

Vamos!

Problem Statements

2K21  
WEBSTER



VISHKAR '21


# RULES

- You can use any language of your choice.
- 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:
  - a. Maximum focus on backend design
  - b. Code organization
  - c. Database organization
  - d. Scalability of the project
  - e. Mobile Browser Compatibility
  - f. 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.

SUGGESTIONS

# Calorie

# Heist



“Rio has had hots for Tokyo for quite some time now, and he decides that it's high time to do something about it. He thinks that watching his diet would be a good place to start. Can you help him by building a tool that can help him track his daily calorie intake?”

**Difficulty:** Easy

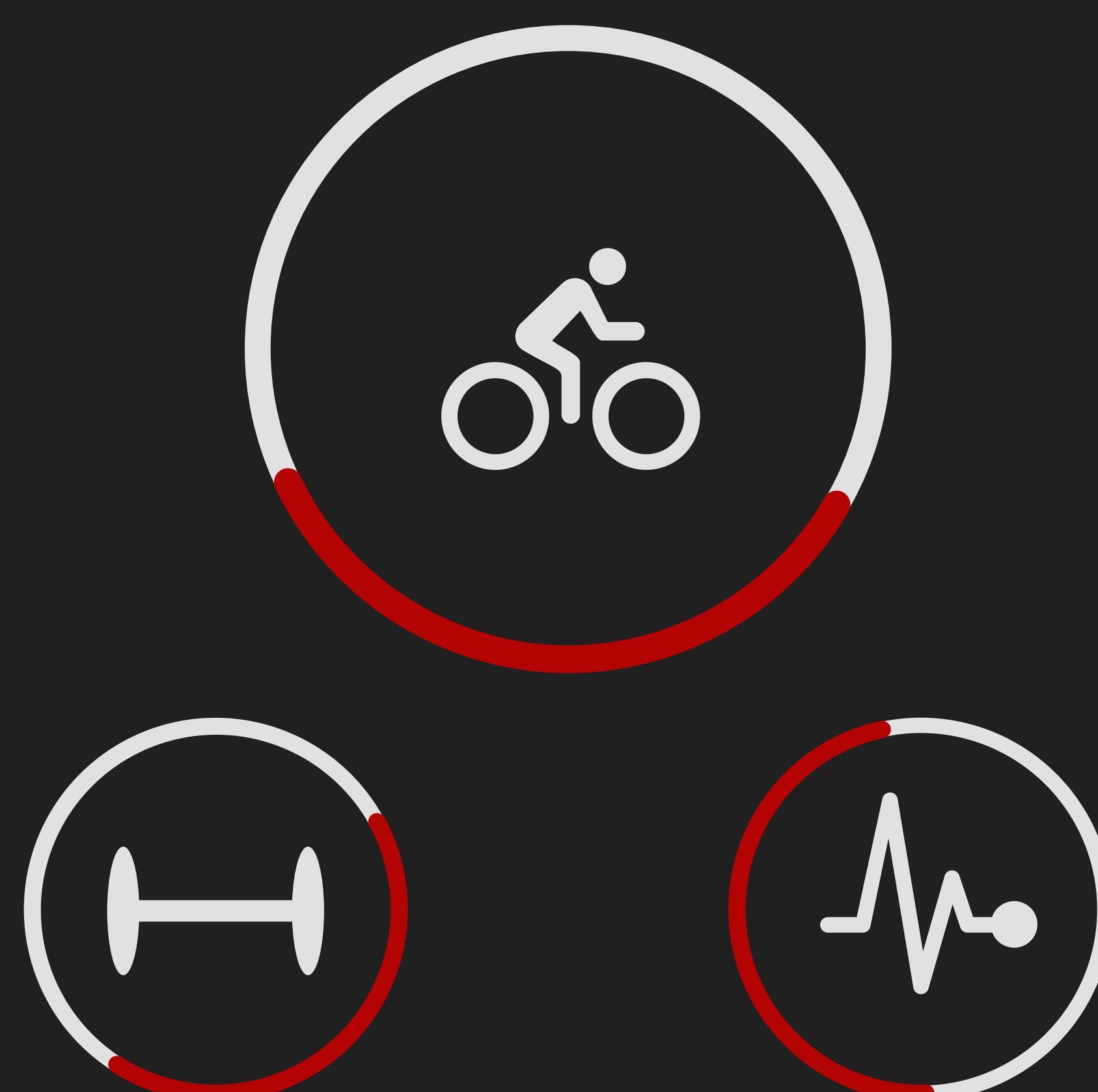


# BASIC

1. Login/Signup
2. Catalog of common food items with pictures and nutrient composition
3. Allow users to add their own personalized food items along with calorie values.
4. Tracking calorie intake from different meals of the day
5. Save favorite meals to quickly add them later to your diet
6. Monitor different nutrients (like protein, fiber, fat, etc) taken
7. Calculate ideal nutrients requirement based on BMI/ height/ weight
8. Tracking user workout activities like walking, running, etc

# ADVANCED

1. Create dietary plans as per user requirements
2. Visualize daily, weekly, and monthly nutrient intake reports
3. Daily health tips
4. Set your daily workout goals

