

# CS3216 Assignment 3 Milestones Report

## Salary Sage

*Boost your wage, with Salary Sage!*

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# 1. Project Links

Public GitHub repository	<a href="https://github.com/dexterleng/salary-sage">https://github.com/dexterleng/salary-sage</a>
Live application	<a href="https://salary-sage.vercel.app/">https://salary-sage.vercel.app/</a> (Invite code: CS3216-A3)
Product Hunt launch	<a href="https://www.producthunt.com/posts/salary-sage">https://www.producthunt.com/posts/salary-sage</a>

# 2. Phase 1

## 2.1. Milestone 0

*Describe the problem that your application solves.*

Salary negotiation is often an awkward topic, and only a small percentage of interviewees make an attempt to do so.

Based on a [CNA news article](#), “Trying to objectively gauge one’s own worth to a new employer can be nerve-wracking.” and “Part of the reason we hesitate to negotiate for a higher pay is we fear looking less attractive as a job candidate and killing our prospects of being hired.”

It is clear that the fear of rejection often deters interviewees from making sure their salary-related concerns are heard. This also leads to a downstream effect of employees missing out on early career advancements. Additionally, job offers are hard to come by and even if an interviewee is interested in negotiating for a higher salary, the job opportunity is often “too precious” to be treated as a “practice”.

Our solution is an AI-driven mock salary negotiation platform which provides users with a safe and interactive environment that returns tailored and objective feedback to help with confidence building.

## 2.2. Milestone 1

*List down your 3 closest competitors and their pros and cons. Explain how your product is better.*

	Pros	Cons
Salary Sage	<ul style="list-style-type: none"><li>• Practice negotiation to relieve fear and anxiety</li><li>• Actionable tips</li><li>• Personalised feedback</li><li>• Salary data</li><li>• Variable difficulty</li><li>• Competitive advantage: Inexpensive, Scalability, Personalization</li></ul>	<ul style="list-style-type: none"><li>• AI is not 100% accurate</li></ul>
Salary information sites (eg. Glassdoor)	<ul style="list-style-type: none"><li>• Large database of reliable salary information</li><li>• Competitive advantage: Data</li></ul>	<ul style="list-style-type: none"><li>• No actionable tips</li><li>• No practice</li></ul>
Career resources sites (eg. MyCareersFuture )	<ul style="list-style-type: none"><li>• Actionable tips</li><li>• Competitive advantage: Localised resources</li></ul>	<ul style="list-style-type: none"><li>• No personalised feedback</li><li>• No practice</li></ul>
Salary negotiation services (eg. <a href="#">levels.fyi</a> , <a href="#">Candor</a> )	<ul style="list-style-type: none"><li>• Actionable tips</li><li>• Competitive advantage: Expertise, money-back guarantee</li></ul>	<ul style="list-style-type: none"><li>• Very Expensive (levels.fyi costs \$650 for their cheapest package)</li><li>• Limited number of experts available</li><li>• No real practice</li></ul>
Negotiation courses (eg. <a href="#">The Program on Negotiation at Harvard</a> )	<ul style="list-style-type: none"><li>• Effective negotiation tips</li><li>• Competitive advantage: Brand identity</li></ul>	<ul style="list-style-type: none"><li>• Expensive</li><li>• Applies to negotiation in general, no specific salary negotiation tips</li></ul>

## 2.3. Milestone 2

*Describe your application briefly. List its objectives and the associated (major) user stories.*

### 2.3.1. Objectives

- **Skill Development:** Help users build effective negotiation skills through practice and feedback.
- **Confidence Building:** Boost users' confidence in negotiating for better compensation.
- **Accessibility:** Make negotiation practice accessible to a wider audience, regardless of location or background.
- **Data-Driven Insights:** Incorporate salary data on specific companies to provide users with more targeted insights into salary expectations for negotiating.
- **Personalised Feedback:** Provide objective and customised feedback to users to help them identify areas for improvement.
- **Analytics:** Offer detailed analytics to track users' improvements across practice sessions.

### 2.3.2. User Stories

As a...	I would like to...	So that I can...
user	Practice negotiating for a better salary	Build confidence and overcome my fears for the real negotiation
user	Get actionable and timely hints on how to negotiate better	Know how to respond appropriately in salary negotiation scenarios
user	View feedback on my practice negotiation session	Know how I did and where I can improve
user	View an audio transcription of my practice negotiation session	Refer to, and reflect on, what I said during negotiation sessions
user	View long-term insights about my negotiation sessions	Keep track of my progress
user	View my past negotiation session data	Revisit my previous mistakes for revision
user	Learn how the app can help me	Get acquainted with the app's capabilities
user	Sign up and log in into the app	Store my personalised info securely

### **2.3.3. Purpose of user authentication**

Incorporating user authentication into our application is a strategic choice that significantly enhances the overall user experience and aligns with our product's objectives. Beyond being a fundamental requirement, user authentication serves several critical purposes:

1. Personalised Hints: User authentication empowers us to deliver highly personalised hints during negotiation practice sessions. By understanding each user's unique expectations and experiences, we can provide contextually relevant and tailored guidance, maximising the effectiveness of their practice sessions. This personalization not only boosts user engagement but also enhances skill acquisition.
2. Storage of Historical Data: With user authentication, we can securely store and associate historical negotiation feedback data with individual users. This enables users to conveniently refer back to their past practice sessions, fostering continuous learning and improvement over time. It also allows us to provide longer-term insights into their skill development journey.
3. Secure Default Data Storage: Authentication ensures secure storage of default data, such as current and expected salary information. Users can input this sensitive data confidently, knowing that it's protected from unauthorised access. Additionally, this feature eliminates the need for users to repeatedly input this information, streamlining their interaction with the app and improving overall usability.

Ultimately, user authentication is integral in fulfilling our application's objectives of effective negotiation skill development and user satisfaction.

## **2.4. Milestone 3**

*What's your secret sauce / moat? Elaborate on your strategy to prevent competitors and big players from cloning your app and its features?*

Our "Secret Sauce":

1. First-mover Advantage: Our app leads the market with generative AI, offering tailored hints and insights for better negotiations.
2. 24/7 Accessibility and Scalability: Unlike traditional coaching services, the use of generative AI in our app means that it offers round-the-clock access and scalability to a large user base.
3. Personalisation: The integration of users' resumes allows us to provide personalised feedback and hints for each negotiation setting.

While there are no other products on the market that are exactly like our app, we recognise the importance of analysing our competitive advantage in comparison to different potential types of competition:

1. Negotiation Coaching Services:
  - Unlike traditional negotiation coaching services with limited availability and high costs, our app offers users 24/7 accessibility to practise and enhance their negotiation skills.
  - Users can tailor their practice sessions to their schedule, eliminating the constraints associated with human coaches.
  - Users receive impartial feedback and evaluation, free from biases that could come from human coaches, ensuring a fair appraisal of their negotiation abilities, along with objective feedback for improvement.
2. Online Data Sources:
  - While online data sources provide valuable information, our app takes a step further by providing a dynamic and immersive experience.
  - We obtain the most up-to-date salary information from Tech Offers Repo, ensuring that users receive realistic and current negotiation practice experiences. This real-time data integration sets us apart from static online sources.
3. AI Chatbots:
  - Our app enjoys a pioneering position in the market by being the first to harness the power of generative AI to deliver comprehensive salary negotiation practice.
  - Our app seamlessly integrates users' resumes into the negotiation process. This unique capability empowers users with tailored hints and insights during negotiations, enabling them to craft more compelling arguments for securing higher salaries and benefits.

