

WEBSTER PROBLEM **STATEMENTS**

CyberQuest, Avishkar 2020, MNNIT Allahabad

Avengers Assemble!



Rules and Suggestions:

- ✓ You can use any language of your choice; you are not bounded to use PHP only.
- ✓ Use of CMS (like Joomla, WordPress, etc.) is not allowed.
- ✓ Use of GitHub is also encouraged.
- ✓ Use of templates is not allowed.
- ✓ Use of plugins is encouraged.
- ✓ Please try to use APIs as much as possible.
- ✓ You can make the project in teams (of max 3 members), no branch restriction.
- ✓ Partial projects will also be considered for evaluation, but please try to complete the project as much as possible.
- ✓ Team members can be from the different year.
- ✓ The judging criteria will be:
 - Maximum focus on backend design
 - Code organization
 - Database organization
 - Scalability of the project
 - Mobile Browser Compatibility
 - Documentation (proper comments)
- ✓ Simplicity and elegance are encouraged for the front-end design.
- ✓ The use of libraries such as Bootstrap and jQuery are encouraged.
- ✓ If the project work is found to be plagiarized, then it would lead to immediate disqualification.
- ✓ These features are just to guide you regarding building final product. You can add your own features and change existing ones as well.
- ✓ Creativity will be awarded more. 😊

College Event Website- Easy

The Avengers need some quality time before they can go on to fight with Thanos. They want to party!!!! 😊 but they need gather other people as well to really get in the mood. You being a kind person want to help them. So, you are planning to create a website to gather some college peeps for the party.

Basic:

1. User and Admin login/signup.
2. A timer clock for amount of time left before event start
3. Request to become Campus Ambassador.
4. Campus Ambassadors can see his/her college users.
5. Campus Ambassadors can send to invite his/her college users (one user to one campus ambassador).
6. Admin can make user Campus Ambassador.
7. Users will have to pay fees to attend the event. (Don't Add real payments).
8. Users can send queries to admin.

Advanced:

1. Google/ Facebook Login.
2. Verify e-mail and phone number
3. Give updates to attendees via portal and Email.



Find Me an Answer – Easy

It's been long since Thanos perished half of the life, but Tony and Bruce aren't able to make the time machine, there are many unanswered questions. They want you to build a platform where they can post questions and make time machine sooner!

Basic Features:

1. Separate login/signup for tutors and students
2. Students should be able upload any question with proper formatting, subject name along with necessary attachments.
3. Each question should be answered within 24 hours, after which it should expire.
4. Each question should be assigned to only one tutor at a time.
5. Comments for questions and answer.

Advanced Features:

1. Student should be able to give rating to answers.
2. Each question uploaded on the website should move around the available tutors (tutors who are online and are not answering any question currently).
3. Send an email to student if any of their questions get answered or someone comments on their question.



Calendar – Easy

Thor after losing hope has lost his health, so now to regain his strength he needs a calendar to maintain daily routine. So, he approached you to create a calendar with following requirements:

Basic:

1. Login / Signup.
2. Forget password.
3. Notifying users via Gmail for events.
4. Time table creation event creation to-do list.
5. Every night evaluation of days tasks and to-dos.

Advanced:

1. Login with Gmail/Facebook/GitHub
2. Send desktop notification if its open/ push notification any other notifications
3. Weekly evaluation of events attended
4. Shared tasks
5. Teams events and schedules
6. Parental controls.



Virtual Stock Market - Medium

The STARK Foundation is getting low on funds for the new projects of Tony (he wants to make a GOLD MAN now 😊). They have decided to raise funds by investing in the ever-famous Stock Market of India – BSE (Bombay Stock Exchange). Help them earn some money by first learning the trading secrets on a Virtual Stock Market.

Basic features:

1. Login/Signup
2. Credit and manage virtual funds (Every person is given some sign up amount)
3. Add different stocks to favorites, to track them in real time (use an API)
4. View current price variation on a graph
5. Ability to change the scale of graph to certain interval. (1 day, 1 hour, 1 min)
6. Virtual buying and selling (using virtual funds)
7. Portfolio section to view current holdings
8. Ability to calculate profit and loss on transactions
9. Generate daily report of current portfolio

Advanced features:

1. Change graph plotting style. (Candle Sticks, Bars, Line etc.)
2. Pan, zoom and drag the graph along time axis
3. Price alert - create desktop notifications when price of a certain stock reaches a set amount
4. Create different view sections for graph, portfolio and favorite stocks on the same page.
5. Referral scheme to earn virtual funds for more trading
6. Maintain a ledger of all transactions



Collaborative Whiteboard Application – Medium

After Discovering Time Travel, Iron Man has also discovered secret of magical Pencil of Sanju (Shaka Laka Boom Boom). Now he is offering Avengers the formula to draw online and build things.

Create a platform so that Avengers can collab together.

