Mini Project: BitCoin

Mini Project

To develop an "Bitcoin" application using Python.

1. Each group consists of 5 students
2. Each group submits a 1-page proposal in Week 9 (tentative)
3. Each group submits presentation file 1 day before your presentation.
4. Each group to demo (online or video) and Q&A at week 12 – 13 based on your arranged time schedule. Time limit for each group is 15 min
5. Each group to submit at report and your source program at the end of Week 13
6. Requirements: Compulsory features (passing marks) and optional features (additional marks)
7. Marks based on:
    1. Features implemented plus GUI
    2. Code complexity; and
    3. The quality of the written report

Compulsory Features

Criteria
-      Able to generate a new wallet
-      Able to perform transactions
-      Able to generate coins reward
-      Able to generate new blocks using proof-of work consensus protocol
-      Able to broadcast new blocks to the rests of connected peers
-      Able to connect peers and sync the whole blockchain

Optional Features

Criteria
-     Able to reject malformed blocks
-     Able to check the balance before confirming a transaction
-     Able to give interest to coins holder
-     Able to charge transaction fee from the sender of the transaction
-     Able to demonstrate partial validation using merkle tree -   Developed a lightweight node that store block header (First criteria must be fulfilled)
-     Able to change difficulty when the hash power of the network change
-     Develop an App on any mobile platform to perform mobile payment using the cryptocurrency network

Other additional features are also accepted