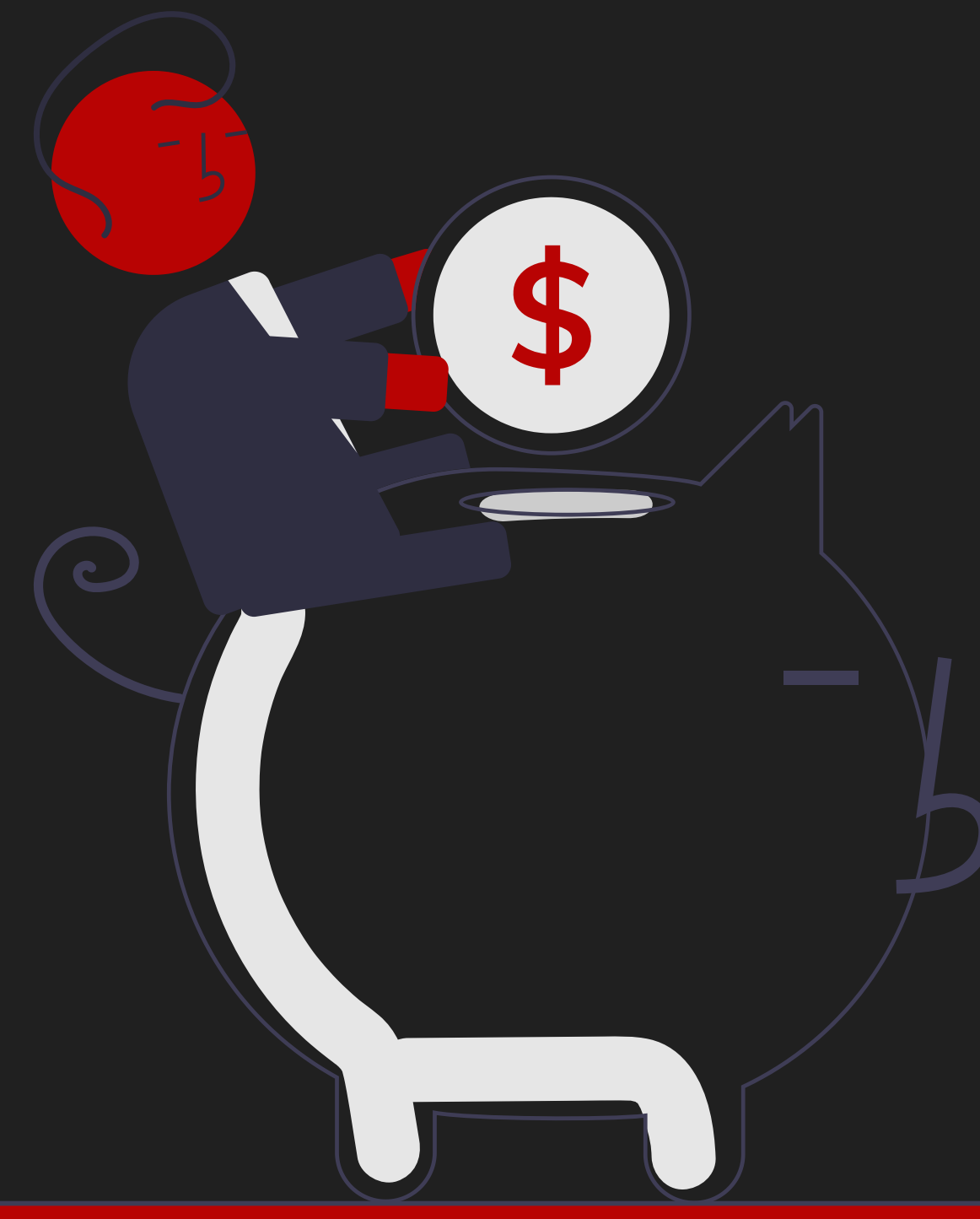


**Difficulty: Easy**



**“The professor is onto a plan of doing a heist at the Royal Mint of Spain. But it seems he is running low on budget. He needs to watch every single little penny he spends during the operation. Wouldn't it be great if someone made him an expense tracking application?”**