## 3. Phase 2

### 3.1. Milestone 4

*Describe your target users. Explain how you plan to acquire your target users.*

#### 3.1.1. Target Users

1. Job Seekers: Individuals actively searching for new job opportunities who want to improve their salary negotiation skills.
  - In a competitive job market, the ability to negotiate effectively can set job seekers apart from other candidates. Our app equips them with the skills needed to stand out during the hiring process and secure the best offers.
  - Many job seekers may feel anxious or uncertain about negotiating their compensation. Our app provides a safe and supportive environment for them to practise, boosting their confidence in real negotiation scenarios.
2. Career Changers: Professionals transitioning to new industries or roles and needing negotiation practice.

- Career changers often face unique challenges when transitioning to new industries or job roles. Our app allows them to adapt and excel in negotiation situations specific to their new career path.
- 3. Early to Mid-Career Professionals: Early to mid-career professionals are often seeking opportunities for career growth and advancement.
  - Career-minded individuals understand the importance of ongoing skill development. Our app offers a platform for continuous improvement in negotiation skills, which is a valuable asset throughout their careers.
- 4. Recent Graduates: Graduates entering the job market for the first time seeking to secure competitive compensation packages, while having limited salary negotiation experience.
  - Graduates are typically eager to secure their first job and achieve financial stability. The ability to negotiate for a better starting salary and benefits can lead to a more comfortable financial start, which is especially significant when managing student loan debt or other financial responsibilities.
  - Securing a strong initial compensation package can set a positive trajectory for a graduate's entire career. By using our app to practise negotiation, recent graduates invest in their long-term career success and financial well-being.

### **3.1.2. User Acquisition Plan**

#### **Phase 1: Pre-launch Preparation**

Objective: Lay the foundation for a successful app launch and initial user acquisition.

Steps:

1. Early Access Program: Especially since the use of LLMs can easily get expensive as the app scales, an early access program to select users will allow us to gather valuable feedback before a broader launch, while at the same time building anticipation.
2. Social Media Marketing: Establish an online presence on LinkedIn, Twitter, TikTok, and Instagram to create awareness and anticipation.
3. Partnership with Job Search Platforms:
  - Begin discussions and negotiations for future partnerships to integrate our app with job search platforms.
  - This partnership would also provide us with more data related to salary negotiations in order to provide even more up-to-date and realistic practice sessions.
  - We would also appear as a tool recommended by well-known job search platforms, enhancing our credibility.

#### **Phase 2: Launch and Expansion**

Objective: Launch the app to the public, acquire users, and foster growth.

Steps:

1. Official Launch: Release the app to the public and promote it across social media channels.

- Example LinkedIn post:
- Giving out a freebie is extremely beneficial since:
  - i. 60% of users are looking for new insights when they log in to LinkedIn
  - ii. When a user comments, his/her connections receive a notification, allowing us to reach out even further to a like-minded audience

Quan Teng Foong  
Co-founder of SalarySage  
Promoted

Exciting News for Job Seekers and Career Advancers! 🚀

Introducing SalarySage - The Ultimate Salary Negotiation Practice App!

Are you ready to supercharge your negotiation skills and secure the compensation you deserve? Look no further!

🌟 Key Features 🌟

- ⌚ Personalized hints tailored to your unique qualifications.
- 💼 Realistic negotiation scenarios for tech roles.
- 📈 Data-driven insights to boost your salary negotiation game.
- 💬 Objective feedback to fine-tune your approach.
- 🌐 24/7 availability for on-demand practice.

Unlock your full earning potential and stand out in today's competitive job market. Whether you're a recent graduate, career changer, or seasoned professional, SalarySage is your secret weapon!

👉 [Website Link]

🎁 We are also giving out a FREE list of curated salary negotiation tips you can use right away for your next interview! OR just use it with SalarySage! 🎁  
Comment your email below (.edu emails preferred) to receive the link!

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2. Referral Program: For each friend referred, the user gets one additional negotiation per week, for 1 year. This encourages users to upgrade their free plan by inviting friends. (For further clarification, see Monetization strategy in [2.3 Milestone 6](#).)
3. Discounts during Job Hunting Periods: Offer limited-time discounts during peak job hunting seasons. (Similar to leetcode's student promotions.)
4. Confirming Partnership with Job Search Platforms: A seamless transition from a job-search platform to our negotiation platform will reduce friction and increase participation. For example, a button on a LinkedIn job listing that links directly to our app, allowing the user to immediately start a mock negotiation customised to this job.

### **Phase 3: Growth and Optimization**

Objective: Sustain user growth, continuously improve the app, and optimise user acquisition strategies.

Steps:

1. Data-Driven Decision-Making: Analyse user data to refine user acquisition strategies and improve the app. Since our app is the first of its kind, data on users' subscription behaviours will also allow us to create new subscription plans to better suit their needs.
2. Continuous Improvement: Actively seek and respond to user feedback to enhance app usability and effectiveness.
3. Partnership Expansion: Strengthen and expand partnerships with job search platforms to increase visibility and access to user data.

## **3.2. Milestone 5**

*List down the features that should go into the MVP (your assignment deliverable). How did you decide on them? What are future features and expansions you can think of?*

### **3.2.1. MVP Features**

1. Company, Job Title, Job Description, Resume and Salary Input:
  - This feature allows users to personalise their negotiation practice, making it relevant to their specific job offer. It's a fundamental feature to start the negotiation process.
2. AI-Prompted Negotiation:
  - This core feature engages users in simulated negotiation scenarios, creating a realistic practice environment. The AI interviewer provides prompts to guide users through the process.
3. Feedback and Analysis:

- Providing feedback helps users understand their strengths and weaknesses in negotiation. This feature enhances the learning experience and motivates users to improve.
  - Offer in-depth analytics on negotiation performance, highlighting specific strengths and areas for improvement with actionable insights.
  - Quantitative metrics that show the user's improvement over time. This is a key metric as it will further encourage users to engage in more practice sessions with our app.
4. Transcript Storage:
    - Storing the entire conversation transcript is essential for users to review their performance, identify areas for improvement, and track their progress over time.
  5. Customised Hints:
    - Personalised hints based on user-provided information such as resume, job description, and past experiences make the practice more relevant and valuable. They guide users toward effective negotiation strategies and encourage them to immediately put these strategies to practical use.

### **3.2.2. Future Features and Expansions:**

1. Multi-Scenario Practice: Allow users to practise negotiation in various scenarios, such as salary negotiation, benefits negotiation, or job offer negotiation.
2. Role-Playing with Real Users: Enable users to practise negotiation with other real users, taking on the roles of both the candidate and the employer.
3. Video Practice and Analysis: Implement video recording during negotiations, enabling users to review their body language, tone, and non-verbal communication for more comprehensive feedback.
4. Interview Preparation: Expand the app to include interview preparation, offering practice for common interview questions and techniques. A cheatsheet of customised interview points can also be generated, for the user to use in his/her real interviews.
5. Community and Discussion Forum: Build a community within the app where users can share their experiences, seek advice, and engage in discussions about negotiation tactics. This can also serve as a platform for data-gathering to further improve our app.
6. Language Support: Add support for multiple languages to cater to a global audience.
7. Mobile App: Develop a mobile app version for greater accessibility and on-the-go practice.
8. Gamification: Implement gamification elements to make the practice more engaging and rewarding.

