a text document marked-up using the template language which are recognized and interpreted by the template engine

A.6   OBJECT RELATIONAL MAPPING

It is a programming technique for converting data between relational databases and object oriented programming languages

A.7   BLOCKCHAIN MINING AND VALIDATION ALGORITHM

Blockchain mining is used to secure and verify crypto transactions.Chain validation takes place before mining

REFERENCES

[1] User authentication . `https://docs.djangoproject.com/en/3.2/topics/auth/`.

[2] HTML and CSS . `https://www.w3schools.com/html/`.

[3] Snake coins blockchain. `https://medium.com/crypto-currently/lets-build-the-tiniest-blockchain-e70965a248b`.

[4] Making custom blockchain bigger. `https://medium.com/crypto-currently/lets-make-the-tiniest-blockchain-bigger-ac360a328f4d`

[5] Password reset . `https://www.youtube.com/watch?v=-tyBEsHSv7w`.

[6] Using multiple databases . `https://www.youtube.com/watch?v=g-FCzzzjBWo`.

[7] Object relational mapping. `https://www.youtube.com/watch?v=WimXjp0ryOo`.

[8] Blockchain visual demo. `https://www.youtube.com/watch?v=_160oMzblY8`.

[9] Blockchain validation and hashing usage. `https://www.youtube.com/watch?v=xIDL_akeras`.

[10] Basic Definitions . `https://en.wikipedia.org/`.