# **Expense Tracker**

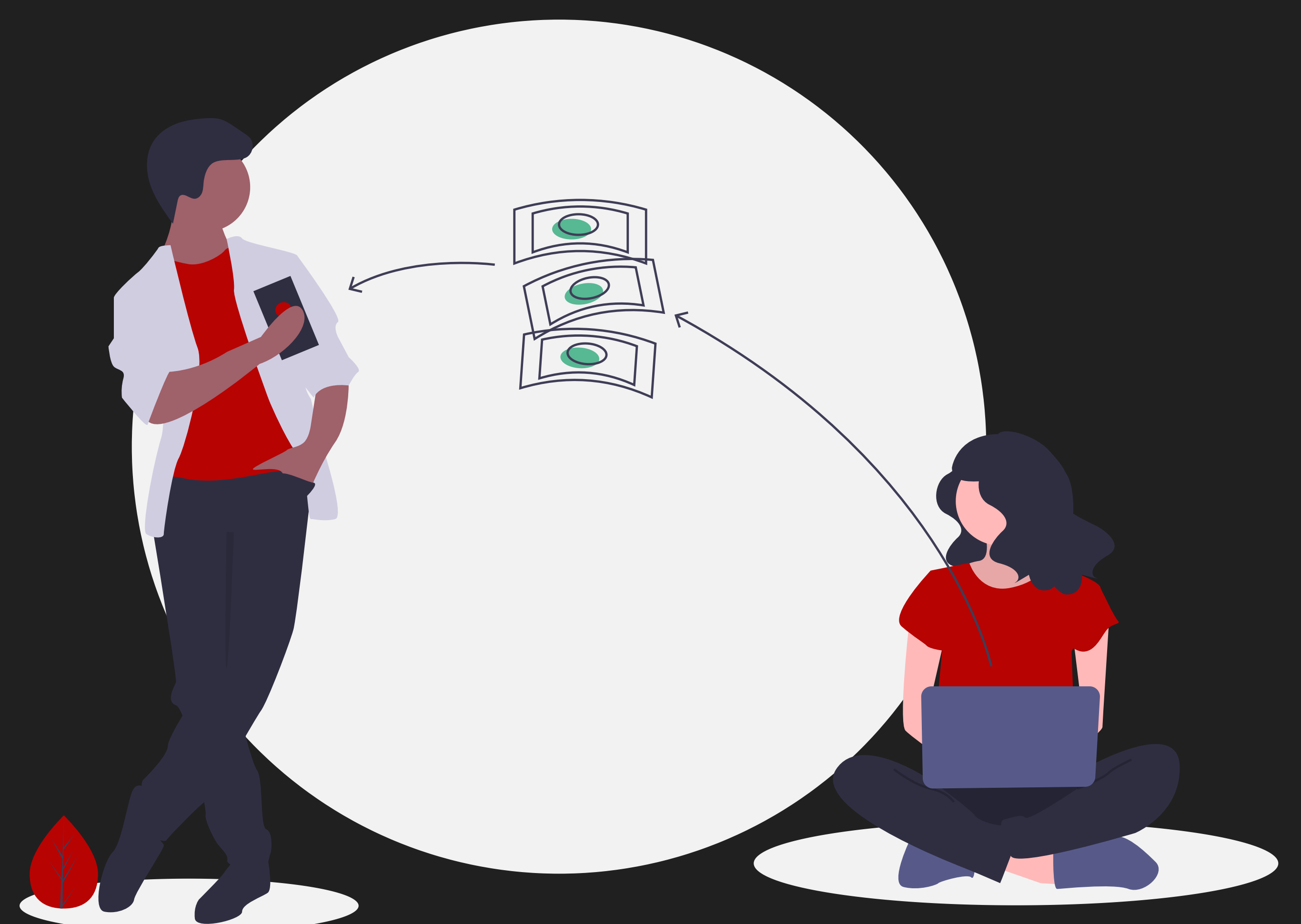


# BASIC

1. Login/Signup
2. Record daily transactions
3. Multiple expense categories like food, shopping, gift, etc
4. Plan budget based on shopping habits
5. Easy to read and visualize expense reports
6. Get notified of recurring bills and transactions before the due date.
7. Keep track of savings to meet your financial goals


# ADVANCED

1. Dark mode
2. All currencies supported with up to date exchange rates (Travel Mode)
3. Manage your debt, loans, and repayments
4. Vault to store expense receipts
5. Export Feature for Expense Report
6. Comparison with last month's/year's/etc Expense.



**Difficulty: Easy**

# MEME IT!



**“Attending long classes under the professor can be weary and tiresome at times. Nairobi and Helsinki decide to add in some spice to the classes. They came up with an idea for a meme generator, but they need your help in building it. ”**

# BASIC

1. Login/Signup for users
2. Users Should be able to create fully customizable memes (either using an existing template or uploading their own image from a device or through a link) with proper text formatting
3. Users should be able to preview the meme before downloading it.
4. Users should be able to save their memes.
5. Users can edit existing memes.
6. Can change font size, color, and other styles of the text.
7. Make collages with different image effects.

# ADVANCED

1. Login/Signup using Google, Facebook, etc.
2. Users should be able to search a meme based on tag/title.
3. Allow user to control memes privacy settings
4. Like/Dislike and share memes