Basic features:

1. Login/ Signup for users.
2. Create new whiteboards and save the current whiteboard.
3. Feature of pens and erasers of different colors and different sizes.
4. Ability to view and edit the saved boards.
5. Ability to share your current board using links or adding username to the list.
6. Ability for other people (different from owner of whiteboard) to edit/collaborate in real time with the owner.
7. Ability to restrict the access of board to view only.
8. Pan, zoom and drag the board in any direction (infinite drawing area)

Advanced features:

1. Ability to add, move and resize images to the board.
2. Export your current board (either the full board or the current view) to some image format (PNG or JPG)
3. Ability to add text anywhere of different color and size.
4. Ability to draw different basic shapes such as circles and rectangles.
5. Ability to see other users mouse pointer.
6. Ability to follow someone who is presenting/Drawing (the view is in sync for all users)
7. Ability to undo/redo recent operations.



StrangeFlix Streaming- Medium

As you know Dr. Strange can time travel. But he seems to forget the things he had seen in the past. Of course, he can time travel and refresh his memories but he is lazy wants and wants a one-time solution. You being his well-wisher, advises him to open up a On Demand Video Streaming service – StrangeFlix Streaming, where he can store all his memories(which are actually movies 😊)- that's why his name is Strange (I know this not Strange 😊) and also allow other Avengers to see from this service in exchange for money(he will charge The Infinity Gauntlet from Thanos, because Thanos wont be able to resist his service 😊)

Basic features:

1. An admin panel to control the admin account, the content being shared on the platform and users.
2. User Login/Signup portal with mail verification and also include Social logins like login with Facebook, google login, etc.
3. The application should enable the admin to upload videos using an array of options such as a YouTube link, Amazon S3 bucket, normal uploads, and a website link.
4. All the videos uploaded should have a category, description, tags, thumbnails etc.
5. Search videos by name, category, tags etc.
6. Play uploaded videos online and the video player should have all the features of play, pause, full screen, theatre mode, next, prev etc.
7. The application should have multiple profitable monetization channels built-in like subscription plans as well as pay-per-view.
8. Collecting payments from users with a payment gateway like Razorpay, PayPal etc.
9. If users find any video offensive or abusive, they can flag it. Admin will be notified and has the right to delete a video or delete a flag.
10. Like and comment on any video. Comments can be deleted and edited by comment maker.
11. All users can report a comment if find inappropriate. Admin can delete an inappropriate comment.

Advanced Features:

1. It should be highly scalable that is it should handle unlimited users, videos, and categories.
2. Users can add videos to their favorites list.
3. Recommend videos based on new releases as well as the category which is most frequently watched by user.
4. Resuming videos from where the user has last left on user re-login.
5. Auto play all the videos in a playlist.
6. The video player can be made advanced with many other features like skip ads, skip +10/-10 secs, playback rate, quality, turn on/off captions etc.

Job Recruitment Portal – Medium

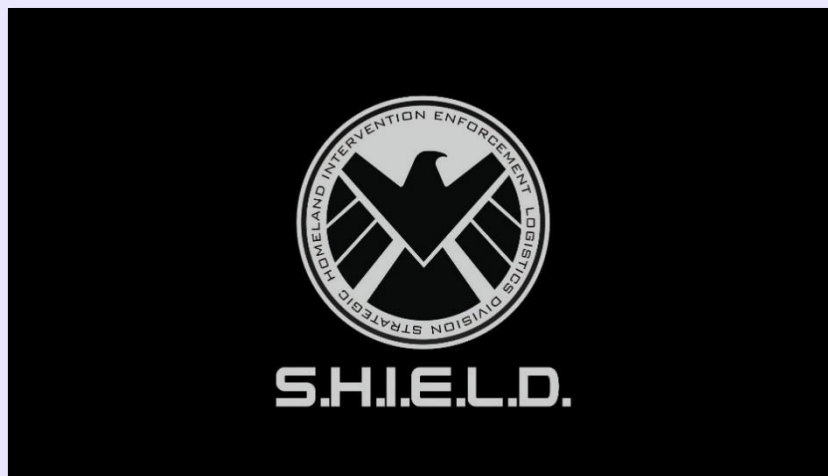
S.H.I.E.L.D has just discovered that the imminent threat to humanity – Thanos. They require more Avengers to team up and fight him off. So, they have decided to develop a website dedicated to hiring new Avengers. You being the best developer in the universe, took this challenge. So, Snap your fingers and start developing ASAP.

