Softablitz

B.Tech 2nd , 3rd year And MCA 1st , 2nd year Problem Statements.

Directions:

- Team may contain at most 3 members.
- All branches are allowed.
- Plagiarism in any form will result in elimination.
- Any number of problems can be attempted.
- Languages allowed - C++, JAVA, Python.
- Each problem carries separate points.
- Solution with source code should be mailed to softablitz.cyberquest2k17@gmail.com.
- Deadline will be communicated later.
- Contact Coordinators for any clarifications and guidance.
- Bonus points will be awarded for extra features other than mentioned.
- Usage of external library is prohibited unless mentioned in the problem.
- Weightage of all the rounds under Softablitz will be communicated later.

Join facebook group:- https://www.facebook.com/groups/454945928214592/ (Softablitz2k17)

Cyberquest Site:- 172.31.9.68

GroupOn

Description:

A type of messaging software(or application) which provides users to interact and share important resources with each other and to form groups for a particular purpose.(inspired from [slack](#) messaging app)

Basic features (250 pts.)

- Direct messaging:(Single chat)
    a. Register/Login for each user.
    b. Profile page for each user (profile status, username , profile photo, company, contacts etc.)
    c. Upload and download a file/image from local system.
    d. Mark priority of a message.
    e. Search for users to start a conversation or view profile.

- Channel messaging:(Group chat)
    a. Support for creating a new group.
    b. Support for sending invites to other users to join a particular group.
    c. Searching groups on the app.
    d. Sending request to join the group. Creator will accept the request.
    e. Support for viewing member list in a particular group.
    f. Support all use cases of Direct messaging.

Advanced features (150 pts.)

1. Show notifications for count of unread messages/group invites.
2. Showing online users.(or showing current status for users(offline/online)
3. Spell-Check.
4. Support for emoticons.
5. Support for sharing a long post when the message-content is large.(Great for long-form content, like project plans or documentation).(Whenever user wants to post a long message a new text window will pop up and the user can write his message with basic text-formatting in that and post it).
6. Support for sharing code or text snippet. Snippet should consists of title, text-type(Plaintext,C,C++,JAVA,HTML,CSS,javascript) and code formatting accordingly.(can use RSyntaxTextArea library)
7. Messages(already read) can be seen without internet connectivity(Local Cache for storing data)

Tutor's Point

Description:

An online learning platform for the video tutorials on various courses provided by different tutors around the globe. Where tutors would create courses and upload videos and students would be able to watch them and learn.

Basic Features (300 pts.)

1. Create a student/teacher account.
2. Panel for a teacher account to manage his/her content.
3. Teacher account features:
   a. Create a course (group of videos). like CS1202 or Cryptography type
   b. Divide a course into subtopics. (Analogous to chapter in the book)
   c. Upload one or more videos into one subtopic. (Like topics in the chapter)
   d. Delete any video.
   e. Able to track statistics of each video (Likes and comments).
   f. Add/Delete the comments. (Admin must have right to delete any comment, user would have right for his comment only)
4. Student account features:
   a. Able to watch any video of any course. (Browse and watch any video)
   b. Able to like and comment on any video. (Just like youtube and facebook)
   c. Search a particular video on the basis of course name. (Simple string matching)

Advanced Features: (100 pts.)

1. Students can subscribe to a teacher. (Students would get notification when a new video is uploaded by the teacher)
2. Teacher can add tags to videos. (like add #JAVA tag to java course's video)
3. Students can search videos by tag and authors. (Search would result video with same tag as searched)
4. Student can rate a course in 5 stars. (Student would rate course in 5 stars and that would update the average course rating)
5. Sort courses based on rating. (Order search results in increasing or decreasing rating of course)
6. Student can maintain a to-watch list. (A list to remember which video is to be watched in future)
7. Maintain a list of in-progress courses. (Courses which is student has marked as still watching, so that he can easily browse those courses)

Note :- For playing videos you can use vlcj library.

IDE

You all must have used various IDEs in your desktops to compile and execute codes. It's about time for you to develop one of your own !!!

Your task is to create an IDE in which you can write, compile and run C, C++ and Java codes.

Basic Features (150 pts.)

1. Implement an editor for writing code.
2. Compile and run C, C++ and Java codes.
3. Precisely display Compile error.
4. Display Output and take input at runtime.
5. Editor should have New, Open, Save, Close functions.
6. Implement find and replace, cut, copy and paste features.
7. Multiple files should be open simultaneously in different tabs
8. Keyboard Shortcuts like ctrl+N, ctrl+O, etc.

Advanced Features (200 pts.)

1. Keyword highlight acc to language selected (Usage of external library for code highlighting only is allowed)
2. Change font size and style in editor
3. Show X, Y coordinate of cursor and compilation time in Status Bar
4. Show line number in the editor.
5. Undo/Redo
6. File listing in tree format.
7. Auto-indentation
8. Auto-complete - suggest a list of possible words when ctrl+space is entered.
9. Display a menu on right click in editor with features like copy, paste, find, run etc.
10. Show recently opened files.
11. Resizing of various panes.
12. Bonus points for impressive UI.