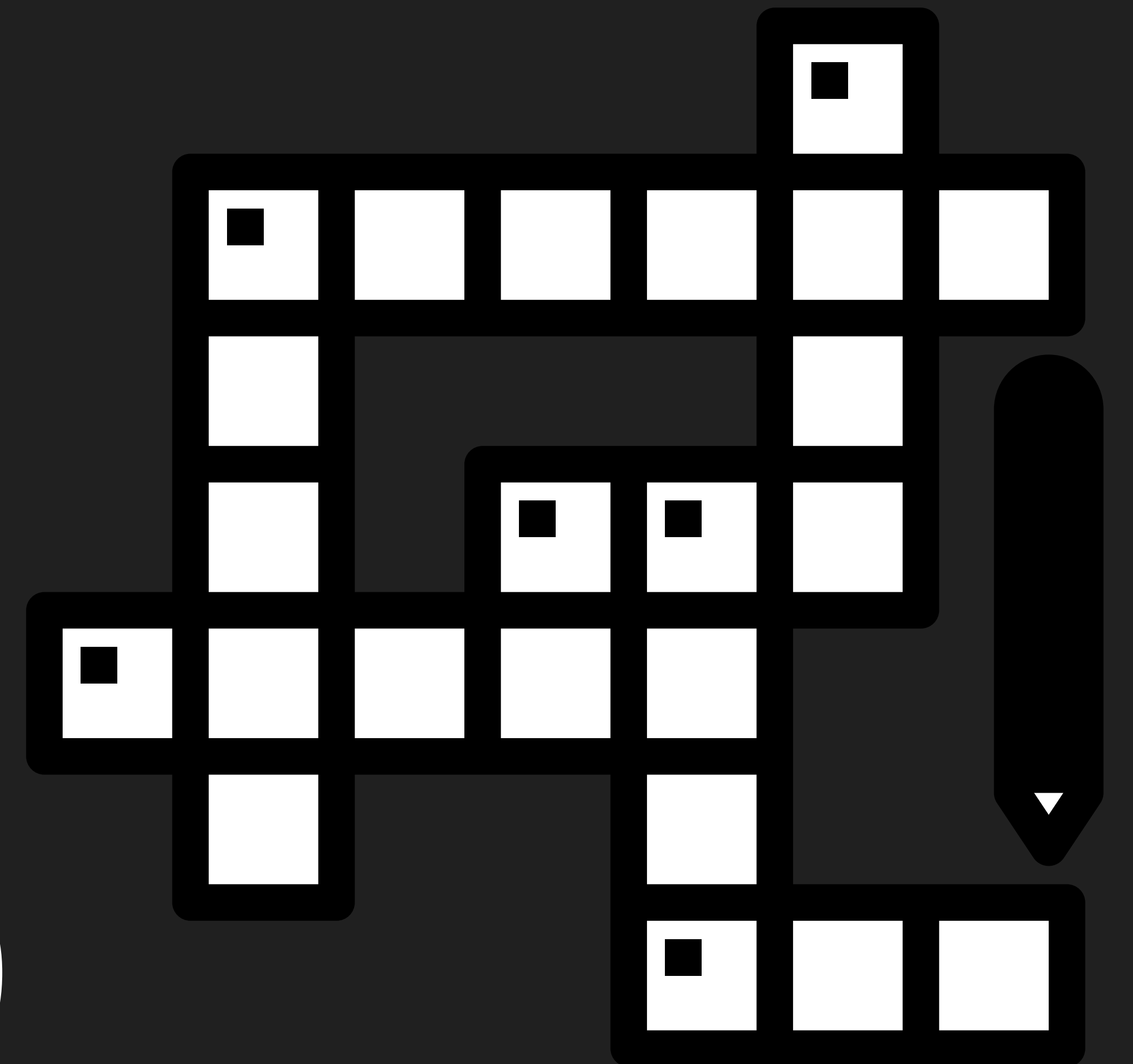
# CROSSWORD PUZZLE

“ Berlin and Tokyo hit a wrong note during one of the professor's classes and Now the whole class is divided on who is more intelligent. Everyone agrees upon conducting a crossword puzzle competition amongst them to decide the smartest in the room. Create a platform to generate a Crossword Puzzle for a fair contest between the two.”

