AAD FINAL DRAFT
(Team AK)

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Final Goal

We wish to design a web app that incorporates our custom blockchain ecosystem.

Intermediate Goal

Implement and do a mathematical analysis (where required) of all the algorithms we might need to incorporate for a subtask. We will document these analyses in LaTeX.

The background behind the idea

It is common to have many transactions among a friend circle, which involves money that another guy pays for his friends. These debts/credits accumulate over time and are sometimes difficult to track. We wish to tackle this problem for a small group of people and scale it for bigger groups as we progress. We came across blockchain technology, which fits the needs of our project.

Subtasks

Since this ecosystem will be implemented as a Flask/Django web app, there are many subtasks which we will be required to tackle.

Basic implementations

- Design the looks of our website.
- Implement this design in code (which will include JS, CSS, and likewise).
- Design a basic database model for our mini-world.
- Integrate this model in the flask/Django framework.
- Create a secure login/signup portal with an implemented back-end.
  - the password will be stored in our DB as hash, which will be implemented by us.
  - we will provide a detailed analysis of this part for why this will be secure.

Improvisation of Further Subtasks

Create a blockchain ecosystem which includes:

- Creating a ledger that keeps track of all the transactions.
- Creating a node when a transaction initiates.
- Keeping checks on the transactions authenticity by incorporating digital signatures. (analysis for this will be documented)

All this will be scalable

Future Goals*

Simulation of the ecosystem with bots:

- Verify if the ecosystem is secure. (create bots and try out pseudo-random algorithms to break the ecosystem)
- Study other analysis methods and algorithms relating to the created ecosystem.
- Provide post-analysis.

Each step of the process will be well documented. Besides documenting this in PDF, we will keep our project on GitHub well updated with regular commits.
(* - We will pursue these goals only if time permits)