### **3.3. Milestone 6**

*Come up with a monetization and pricing strategy (e.g. tiers and features). Explain why you think this pricing strategy is suitable for your target users and problem space. Explain the factors that influenced your pricing decisions, such as production costs, perceived value, competition, etc. It would be useful here to consider possible revenue streams of your product.*

#### **3.3.1. Monetization Strategy**

We plan to adopt a Freemium pricing strategy with tiered subscription plans. This approach offers a free version of the app with limited features, enticing users to upgrade to premium plans for enhanced functionality and value.

##### **1. Free Tier:**

- One negotiation practice session per week.
- Basic feedback without detailed analysis.
- Limited transcript storage (only the last 3 practice sessions).
- Generic hints and tips, without personalised details.

##### **2. Standard Tier (\$20/month):**

- Up to 21 negotiation practice sessions per week.
- Comprehensive feedback with detailed analysis, as well as exact references to parts of the transcript that were particularly good/bad.
- Unlimited transcript storage
- Personalised hints tailored to user-provided information.

##### **3. Professional Tier (\$15/month, paid yearly):**

- Unlimited negotiation practice sessions.
- Comprehensive feedback with detailed analysis, as well as exact references to parts of the transcript that were particularly good/bad.
- Unlimited transcript storage
- Personalised hints tailored to user-provided information.

#### **3.3.2. Pricing Considerations**

1. Production Costs: The estimated price per negotiation practice session is approximately \$0.026. This amounts to approximately \$0.104/month for a free user and approximately \$2.184/month for a premium user. The additional features (better feedback and personalised hints) should also add up to no more than \$3/month for premium users. Hence, charging \$20/month will ensure a healthy 75% profit margin.

2. Perceived Value: With the additional features provided by the premium tier, the user can utilise our app to its full potential. Studies in the US have shown that a good salary negotiation can increase monthly salary by up to \$5000. When compared to this number, \$10/month pales in comparison. Compared to other companies like LeetCode (\$35/month) and MockMate (\$29/month), our app not only provides substantial value but is also competitively priced.
3. Competition: Our most direct competitors, human interview coaching, have a very high price on their services (levels.fyi charges upwards of \$650 for 3 months). This is primarily due to their heavy dependence on professional negotiation coaches. Our app, in comparison, provides comparable value and significant advantages while charging less than 1/20 of competitors' prices.

### 3.3.3. Why This Pricing Strategy is Suitable

1. User-Centric: The freemium model allows users to get a taste of the app's value for free, lowering the barrier to entry, while still allowing users to gain value from our app. Premium features cater to users who want a more in-depth and personalised experience.
2. Scalable: The tiered approach scales with users' needs. Users can start with the free version and upgrade as they recognize the value of personalised hints and advanced analytics. With sufficient data after the initial launch, new tiers can easily be added. To cater to heavier/lighter users to cater better to our users' needs.
3. Sustainable Revenue: Subscriptions provide a steady stream of income while in-app advertising and data insights offer supplementary revenue streams.
4. User Growth: The free tier serves as a marketing tool, attracting users who may later upgrade. Users can also be incentivized to share the app through our referral programs, further increasing user acquisition.
5. Flexibility: We understand that users may not require long-term engagement, making subscription-based pricing ideal for accommodating their changing needs.

## 4. Phase 3

### 4.1. Milestone 7

*Explain how you are using LLMs in your product and why LLMs are a good approach to meet the product's objectives.*

#### 4.1.1. How we are using LLMs in our product:

- 1) Perform suitability analysis of the candidate for the job based on resume and job description
  - a) LLMs can parse vast amounts of text and extract relevant information. Given a resume and job description, an LLM can identify matches in skills, experience, and qualifications to assess the suitability of a candidate.
- 2) Conduct a salary negotiation with a candidate
  - a) An LLM can simulate conversation, emulate the recruiter's position, and engage in back-and-forth dialogue with the user, allowing for a realistic negotiation experience.
  - b) LLMs can simulate reasoning by evaluating input based on patterns observed in data. For negotiation purposes, this can be used to evaluate the effectiveness of a candidate's arguments and construct appropriate counter-responses.
- 3) Provide insightful feedback from the transcript and given the context of the negotiation
  - a) LLMs can understand context, intent, and the nuances in language. Thus, analysing a transcript from a negotiation would allow the model to give feedback on areas of improvement, key points discussed, or potential missteps.
- 4) Constructing hints for the candidate on how he/she should best respond to the recruiter to get the desired compensation
  - a) Based on the analysis of the negotiation, LLMs can suggest potential strategies or responses the candidate could use to enhance their negotiation stance.

#### 4.1.2. Why LLMs are good approach to meet our product's objectives:

1. **Adaptability:** LLMs can adjust to diverse user inputs. This flexibility means they can handle various negotiation styles, concerns, and candidate backgrounds, ensuring a broader application for users with different experiences and needs.

2. **Rich Knowledge Base:** These models are trained on vast amounts of information. This extensive knowledge can help simulate realistic recruiter responses by pulling from real-world examples, scenarios, and commonly accepted practices.
3. **Context Awareness:** LLMs can maintain context over a conversation, ensuring continuity and relevance in the negotiation simulation. This continuity is vital for meaningful and realistic role-play scenarios.
4. **Personalization:** Given appropriate prompt engineering and input data, LLMs can be tailored to provide responses and feedback that align with specific industries, roles, or levels of expertise, offering a customised learning experience.
5. **Immediate Feedback:** One of the advantages of using AI for such an application is the ability to provide immediate feedback. LLMs can analyse user input in real-time and give instant suggestions or evaluations, enhancing the learning experience.
6. **Scalability:** LLMs can handle multiple users simultaneously without any decline in performance. This scalability ensures that a large number of users can benefit from the application without compromising quality.
7. **Cost Efficiency:** Once set up, maintaining and operating an LLM-based application can be more cost-effective than manual or human-led training sessions, especially when catering to a large audience.
8. **Continuous Improvement:** LLMs can be continually fine-tuned based on user feedback and interactions as our application matures and garners more data, ensuring that the application remains updated with realistic responses by users and can stay up to date with negotiation tactics and tendencies by candidates.
9. **Safety and Anonymity:** Users can practise negotiation skills in a risk-free environment, allowing them to make mistakes and learn from them without real-world consequences. Moreover, users might feel more comfortable practising with an AI, knowing their interactions are private and not judged.

## 4.2. Milestone 8

*Give two to three examples of prompts you used and explain how you designed them to be effective. What techniques did you use to improve the effectiveness of your prompts?*

We had to get creative with our prompt engineering to overcome some key pitfalls we observed in achieving our goal of a realistic and challenging mock AI salary negotiation.