**Difficulty:Medium**

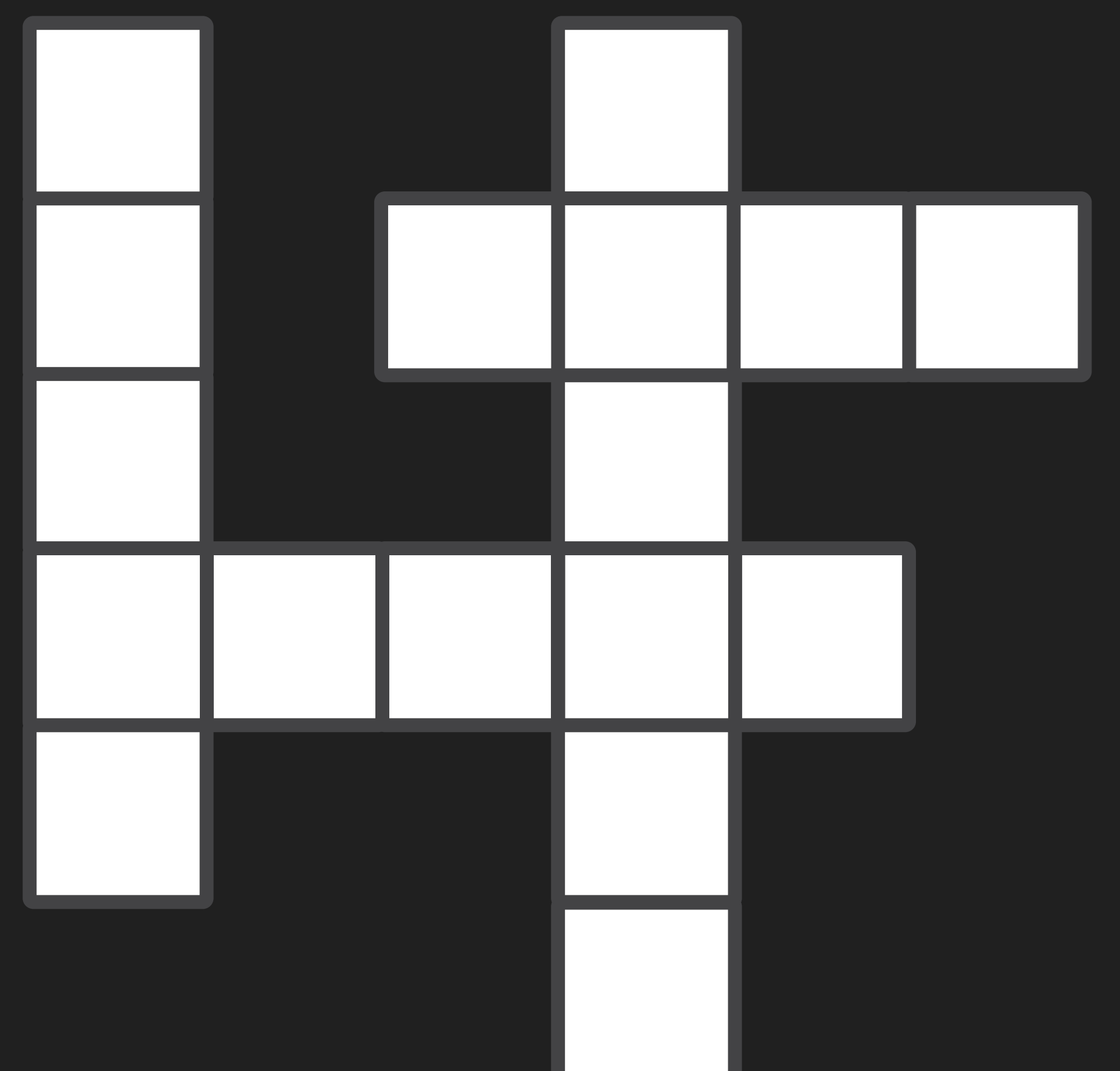
# BASIC

1. Login/Signup
2. Allow users to enter a list of clues and their answers
3. Generate crossword puzzles in real-time
4. Generate multiple crossword puzzles for the same inputs
5. Solve crosswords online
6. Users can share the crossword using link and passcode
7. Download crossword in different formats like pdf, SVG, Docx, etc
8. Create an iframe to embed crosswords in other sites using the link
9. Timer to keep track of time during solving
10. Users can create their personal clues and answers bank



# ADVANCED

1. Users can log in/signup using Google, Facebook, etc
2. Add different privacy settings like public, private or hidden, etc
3. Captcha required before crossword submission to avoid bot activity
4. Organize and participate in contests
5. Notification of new contests



**Difficulty:Medium**

# STOCKHOLM PAIRING

“Stockholm feels dejected since the very day Arturo left her. She is having a hard time finding a new life partner for herself. Casually meeting people is hard due to her high designation. An online dating platform seems like a good idea for pairing her up with someone perfect.”

# BASIC

1. Login/Signup
2. Build user profile and add preferences
3. Add profile pictures and videos
4. Swipe and match feature to find your best match based on preferences and location
5. Scheduling dates with people who you like
6. News Feed of liked matches
7. Chat with rich features like emoji, stickers, gifs, etc
8. Audio/Video call feature
9. Multi-language support
10. Plan your dates at different locations
11. Search profiles based on various filters

# ADVANCED

1. Users can log in/signup using Google, Facebook, etc
2. Live camera photo verification
3. Recommend like-minded people based on users profile
4. Different subscription plans with advanced features
5. Super like and attaching your first note
6. Virtual Movie Date - Stream a video (from Youtube, etc) to both users in real-time along with the Video Call.
7. Location tracking with SOS feature during Physical Date.



**Difficulty:Medium**

“FIFA season is on and the gang is divided upon who will be the winner this time. Having some spare time at hand, they decide to go about betting on it. Now owing to a large number of participants, an online platform to manage the whole betting paradigm could be really helpful. Can you make one for them with the provided features?”

**BET ON!**



# BASIC

1. Login/Signup
2. Payment integration to add money to wallet
3. Users can participate in contests and win rewards
4. Make your team in the contest according to rules and regulations
5. Live and past matches scores and statistics
6. Bet in various contests as well as players
7. Real-time contest points leaderboard
8. Connect with friends and followers
9. Contest participation and transactions history
10. Invite and earn
11. Reward and redeem promo codes on matches

# ADVANCED

1. Login/signup using Google, Facebook, etc
2. Users can create their own contests and invite friends to bet
3. Real-Time Group Chat with friends.
4. Website tour for new joiners
5. Predict key player in a match
6. Bet on the outcome of the next ball, next minute, etc



**Difficulty:Medium**



**“The heist at the Royal Mint of Spain was successful. Everyone has a lot of money with them. They are looking to make some quick profit out of it. Professor comes up with a plan of investing the money in Cryptocurrency. Can we build a cryptocurrency exchange for them?”**

**CRYPTO-X**

# BASIC

1. Login/Signup and allow social logins using Google, etc
2. Show different cryptocurrencies detail
3. Add different cryptocurrencies to the watchlist and track value change in real-time
4. View price variation on a graph
5. Ability to change the scale of the graph to a certain interval. (1 year, 1 month, 1 week, 1 day, 1 hour, 15 min, etc)
6. Payment gateway integration to add funds to wallet
7. Withdraw funds from wallet (charge some fee on withdrawing)
8. Allow users to trade in cryptocurrencies
9. Portfolio section to view current holdings.
10. Calculate profit and loss in real-time
11. Generate a daily report of the current portfolio
12. Send desktop notifications when cryptocurrency hits a particular value

# ADVANCED

1. Change graph plotting style. (Candle Sticks, Bars, Line, etc. )
2. Pan, zoom and drag the graph along the time and price axis
3. Users can place different types of orders like Good Till Triggered (GTT), stop loss, etc
4. Referral scheme to earn cryptocurrency
5. Feature to transfer cryptocurrency to a wallet using Public Address.
6. Create your own token which users can use to transact cryptocurrency.