TypeRacer

You all might have used some online typing game to improve typing speed. So now your task is to develop a software for TypeRacer game in which a user can take a typing test and improve his/her speed and accuracy. A typing race can be either individual for practice or multiplayer for competition. Below are mentioned some basic and advanced features expected from the developed software.

Basic Features (120 pts.)

- Single Player.
- Showing Speed.
- Show typing error with red.
- Showing Accuracy.
- Show Progress.
- Show test completion time.
- Change color of typed word(correctly) to green.
- Highlight current word with yellow.
- Maintain user statistics.

Advanced Features (200 pts.)

- User Login/Guest Modes.
  - Guest mode can be offline practice mode where no statistics are generated or stored.
  - User Login mode requires user to have an account. Here user can practice, his/her ratings are updated, his stats are updated.
  - In user login mode, user can also play multiplayer with other users.
- Multiple Player.
  - A logged in user can play multiplayer with other users. They all can have a typing race !!!
- Leaderboard/Rank, accuracy, speed, time should be displayed to other users.
  - After the race is done a leaderboard will be generated which will be having above mentioned stats of each participant and rankings in order of finishing time and accuracy.
- Show your position/Progress bar.
  - While the race is going on, every user must be able to see the progress of his/her competitors.
- Show dead/alive status of players.

- Impressive UI.
- Rating of players out of 5(and its updation).
  - A player can be given rating based on multiple factor like average typing speed, accuracy etc.
  - There may also be a multiplayer rating.
- Matching of players with similar rating together to match in multiplayer.
  - This can be either one-on-one or multiple players together.
- Correction count of chars(Show which keys are wrong typed more than threshold)

Note :- You can refer to https://10fastfingers.com/typing-test/english to check how mistyping is handled.

Flash FTP

Description

- Client software that gives you a GUI interface for uploading, downloading or browsing files on a remote server using ftp.
- You can refer this- [FileZilla](#)

Basic Features (150 pts.)

- Login to remote machine via ftp.
- Directory Browsing.
- Upload/Download any file/folder from/to local drive.
- Logging of actions that are currently taking place in a separate pane.
- Supports multiple downloads/uploads simultaneously.
- Search for files or folders using filters.

Advanced Features (150 pts.)

- Handle multiple sessions to different remote machines.
- Supports pause/resume while downloading.
- Speed limit on download.
- Transfer queue (store somewhere current uploads/downloads in a queue, so after software restarts all uploads/downloads get resumed from there)
- Drag and drop from remote to local and vice-versa.
- Adding Bookmarks. (Any file or folder that is frequently accessed by user or he/she wants to access it later on. It just creates a shortcut for that file/folder)

Note:- Use Apache Commons Net library to avoid system calls manually and ease of work.

Ludo Game

Description:

A game-clone similar to standard [Ludo](#) game.

Basic Features (150 pts.)

1. Support for setting playername for each player before starting game.
2. Game should be for minimum of 2 players on same computer.(Maximum 4 players can play game together.)
3. Player having chance to roll die should be highlighted.
4. Result of die should be completely random.
5. Game should follow the standard rules.
6. Winner of the game should be displayed after game completion.

Advanced Features (150 pts.)

1. Support for multiplayer over lan connection.
2. Impressive User Interface.
3. Support for sound(Be creative to add sound at special moments).
4. Use animation in game.
5. Support for displaying move logs.

Psych-phrase game

Game Explanation:

This is a multiplayer game (>=2 players mandatory). In the game on each turn a question is displayed to which all the players are expected to answer. These answers given by all the players should be wrong, enticing and like a bait for other players. Now, the answers given by all the players (baits) + correct answer (already set) will be the options for this question. After setting options the for the question same players will be playing the game. The objective is to select the correct answer and avoid falling in other players' traps (wrong answers) and trap other players in your option.
You can refer this [Psych! Outwit Your Friends](#).

Points for-
- Choosing correct answer
- Trapping others

Basic Features (200 pts.)

- Implement the above mentioned game
- Ability to host and join game
- Score after each turn
- Logging
  - After each question (who got trapped in whose answer and for correct answer etc)
  - Message or colour change on wrong answer
- Leaderboard after each game

Advanced Features (70 pts.)

- Group Chat.
- Show progress of each player (e.g. by bars)
- Check for alive(online) players, as players can leave in between

Digital Diary

Description

- Simple application that allows to write your thoughts during the day.

Basic Features (80 pts.)

- Show current date and time.
- Add, delete, edit or search any note for a particular date.
- Notepad features like (find/replace/undo/redo).
- Mark any note as important or favourite.

Advanced Features (150 pts.)

- Protect notes so that nobody else can read them (password on application).
- Formatting options (change type, color or size of text).
- Calendar to get notes by date.
- Adding special days or holidays in calendar.
- Add images to a note.
- Pretty UI (Background, Themes).
- Reminder to add everyday note.
- Spell Checker.
- Create backup file for all the notes.