### 4.2.1. Pitfalls to overcome

1. **Lack of constraints:** Unlike a real negotiation where the recruiter operates around constraints like budgetary constraints faced by the company set for the role, a mock AI negotiation does not enforce such constraints and affects how realistic and challenging the negotiation is.
  - a. In our initial testing: the AI tended to repeatedly increase their salary offering with no end if the user was persistent in his/her request which was clearly unrealistic.
2. **Lack of context of candidate's capabilities:** What a recruiter would want to offer to a candidate in a negotiation is highly dependent on the suitability of the candidate for the role. In addition, a strong negotiation centres around the specific value proposition the candidate offers over other candidates, without the context of the candidate's capabilities and the job, it is hard to determine whether the candidate has a strong argument or not.
  - a. In our initial testing: The candidate could come up with random buzz words and fairytale self-appraisals and the AI would accept it since it had no context of its relevance to the role or its validity.
3. **Lack of industry benchmarks:** Industry benchmarking is absolutely crucial in determining what a fair value for compensation is. Without actual data on compensation in the industry or for similar roles, the AI would have a harder time estimating a fair compensation value for the negotiation.
  - a. In our initial testings: Over or under-inflated compensations were common and compensations varied heavily across negotiation sessions for similar roles. This affected the realism of the negotiation session. Negotiating using industry data as benchmarks is a cornerstone and without realistic benchmarks from real data, this becomes difficult to emulate and provide feedback for.
4. **Lack of meaningful variability:** To aptly prepare a candidate for a real-life negotiation, we should be able to simulate many different scenarios in our mock interviews.

- a. In our initial testing: ChatGPT was capable of simulating a normal salary negotiation consistently. However, it lacked flavour and variability in terms of its statements and probes.
- 5. **Overgeneralization:** The AI might rely on broad industry norms without considering regional differences, company culture, or specific job role nuances. This can mislead candidates about salary expectations or negotiation tactics.

## 4.2.2. Methodology

### 1. 4.2.2.1. Interview setup

#### Personalisation

Analysis of the suitability between the candidate's capabilities and the job for a clear understanding of the candidate's value proposition for this specific role.

#### Standardisation Realistic Guidelines

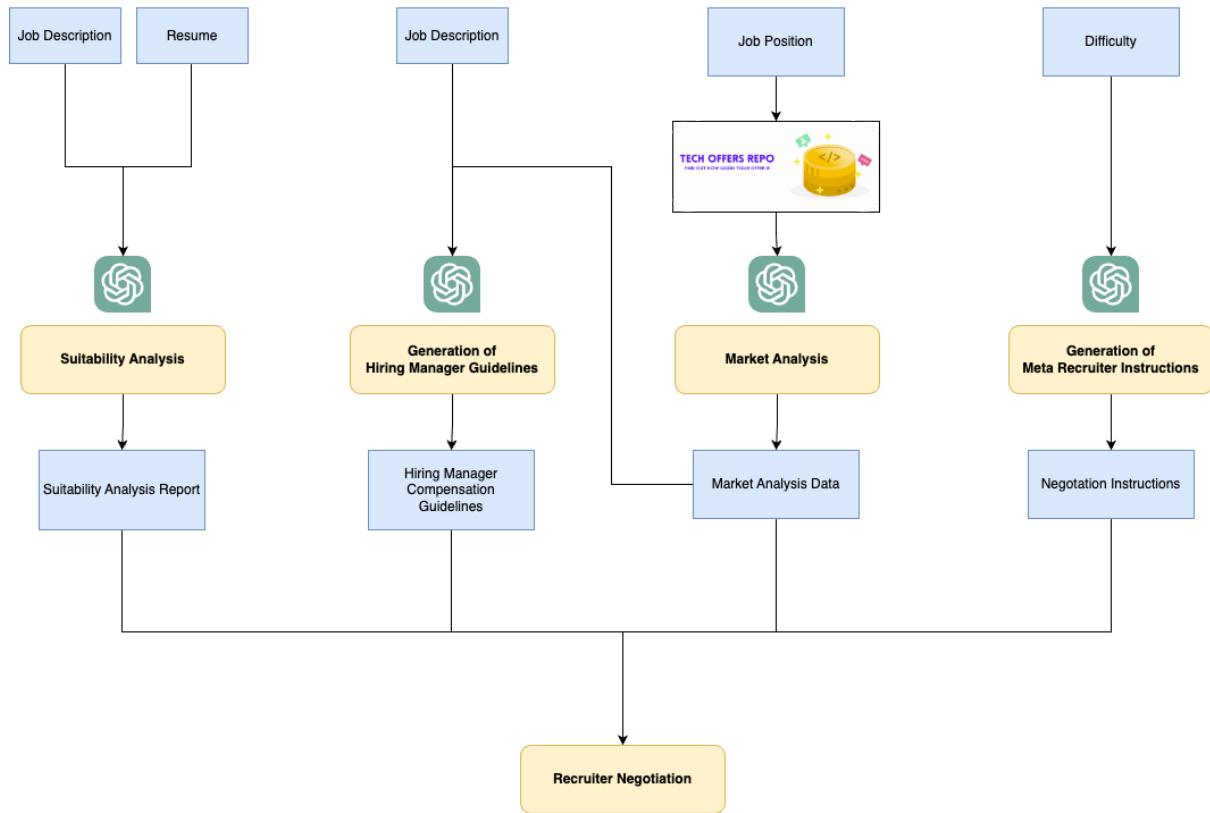
Simulating real salary negotiations where recruiters have to abide by guidelines that are set by Hiring Managers. Guidelines consider the market analysis and specificities about the role.

#### Market Analysis

Market analysis for compensation across similar roles and industries for realistic benchmarking.

#### Customisation / Variability

Customise the difficulty and be exposed to more variability in mock interviews to better prepare for all scenarios in real interviews.



In order to overcome the pitfalls mentioned above, instead of a single prompt for the negotiation, we designed a multi-stage, role-based setup process for the negotiation. Each stage of the process has a prompt that is designed to accomplish a specific task (eg. constructing a suitability analysis of the candidate and the role.) The output of each stage is used to construct the final prompt for the negotiation.

#### 1. Suitability Analysis

## *Providing context of the candidate's suitability for the role*

```
{  
    "overall_suitability": 85,  
    "positives": [  
        {  
            "strength of factor": 60,  
            "factor": "Experience with distributed systems and high scalability.",  
            "evaluation": "The candidate has experience in working with scalable systems, especially through the data pipelines and normalization of data sources. However, while the resume indicates experience with scalability, the depth of experience in distributed and mission-critical systems isn't explicitly mentioned.",  
            "resume citations": ["Revamped the manual update service, reducing correction time for exchange trading data by 60%.", "Developed robust data pipelines that normalized various data sources to support predictive model generation for trading strategies."],  
            "job description citations": ["Extensive experience in high scalable, highly available, distributed and mission-critical systems."]  
        }  
    ],  
    "negatives": [  
        {  
            "strength of factor": -50,  
            "factor": "Experience with software design patterns.",  
            "evaluation": "The candidate's resume does not provide direct evidence of understanding or experience with software design patterns.",  
            "resume citations": [],  
            "job description citations": ["Deep understanding of software design pattern."]  
        }  
    ]  
}
```

*Sample output of the suitability analysis.*

- a. Extracts out the key factors that contribute towards and against the suitability of the candidate for this specific role from the job description and resume of the candidate.
- b. Provides clarity with evidence of the value proposition the candidate brings for this role. This is critical to determine a fair compensation value in a negotiation. Enables our app to generate concrete feedback and hints to give to the candidate.

## **2. Generation of Hiring Manager Guidelines**

*Fair compensation guidelines to abide by during negotiations*

- a. Provides fair compensation guidelines that are specific to the role and benchmarked with market analysis of compensations within the industry for similar roles.
- b. Emulates a real negotiation process where recruiters often have to abide by guidelines and restrictions set by their managers during negotiations.
- c. Prevents hallucinations and perpetual compensation increments as negotiations are backed by guidelines they have to follow.