**Difficulty:Medium**



# Medicare

**“During a heated encounter with the police, Nairobi was shot .Now the gang members need to revive her.Rio wants to save her and needs a doctor’s assistance immediately. All they have access to is the internet. Can you quickly design a platform for having online consultation with the doctors?”**

# BASIC

1. Login/Signup for doctors and patients
2. Find doctors nearby
3. Patients should be able to book appointments for offline and online visits
4. Ability to upload test reports and view his medical history
5. The patient should be able to share specific reports for a particular treatment
6. Patients can add their disease symptoms and share them with the appointed doctor
7. A doctor can check his appointments
8. The doctor can provide prescriptions and update patients weight, blood pressure, etc
9. The doctor can add patient hidden notes to keep track of the treatment
10. Consultation on audio/video and chat with the doctor
11. Book your pathology tests
12. Allows the doctor to upload patients test results

# ADVANCED



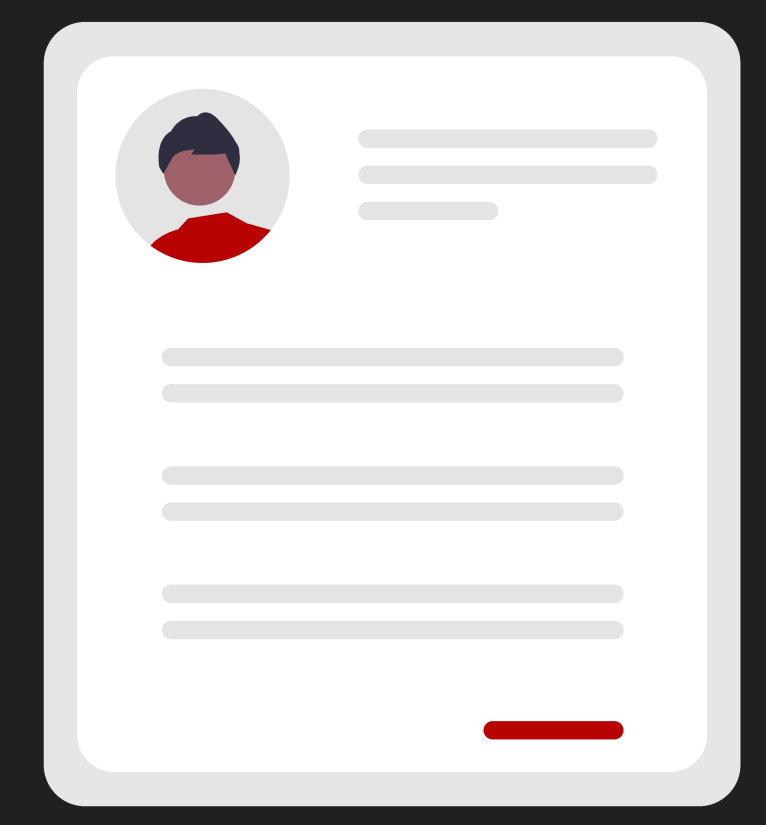
1. Users can log in/signup using Google, Facebook, etc
2. Show graphical representation for blood pressure, blood sugar levels, etc
3. Patients can give ratings and add reviews to a clinic or a doctor
4. Analyze previous waiting time to predict the estimated time for consultation
5. Book ambulance to a nearby hospital



# RESUME MAKER

"Denver wants to impress Professor desperately. Someone suggested him that a Resume can have a lasting impact on people. So, in order to match Professor's expectations he wants to create an amazing resume. Build a resume maker so that Denver will be a heisty candidate."

**Difficulty:Medium**



# BASIC

1. Login/Signup
2. Users can select from a pool of templates for resume
3. Allows the user to create his personalized own template
4. Users should be able to make multi-page resumes
5. Allow users to use different fonts, themes, colors, sizes, etc
6. Fill in the fields of templates to generate a resume
7. Resume changes dynamically in real-time.
8. Import and edit existing templates
9. Insert photo in documents
10. Option to generate other documents like a cover letter, agreement papers, etc
11. Allows resume download in different formats like pdf, Docx, etc
12. Recommend different templates based on different profiles like software developer, consultancy services, etc
13. Previously added content should remain saved

# ADVANCED

1. Users can log in/signup using LinkedIn, Google, etc
2. Live content quality feedback
3. Predict resumes ATS test passing percentage
4. Digital signature on documents along with navigation directions
5. Applicant Tracking System(ATS) friendly templates

“Berlin and Denver were bored while training for the heist. Having nothing interesting to do, they come up with a plan of playing checkers. However, they can't find a board. It would have been convenient if they had an online platform for playing it. Can you design one such platform for them?”

