1. Components of your decomposition of the BitTorrent implementation
    a. Tracker Communication
    b. Peer-to-Peer communication
    c. File system component
    d. Connection management
2. the inter-component interfaces <-- can change as you code
    a. tracker/peer to peer interface
        i. Tracker communication component sends list of peers to peer-to-peer communication component
    b. Peer to peer/file system interface
        i. As the peers communicate with each other, we need to decipher and store data, so we call functions from file system components
    c. Peer to peer/connection management interface
        i. Keeps track of peers that are choked and unchoked in order to know which peers to communicate with
        ii. Adding and removing connections between peers and our client
3. the details of what each component will do
    a. Tracker Communication
        i. Take in torrent file and decode the file
        ii. Form messages structures for requests
        iii. Sending requests to tracker
        iv. Receiving responses and processing them
        v. Handling responses based on failure, tracker, peer etc.
    b. Peer-to-Peer Communication
        i. Form messages structures

ii. Sending requests to peers
iii. Receiving responses
iv. Handling responses based on error and processing the data pieces
v. Advertise the pieces that the client currently have

c. File System Component
i. Creating proper global variable to keep track of pieces/blocks that we receive from peers
ii. Arranging pieces/blocks to build complete file
iii. responsible for decoding/encoding pieces/blocks

d. Connection Management
i. manage connections between peers
ii. keep track of all peers that we are connected to
iii. asynchronously connect client with peers
iv. choking and unchoking

4. plans for testing each component in isolation and in conjunction
a. Tracker communication
i. Handling the torrent file -> printing out the decoded read-in file to test whether we parsed it right
ii. Sending request -> we can make sure we got the messages right by comparing our request in wireshark with the transmission client and by the response sent by the tracker

b. Peer-to-Peer communication
i. Sending request -> we can make sure we got the messages right by comparing our request in wireshark with the transmission client and by the response sent by the other party

c. File system

        i. Test by designating a test text file, sending and receiving pieces of the test file to myself, and rebuilding the text file
    d. Connection management
        i. Test connection by duplicating our own client to be our “peers” and seeing if the “peers” are keeping track of its own peers correctly
5. who will do which component (component <-> group member can be a many-many mapping).
    a. Tracker Communication -> Jordan Johnson, Yuxin Chen
    b. Peer-to-Peer Communication -> Jordan Johnson, Yuxin Chen, Zhuo Cheng Xie
    c. File System -> Zhuo Cheng Xie
    d. Connection management -> Nathan Nguyen, Zhuo Cheng Xie
6. Deadline for when different parts will be coded, including what has already been coded, and what will be by Dec 5th.
    a. Tracker Communication -> done by Dec.5th
    b. Peer-to-Peer communication -> done by Dec.8th
    c. File System -> done by Dec. 5th
    d. Connection management -> done by Dec.8th