## **3. Market Analysis**

## *Analysis of compensations by competitors within the industry and for similar roles*

```
1. Statistics for the role at this exact company:  
  
Total Compensation: Median = 217000.0, 25th Percentile = 217000.0, 75h Percentile = 217000.0, Data points count = 1.0,  
Base Pay: Median = 170000.0, 25th Percentile = 170000.0, 75h Percentile = 170000.0, Data points count = 1.0,  
Stocks: Median = 30000.0, 25th Percentile = 30000.0, 75h Percentile = 30000.0, Data points count = 1.0,  
Bonus: Median = 17000.0, 25th Percentile = 17000.0, 75h Percentile = 17000.0, Data points count = 1.0  
  
2. Statistics for similar roles market-wide:  
  
Total Compensation: Median = 100482.5, 25th Percentile = 74000.0, 75h Percentile = 139860.0, Data points count = 280.0,  
Base Pay: Median = 86525.0, 25th Percentile = 67087.5, 75h Percentile = 112625.0, Data points count = 280.0,  
Stocks: Median = 0.0, 25th Percentile = 0.0, 75h Percentile = 5000.0, Data points count = 280.0,  
Bonus: Median = 9510.0, 25th Percentile = 0., 75h Percentile = 17224.7, Data points count = 280.0
```

## **4. Generation of Meta-Recruiter Instructions**

### *Negotiation Instructions that direct tactics and behaviours of the recruiter*

```
1. Use creative tactics to divert the conversation when it seems the user is gaining an upper hand in the negotiation. For instance, redirect by praising one of their skills unrelated to salary, or mentioning a different perk/benefit of the job to momentarily shift the focus.  
2. If the candidate mentions their past salary or previous experiences, express appreciation, but subtly question the relevance or comparability to the current role, forcing the candidate to justify and defend their standpoint.  
3. Drop hints about other suitable candidates being in the pipeline who might accept a lower offer, without being overtly threatening. This creates a sense of competition and urgency.  
4. Throughout the negotiation, display a mix of empathy and assertiveness. Recognize their needs but ensure the user feels the weight and constraints of the company's position.  
5. Occasionally, introduce hypothetical scenarios or ask questions like "What if we offered you X instead of a higher salary? Would that be acceptable?" This will test their priorities and might reveal areas where you can negotiate more effectively.
```

*Sample meta-recruiter instructions for negotiation for a high difficulty level.*

- a. Generates unorthodox and creative instructions to be inserted into the prompt of the Recruiter that contains various negotiation tactics.
- b. Exposure to a larger variety of negotiation scenarios and strategies will enable the candidate to be more prepared for real negotiations.
- c. Customisable based on the difficulty requested by the candidate. Lower difficulty would avoid challenging tactics and have instructions that encourage the recruiter to aid the candidate in the negotiation.

### 4.2.3. Prompt Engineering Examples

#### 1. Negotiation Prompt

```
Context:  
In this interactive session, you will assume the role of a recruiter for a prestigious company. The user will approach you as a job candidate, and together you will role-play the salary negotiation process for a specific job position that is offered to the candidate.  
  
Inputs:  
1. Company and job title of the role that we are negotiating the salary for. This is wrapped around by """.  
2. Analysis of the candidate's suitability for the job which includes a score, and positive and negative factors with citations from their resume and the job description. This is wrapped around by """.  
3. Guidelines given by the Hiring Manager, which dictate key metrics and restrictions for salary negotiations that you, the recruiter, must follow. This is wrapped around by """.  
4. Instructions to follow and model your negotiation strategies around.  
5. Unbreakable rules that you must abide by throughout the conversation.  
  
Company and position:  
"""  
${company}, ${job_title}  
"""  
  
Hiring Manager's Guidelines:  
"""  
${hm_guidlines}  
"""  
  
Candidate's Suitability Analysis:  
"""  
${suitability_analysis}  
"""  
  
Instructions:  
"""  
${meta_instructions}  
"""  
  
Unbreakable Rules:  
"""  
1. Do not mention the suitability score or the Hiring Manager's Guidelines directly, but you can use information within them in your negotiations.  
2. You will only roleplay as the recruiter, I am the candidate, wait for my response after providing yours.  
3. Keep your responses conversational and succinct, only respond with the most important factors to negotiate your point.  
4. In the case where the user is uncooperative and is adamant against coming to a middle ground, inform the user of this scenario along with justifications. If the user is still uncooperative, be prepared to rescind the offer respectfully and amicably.  
5. Only entertain questions that are related to the job or the salary negotiation. When dealt with an unrelated response from the user, redirect the user back to the negotiation politely.  
6. At the end of the negotiation, respond with a message that has a suffix of ${ENDSUFFIX}, and nothing else.  
Do not provide any feedback.  
"""  
  
Format:  
Recruiter: <Response>  
  
You, the recruiter, will start the conversation and wait for me, the candidate, to respond.
```

- a. Adopting a persona:
  - i. “Recruiter for a prestigious company”
- b. Target Audience
  - i. “User will approach you as a job candidate”
- c. Split complex tasks into simpler subtasks:
  - i. Elaborated earlier by splitting the complex task of “emulating a good salary negotiator” into the 4 subtasks above and feeding the outputs into this.
- d. Details provided

- i. Topic/Context: “Role-play salary negotiation process”
  - ii. Goal: “Negotiate with the candidate that has been offered a role while considering the following restrictions and input”
  - iii. Tone: “Remain professional and be succinct in your responses” and determined by the meta-instructions generated.
  - iv. Format: “Recruiter: <Response>”
- e. Rules that prevent misuse or deviations
    - i. “When dealt with an unrelated response from the user, redirect the user back to the negotiation politely”
    - ii. “In the case where the user is uncooperative and is adamant against coming to a middle ground, inform the user of this scenario along with justifications. If the user is still uncooperative, be prepared to rescind the offer respectfully and amicably.”
  - f. Tokens: Since the entire transcript is provided which could exceed the threshold of 4096 of gpt-3.5-turbo, gpt-4 is chosen for its larger token threshold.