**BERLIN**

**CHECKERS**



**Difficulty: Hard**

# BASIC

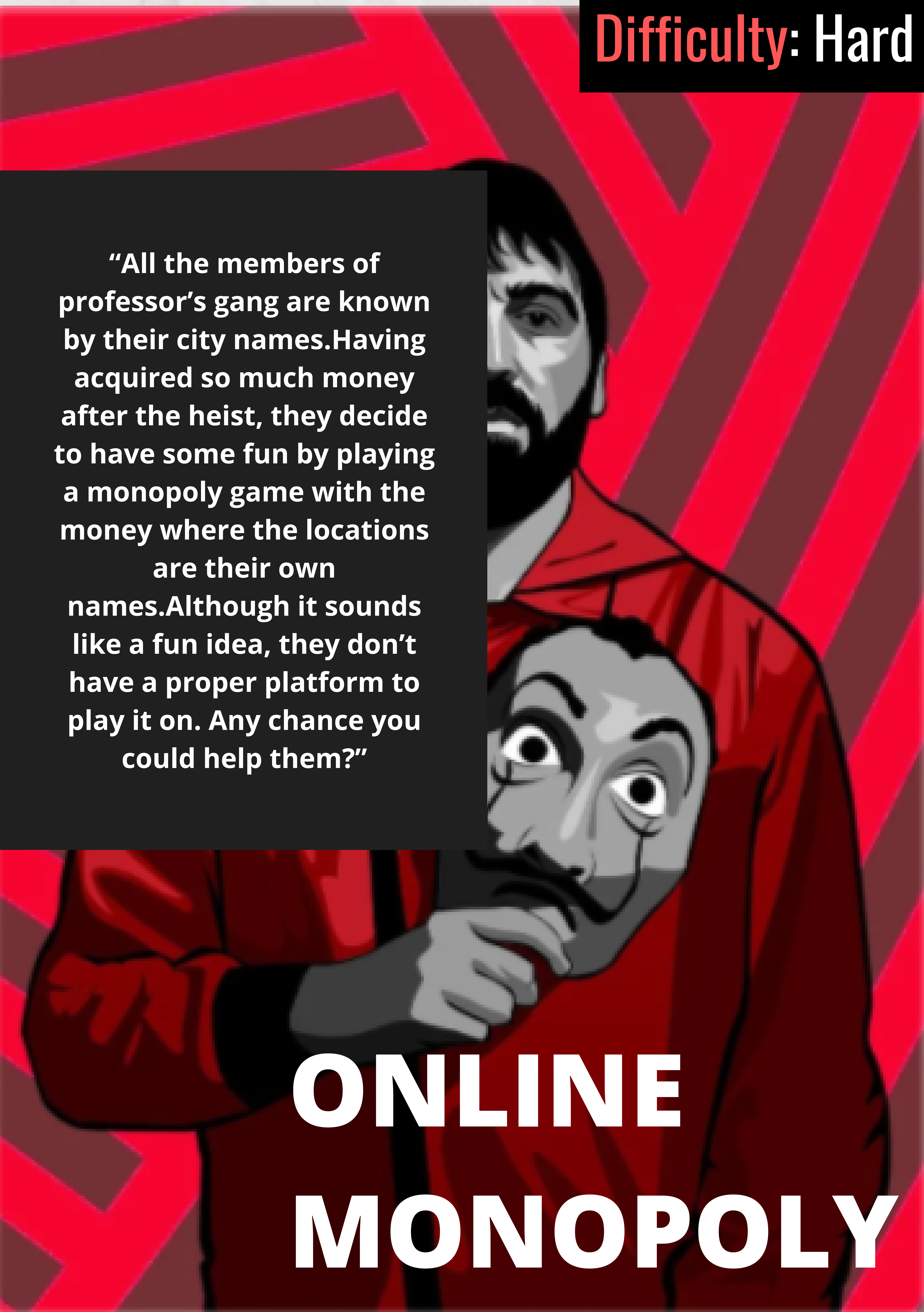
1. Login/Signup
2. Implement two Player Game Play as per Rules.
3. Mandatory Move/Non-Mandatory Move Variations.
4. Propose Draw/Accept Draw option
5. Send Invite Link to Play with other users.
6. Store previous matches played by the user.
7. Play as Guest with Random Online Players.
8. Easy-Level Bot(Can Apply mini-max)
9. Background music, moves sound, animations
10. Chat system
11. Live video feed while playing

# ADVANCED

1. Login with Google, Facebook each platform
2. Implement a Rating System(e.g. ELO Rating, etc)
3. For logged-in users(Known Rating) Play Games with Random Online players with matching ratings.
4. Provision of Leagues(Players within the same league can play with each other.)
5. Medium-Level Bot(Better Heuristics than easy level bot)
6. Dark mode
7. Site Tour
8. Run Simulation of a recorded game with Play Pause functionality.  
[Refer to chess.com for a demo of this feature]

**Difficulty: Hard**

**“All the members of professor’s gang are known by their city names. Having acquired so much money after the heist, they decide to have some fun by playing a monopoly game with the money where the locations are their own names. Although it sounds like a fun idea, they don’t have a proper platform to play it on. Any chance you could help them?”**



# **ONLINE MONOPOLY**

# BASIC

1. Login/Signup
2. Interactive monopoly board
3. Play multiplayer online with friends and pass 'n' play
4. Basic gameplay implementation
5. History of previous matches store
6. Single-player mode against multiple AI bots
7. Random player matchmaking
8. Multi-language support
9. Tournament with leaderboard
10. Auction in different countries

