**System track**

1. Message Buffer File System (CRD for messages, replies, CR for Users/Categories, Good UI) .To be done using File system concepts (I node, FAT etc). [Do this in client -server mode]
2. Json deserializer
3. Maze Solver through Sockets (Client should send the Maze question file ,it should be solved by server ,Final path should be  sent from server to client and client should update it in the original file )
4. Take 2 Arrays of Structs of student data with Values already stored in server [ Hardcode/Load from a file on server side ]  
   One struct is to store metadata of students like name, father name, mother name ,roll number ,phone etc ,one struct is to store his subject marks [6 as of now ] both struct will be linked to each other by a common student id field .  
     
   Now you need to write a client program which sends queries [SQL Like], and your server should parse them and send the relevant data back and Client should display it.

Stretch Goal: Add support for CRUD students/marks.

1. B Trees Questions
2. Assembly to Op-Level Code generation ,Executing that oplevel code file , Link : <https://goo.gl/RjqEVA> [PPT is given in facebook group ] ,  
   C -Style program to Assembly language and executing it  [Define your own syntax ,Try to keep it simple like no multiple declarations in one line , No data types , all are ints or int arrays etc ,but you need to support statements like a=b+c , SCAN a etc ]

Support For/while loops in your C style language by generating appropriate assembly level instructions by using Labels, some statements ,IF, else and JMP statements . [Every loop in C can be converted by using above statements, Think well]

1. Learn OS Concepts like Paging , Threads ,Synchronization , Locks ,Processes , File Systems etc .   
   Implement a client side program [C-sockets] which will download a file from server [also written by you in C-sockets ] , that download should happen using multiple threads like each thread should only Download a part of the file from the server , Atleast try to work with 4 threads .
2. Now the file is not stored in server but some other clients , Make a server and client program where client will download the file from other clients . [Some thing like BitTorrent network ,P2P sharing ] .the server should only act as a connection establisher ,    
   Example : There is a file of 16mb , A has First 8 mb with other half empty [0s ] , B has first half as 0s and second half correct data [ 9thmb to 16th mb ] ,C and D has no data at all . Now when you start A,B,C,D . they should interact with server just to know which client has what data [ or maybe think of a better way ] , and share data amongst themselves .Finally each A,B,C,D should have full 16mb files of correct data .
3. Networking through Files  . Link <https://goo.gl/8klF8l>
4. Problem solving questions by Hari Sir
5. Complete the 36 hour project given to you.

Link : <https://goo.gl/18WkdM>  .   
Either stick with a console based UI or Browser based UI ,Anything is fine . If you want to do Browser based one , Try to do using apache and CGI scripts ,Each CGI will be a client program which will in turn talk to a server c program . Talk to Vineeth guna if you are doing this approach .