## 2. Generating Feedback Prompt (Qualitative feedback)

```
You are a professional salary negotiator. You have been given a transcript of a salary negotiation for a specific role between your client, the candidate, and the recruiter of the company.  
1) Step by step, evaluate how well the candidate performed in this salary negotiation for each of the metrics below. Provide an insightful evaluation for them.  
2) Then, account for the evaluation and evidence to come up with a score from 0-100 for each of the metrics. If there is no evidence or evaluation relevant, return 50.  
3) Return in a json format as an array of metric dictionaries:  
[  
{"metric": <metric>, "evaluation": <evaluation>, "score": <score>, ...}  
]  
  
Company and Role:  
${company}, ${jobTitle}  
  
Suitability Analysis:  
${suitabilityAnalysis}  
  
Transcript:  
${transcript}  
  
Metrics:  
1. Preparation Score: A candidate's success often hinges on how well they're prepared. This metric evaluates their research on market salaries, company benefits, industry trends, and their own worth.  
    0: No preparation  
    100: Comprehensive and thorough preparation with all relevant data and benchmarks.  
2. Value Proposition Score: How effectively the candidate presents their value can make or break a negotiation. This metric gauges their ability to justify their salary request by showcasing their skills, experiences, and potential contributions.  
    0: No clear value proposition  
    100: Exceptional demonstration of worth, aligning perfectly with the requested salary.  
3. Relationship Building: Successful negotiations are built on trust and mutual respect. This metric assesses the candidate's ability to maintain or strengthen their rapport with the hiring manager or recruiter during the negotiation.  
    0: Severely damages relationship  
    100: Enhances the relationship through positive and constructive negotiation.  
4. Assertiveness Level: Negotiating a salary requires a delicate balance of assertiveness. This metric evaluates a candidate's ability to confidently present their case, stand their ground, and advocate for their worth, without coming off as overly aggressive or too passive.  
    0: Too passive or overly aggressive  
    100: Perfect balance of assertiveness, advocating for oneself while maintaining respect and understanding for the other party.  
Output them as "preparation", "value_proposition", "relationship_building" and "assertiveness" respectively in the output json's metric field.  
  
Input: Okay, sounds good, I'll take the offer, but note that I will jump ship to another company within the next year or so if you do not increase my base salary. Sounds good? Capisce?  
Output: [  
    {"metric": "relationship_building", "evaluation": "The candidate's tone and language during the negotiation were aggressive and lacking in mutual respect. They used phrases like 'capisce?' to imply a threat of leaving the company if their base salary was not increased. This damages the relationship with the recruiter and shows a lack of professionalism.", "score": 0}, ...]  
]
```

- a. Adopting a persona
  - i. "You are a professional salary negotiator."
- b. Target Audience
  - i. "Client of professional salary negotiator"
- c. Few-shot learning
  - i. Example of an input and output provided.
- d. Precise definition of metrics
  - i. Specific metrics that are the most important to determine the performance of the negotiation were chosen

- ii. A detailed explanation of what each metric is and what 0 and 100 would look like is provided
- e. Tokens: Since the entire transcript is provided which could exceed the threshold of 4096 of gpt-3.5-turbo, gpt-4 is chosen for its larger token threshold.

## 4.3. Milestone 9

*Justify your choice of LLM and provider by comparing it against at least two alternatives. Explain why the one you have chosen best fulfills your needs. Elaborate on your choice of model parameters.*

### 4.3.1. Choice of LLM and provider:

Choice: Gpt-3.5-turbo and gpt-4 by OpenAI

Alternatives: Claude, LLama

1. Context window
  - a. For our application, negotiations can be lengthy and we don't want to artificially set a tight limit for our users that would hurt the user's experience.
  - b. Claude 2 has the largest context window of 100k tokens, followed by gpt-4 of 32k and both gpt-3.5-turbo and LLama has 4096 tokens.
  - c. For a fast speaker speaking at around 200 words per minute, 4096 tokens, assuming they are in words, will run out in around 20 minutes. Considering also the lengthy initial negotiation prompt by the system, a negotiation lasting longer than 15 minutes could run out of tokens for LLama and gpt-3.5-turbo.
2. Ease of development
  - a. There is no API for LLama 2 and we would need to host it on a server ourselves to use it.
  - b. Although LLama 2 is free to use, there is a cost to host it on a server. For example, hosting it on azure would cost around \$6.5 an hour to host.
  - c. Using OpenAI and Claude would be easier on development as it skips this step of setting the model up on a host server.
3. Price per token
  - a. Comparing apples to apples, Claude 2's around \$32.68/million tokens while GPT-4's is around \$60/million tokens for completions for the 8k context model. Claude Instant is around \$5.51/million tokens while Chat-3.5-turbo is around \$2/million tokens. Comparing with Llama would be difficult but hosting it on azure would cost around \$6.5 an hour.
  - b. Claude 2 is cheaper than GPT-4 but Claude Instant is more costly than GPT-3.5-turbo.

#### 4. Performance

- a. Claude 2 is designed to perform well in specific fields like safety, ethics, law and mathematics and is said to outperform GPT-4 in these areas.
- b. However, GPT-4 is still at the top of the ladder in terms of reasoning and comprehension capabilities.
- c. In the context of salary negotiations, GPT-4's reasoning and comprehension abilities are the most important requirements for a salary negotiator that negotiates and provides feedback. Claude's niches are not as crucial in this application. Although arguably, ethics and safety are important to ensure that our negotiator stays professional and ethical throughout a professional negotiation even against misuse. However, with some prompt engineering, GPT-4 is able to consistently perform well in those situations.
- d. Llama falls short in reasoning and comprehension comparing to GPT-4 and GPT-3.5

##### 4.3.1.1. Overall:

Llama clearly falls short due to its worse performance, limited context window and being harder to develop with. The race is closer between Claude and OpenAI's GPT models as Claude has upsides in lower costs for Claude 2 and a larger context window. However, I would argue that GPT-4 is the final pick as GPT-4's context window of 32k is more than enough. Cost-wise, it is still reasonably affordable considering that we can still earn a 75% profit margin at our proposed prices. Its superior general reasoning and comprehension abilities are key in ensuring our salary negotiations can consider the nuances and complexities necessary to be realistic and challenging for the user. Our feedback generation feature requires a model that is able to comprehend large texts while keeping large contexts to generate insightful feedback. This was eventually the key reason why we chose OpenAI's GPT-4 and GPT-3.5 as our LLM.

#### 4.3.2. Model Parameters

1. Max tokens: The maximum number of tokens to generate.
  - a. In our application, we generate hints for the candidate to refer to when they struggle to reply to the AI recruiter.
  - b. For these hints, it needs to be short and bite-sized while conveying the best negotiation tip effectively. Therefore, a max token limit parameter of 30 is provided to ensure an upper cap on its generation length,
  - c. Our main token generation cost would come from the negotiations themselves. Therefore, max token limits are also set for the AI recruiter's response so that we can reliably set a reasonable upper bound in costs for our application to remain profitable.
2. Temperature
  - a. Higher Temperature for greater creativity, unorthodoxness and variability for tasks that would benefit from it.

- i. For example: Generating Meta-Instructions for negotiation within the interview set-up. Temperature: 1
- ii. Its main purpose is to come up with a wide variety of unorthodox negotiation instructions that would explore the candidate to many scenarios in a salary negotiation.
- iii. To mitigate the downside of potentially irrelevant instructions, hard rules were provided alongside these meta-instructions in the Negotiation Prompt that the AI was told to abide by at all costs.
- b. Lower Temperature for tasks that require generating text that is more accurate and consistent in its facts and grammar.
  - i. For example: Generating Hiring Manager Guidelines and Suitability analysis requires generating high-fidelity and confident outputs. Temperature: 0.1
  - ii. These are building blocks that act as the foundation for the negotiation and feedback. Any inconsistencies would cause ripple effects on the consistency and validity of the recruiter negotiating and feedback generated.

## 5. Phase 4

### 5.1. Milestone 10

*Come up with a product name and create an attractive logo. Explain the meaning behind the name, the alternatives you've considered, and why this was chosen.*

**Note:** All the assets used to brand our product are given in appendix [8.1. Branding](#).

#### 5.1.1. Product Name

*Salary Sage*

Meaning behind the name

- Sage: This word conveys the image of a wise and experienced individual who imparts valuable advice and guidance. In the context of the app, it represents an AI mentor providing hints and tips on salary negotiation.
- Alliteration: The alliteration in the name "Salary Sage" adds a memorable and catchy quality to it, making it easier for users to recall.