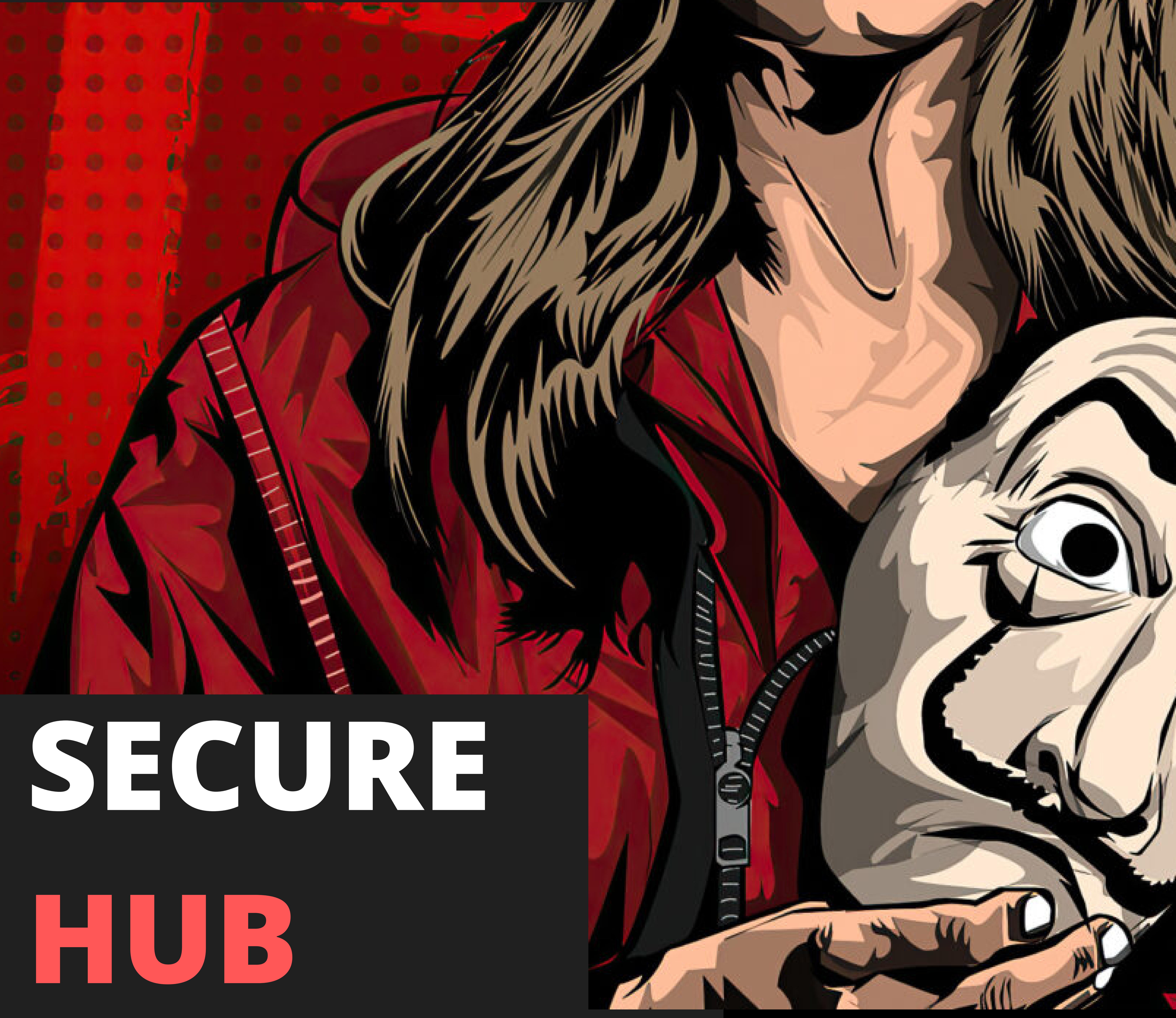
# ADVANCED

1. Users can log in/signup using Google, Facebook, etc
2. Real-Time Group Chat system
3. Live video feed while playing
4. Record game feature
5. Different themed boards, dices, pieces, etc



**Difficulty:** Hard

“Raquel Murillo is the best officer Spanish police force has, so she has been called to deal with the Professor during the heist. But the Professor always knows her moves as Rio had hacked their system for Professor. So she wants a platform for her team where they can securely work and collaborate in order to catch Professor.”



**SECURE**

**HUB**

# BASIC

1. User Login/Signup
2. User can create public and private repository
3. Add other users to collaborate on existing repositories
4. Users can make changes and create separate branches
5. Keep track of different versions of the repository
6. User can raise an issue and can also make a pull request
7. Implement basic GitHub features like merging branches, resolving merge conflicts, etc
8. Notification to repository owner on any action in concerned repository
9. Code review and comment feature
10. Star, fork and clone other repositories
11. Two factor authentication to make changes

# ADVANCED

1. Interactive command line tool to make changes to repository
2. Chat with collaborators and contributors
3. Live collaborative workspace
4. Elaborative insights on code contributions in repositories
5. Smart editor with linting capabilities
6. Push code to repository using SSH key

A group of diverse people, mostly wearing red hoodies, are looking towards the camera. In the center, a man with glasses and a beard is wearing a dark suit and tie. The background is dark, and the overall mood is serious and focused.

# OPEN THEME

Have something else in mind?  
You can bring your own ideas! The only  
constraint is it should belong to either  
"FinTech" or "Edutainment" .