Basic Features:

1. Login/ Signup for Developers and Companies.
2. Each company to have its own page, where it can post relevant posts about company.
3. A different section on company page that has current job openings listed.
4. Developers should also have a page, where they can build their portfolio.
5. Developers should be able to subscribe to a company to get notified about latest openings.
6. Notification to developers when companies select their application.
7. Search section to search for companies. (Make this search easier for developers)
8. Ability to apply to an opening
9. Developers can see Stats of all their previous applications.
10. Companies can see Stats of all candidates that have applied for the current opening

Advanced features:

1. Peer to peer messaging
2. Recommend openings to developers as per their choices.
3. Filters for selection of candidates by companies after receiving applications (such as minimum CPGA)
4. Assign developers a hidden score based on an evaluation test on joining the platform.
5. Sort the applications on the hidden score so that developers with high score have more chances to get shortlisted.
6. Prevent abuse of this testing criteria.
7. An assessment section where companies can organize test/quizzes for developers, in further rounds



Code Playground – Medium

Everyone is aware that Loki has never been a trustworthy person but now again he promised. Odin assigned him task to build Website for publicity of Asgard. But Thor is not satisfied and want to test it before hosting. Help Thor to build a platform to test Loki's work:

Basic Features:

1. Login/Signup
2. Ability to write HTML, JavaScript and CSS separately in three editors
3. Ability to create new projects with these basic 3 files
4. Ability to see the results code change in real time
5. Ability to save the files and download them
6. Ability to generate unique links for a project for sharing
7. Have different layout formats for these editors
8. Ability to custom resize the editors
9. Follow other users and Like their projects as well

Advanced features:

1. Add new frontend languages, like React, Angular and SASS
2. Color coded syntax for different languages
3. Dark theme
4. Change font size in editor.
5. Ability to search projects with name (that others have created)
6. Implement file directory as well, where users can create new files in the same project
7. Ability to fork other users' projects



Uno Game: Hard

Our Avengers have done a great job saving the universe. Everyone is happy now and they are having a get together. Tony had created everyone's virtual instance (Before dying. (Miss you Iron Man)) (Smart Dude. Right?). Now they planned to play Uno virtually, create a platform with following requirements and make there day.

Basic features:

1. Login/Signup
2. Room creation
3. Basic gameplay implementation
4. History of previous matches store
5. Single player mode against AI
6. Tag team battle mode teammates can view each other cards but only their own.
7. Splash screen 20 based on the animation
8. Forget password

Advanced:

1. Login with Gmail/Facebook/GitHub each platform
2. Special cards implementation
3. Chat system
4. Live video feed while playing
5. Leagues like COC and match making
6. Record game feature
7. Single player mode against AI (medium) based on improvement from easy
8. Extra cards addition to game (Make the classic UNO even better with additional cards)
9. Dark mode

Social Gaming Platform: Hard

One day you were playing CS GO, fortunately your squad landed getting Unique Avenger Characters in game but due to lack of platform you can't show off. Create a platform to show off your Amazing unique characters with following features:

Basic:

1. User Login/Signup
2. Forget Password
3. Post photos/videos of the Game
4. User can Rate the post (out of 5 stars) basis of gameplay
5. Comment on post.
6. Report the post.
7. Follow gamers and notify on activity.
8. Search gamers/post and tags.
9. Support Gamers by Spending coins. (Consider using fake Payments)

Advanced:

1. Login with fb/google/steam
2. Allot ranks to gamers
3. Alert for new posts
4. Gamers can live stream on the website
5. Play videos with controls (play, pause, fast forward)
6. Chatting peer to peer
7. Request to message users (accept/reject)



The Interview Platform – Hard

Jarvis has always been with Tony Stark. But Jarvis is jealous now seeing Tony and Pepper Potts together. So, Jarvis requests Tony to make “Laila” (To be Jarvis’ girlfriend 😊) but Tony asked to hire his own engineers by building a platform for Interview, Help Jarvis completing this task.

Basic Features:

1. Register to the platform (for company admins only, add some unique verification checks)
2. Ability for company admins to add their employees/interviewers and provide them login credentials.
3. Login for admins and interviewers.
4. Interviewers can generate Interview URLs (to be unique) for the candidates.
5. Interview URLs to be valid from a given point (no one can open it pre maturely)
6. Generate Temporary login credentials for candidates. (to be valid for a certain time)
7. Information filling by candidates on login.
8. Area for questions and separate are for coding editor.
9. Simultaneous real time editing on same editor window by both.
10. Ability to choose different programming languages.
11. Ability to compile and run the program.
12. Ability for interviewer to lock the editor and code compilation and execution.
13. Ability to add questions before to be imported during the interview.

Advanced Features:

1. A separate panel for interviewer to note down some points about candidate. This should not be visible to candidate.
2. Ability to record the interview for later judgment.
3. Add tabs for different questions (in the same page)
4. Audio / video call feature.
5. Chatting feature.
6. Anti-cheating features

Open Problem

Didn't get excited by any of the above statements or have any other cool idea with you? No problem. You are free to choose any other idea and build a website regarding the same. You can add as many features as you want. It's all on you. Excited??? But there's a catch. You have to follow a theme. The theme of this problem is REMOTE TECHNOLOGY (for e.g., Distance Learning Programs, Online HealthCare, etc.). Just make sure to contact any of us before actually getting your hands dirty!

HAPPY DEVELOPMENT
AVENGERS!!!