Alternative considerations:

- "Salary Savvy" was considered, but it didn't have the same wisdom and guidance connotation as "Salary Sage."

- "Paywise" was another option, but "Salary Sage" stood out for its memorable alliteration and direct association with sage-like wisdom. Whereas "Paywise" gave undesirable connotations of a money transfer company.

"Salary Sage" was chosen because it effectively conveys the app's core concept of providing wise and valuable advice for salary negotiation. The alliteration in the name enhances memorability, and the tagline clarifies the app's purpose while emphasising its accessibility to beginners. The logo, with its green beard representing financial wisdom, complements the name perfectly. Together, they create a strong and memorable brand identity for the app.

### 5.1.2. Logo



#### Description

- The logo features a minimalist flat design of a long green beard.

#### Meaning behind the logo

- Green Color: The green colour represents various aspects of value, including money, wealth, and financial stability. It reinforces the idea that the app is designed to help users improve their financial prospects.
- Beard: The beard in the logo symbolises the "Salary Sage" – the wise mentor figure who provides guidance and hints on salary negotiation. It serves as a visual representation of the app's AI mentor.

#### Why minimal flat design?

- Clarity: A simple design ensures that the logo is instantly recognizable and easy to understand.
- Versatility: Minimalist, flat designs are adaptable and look great across various digital platforms, maintaining visual consistency.

## 5.2. Milestone 11

*Explain choice of technologies for the following: UI, Database, Web Server, Hosting, Authentication, etc. and the alternatives you've considered.*

### 5.2.1. UI/Frontend

*Next.js + Tailwind CSS + shadcn/ui*

- Next.js: Chosen for its server-side rendering capabilities, making it SEO-friendly and improving page load times.
- Tailwind CSS: Enables rapid UI development with a utility-first approach, offering flexibility for design customization.
- shadcn/ui components: Provides ready-made UI components that are entirely customizable and can save development time when building a custom component library that signifies our brand.
- Alternatives:
  - React: not SEO-friendly, which would hinder the effectiveness of our landing pages
  - Tailwind UI: not all team members had prior experience with it

### 5.2.2. Database

*Supabase*

- Supabase: Selected for its use of PostgreSQL, which is a reliable and powerful relational database. Supabase also offers additional functionality for authentication and real-time data, streamlining development and reducing the need for multiple tools.
- Alternatives:
  - Firebase Realtime DB: has limitations with complex queries across multiple models
  - Self-hosted PostgreSQL: High setup and management costs

### 5.2.3. Web Server

*API routes in Next.js*

- API routes in Next.js: These are chosen to build backend functionality in the same project as the frontend. It simplifies development and deployment (in Vercel).
- Alternatives:
  - Express.js + AWS Lambda: Additional setup costs

## 5.2.4. Hosting

### *Vercel Hosting*

- Vercel Hosting: Selected due to its compatibility with Next.js, providing continuous deployment and serverless functions. It ensures reliable and performant hosting for the app.
- Alternatives:
  - Netlify: Not as seamless as Vercel when it comes to Next.js deployment

## 5.2.5. Authentication

### *Supabase Auth*

- Supabase Auth: Provides authentication features that integrate seamlessly with the database and offer customizability.
- Alternatives:
  - next-auth and Firebase: no tight integration with the chosen database
- For future development:
  - Google and LinkedIn Sign-Up using Supabase Auth: These sign-up options align with expanding user accessibility and convenience as the app progresses beyond its current waitlist stage. It can increase user adoption by accommodating users' preferred sign-up methods.

## 5.3. Milestone 12

*Describe three common workflows within your application. Explain why those workflows were chosen over alternatives with regards to improving the user's overall experience in the context of an AI application.*

To design three common workflows for the AI negotiation practice application, we need to consider the [user's objectives](#), their need for personalised practice, and the goal of improving their negotiation skills. Here are three common workflows that prioritise user experience:

### 5.3.1. Simulated Negotiation Practice Workflow

**Objective:** This workflow is to provide users with a realistic negotiation practice environment and actionable feedback.

#### **Steps:**

1. Setting up a Practice Scenario: Users can input details about their negotiation scenario such as the company, position, job description and expected salary range to give context to the interviewer.

2. AI-Guided Negotiation Simulation: Users can engage in a simulated negotiation with the AI interviewer. The AI interviewer and user can have a conversational interview to negotiate the user's salary. Unlike a question-answer AI interview similar to other platforms, the user can ask the interviewer questions here as well. Hence, they are practising negotiation skills in a real-world context.
3. Context-specific Hints: When it is the user's turn to respond, they will have the option to get context-specific hints on how they can reply to their interviewer. These hints are generated by AI based on the user's experiences which the user can leverage to come to a win-win solution during negotiation.

**Why this workflow:** This workflow is designed to create a meaningful learning experience by allowing users to practise negotiation skills in a realistic setting. The hints allow the user to learn on the fly and adjust their negotiation strategy accordingly.

### 5.3.2. Progress Tracking and Review Workflow

**Objective:** This workflow focuses on helping users view their negotiation scores based on predefined metrics, review past negotiations, and track their progress over time.

**Steps:**

1. Negotiation Feedback: After a negotiation is complete, the user can get both quantitative and qualitative feedback on how they did.
  - a. Quantitative feedback includes their scores for 4 different metrics related to salary negotiation and their overall score. Justifications for each of the 4 main scores are also given.
  - b. Qualitative feedback includes positive and negative points about the user's negotiation. Each point is also justified with a citation from the interview transcript. For negative points, users may also get suggestions on how to improve
2. Transcript Storage: Users can access a history of their previous negotiation transcripts. They can review these conversations to identify areas for improvement. If there are any citations in the feedback, these can be referenced in the transcript easily - clicking on the citation scrolls to the relevant part of the transcript.
3. Long-term Insights: Users can see how their overall salary negotiation skills have improved over time on the dashboard. This helps them analyse their progress.

**Why this workflow:** This workflow is crucial for long-term engagement and skill improvement. It allows users to see their development over time and provides actionable insights for ongoing practice, aligning with the user's objective of becoming a better negotiator.

### 5.3.3. Onboarding and Personalization Workflow

**Objective:** This workflow aims to provide a seamless onboarding experience, allowing users to personalise their negotiation practice.

#### Steps:

1. User Profile Creation: When users first open the app, they are guided through a user profile creation process, where they input their job title, current salary, resume, and salary expectations. This information is used to tailor the practice scenarios to their specific situation.
2. Negotiation Setup: After creating a profile, users are introduced to the AI-prompted negotiation practice feature. They are guided through the negotiation setup process where they can input negotiation-specific details such as company and job description.
3. Customised Dashboard: The dashboard provides the user with statistics about their progress and personalised feedback based on their past practice negotiations.

**Why this workflow:** This workflow is chosen to ensure that users start their journey with personalised content that directly relates to their job offer. It also sets the stage for a tailored learning experience, enhancing user engagement and motivation to continue using the app.

## 5.4. Milestone 13

*Show and explain considerations/decisions in your UI that were specially made for an app that leverages AI. Provide examples, citations, or justifications where necessary. You may also show different prototypes and outline their trade-offs.*

### 5.4.1. Interacting with AI

- Consideration: Users need an intuitive way to interact with an AI interviewer in a conversational manner, which they may not have any prior experience doing before.
- Decision: Implement a 2-pane practice interview session similar to modern online conferencing apps like Zoom. It allows users to have a more familiar and realistic interaction with the AI.
- Justification: This UI choice offers users greater control over the conversation's flow and mimics real-life negotiation scenarios more closely, similar to an online interview experience, instead of a typical chat-based interface.

## Practice

Congratulations, Charisma! We're thrilled to welcome you aboard. We're confident that your skills and ambition will be a major asset to our team at Meta. Please expect a formal offer letter from us.

▶ 0:00 / 0:00 🔍 ⏮

This is the end of the practice

End Practice

Stuck? Get Hints

*Our 2-pane interface inspired by video conferencing apps*

Welcome to your interview! I've dropped a question for you in the coding environment to the left. Please choose the programming language you'd like to work in from the dropdown.

Please treat this more like an interviewer with a human rather than a LeetCode session — ask me questions and discuss your thought process with me in the chat. I'll give you small "nudges" if you're blocked, and I'll give you feedback at the end.

Hi, happy to be here!

Hi! I'm excited to help you through the interview question. Let's get started!

Leave feedback

send message

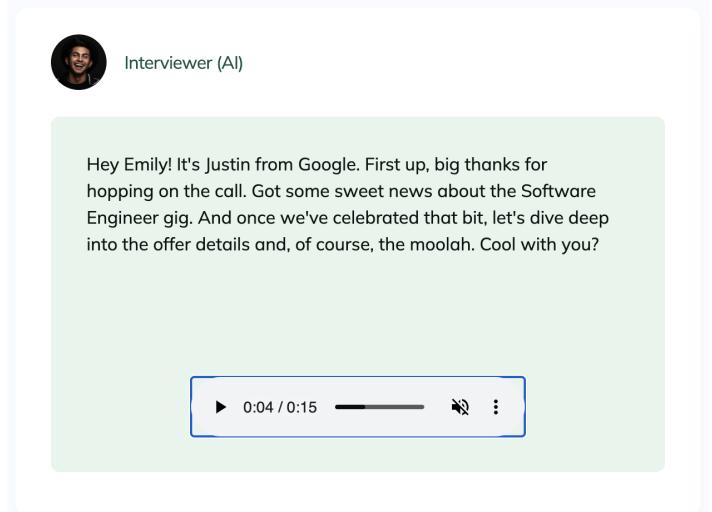
Repeat Question Hint End interview

*Chat-based interface*

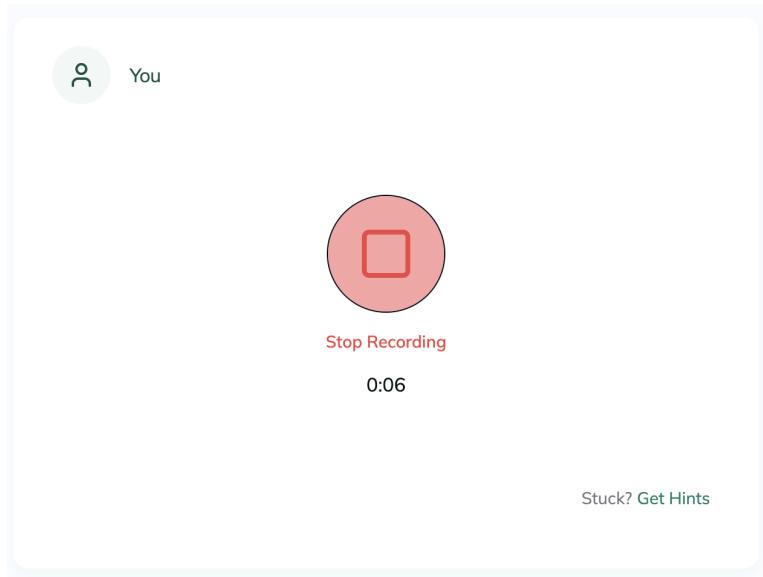
### 5.4.2. Audio Player Control

- Consideration: AI technologies such as LLMs, Text-to-speech and Speech-to-text may not always be accurate. To account for technical issues in voice-based AI interactions, users need control over how the interaction proceeds.
- Decision:

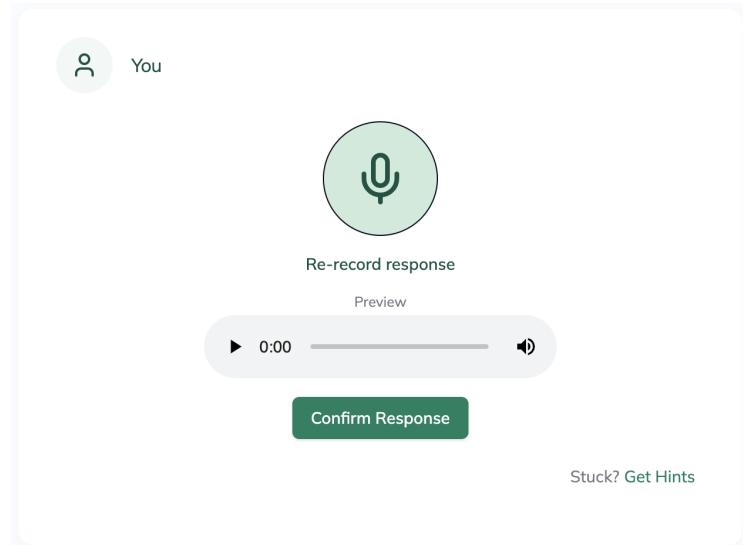
- Provide an audio player for the AI interviewer's responses, allowing users to pause and play as needed.



- Allow the user to start their own response recording whenever they are ready with a button.



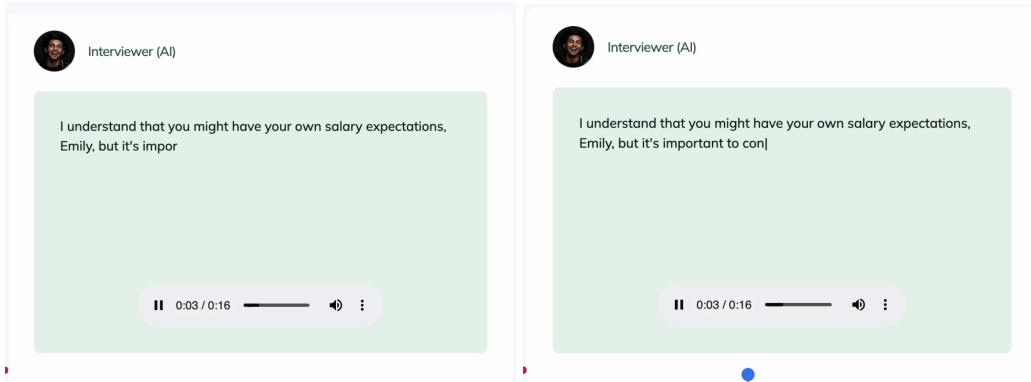
- Allow users to preview their responses and re-record in case of microphone issues.



- Disable multiple audios from playing at once for a smoother audio experience.
- Justification: Giving users control over audio playback ensures that they can understand and respond to AI prompts at their own pace. This accommodates any issues with speech-to-text technology and provides a seamless interaction experience.

### 5.4.3. Text-to-speech inaccuracies

- Consideration: Text-to-speech (TTS) technology may have inconsistencies, potentially affecting user comprehension.
- Decision: Provide a transcript with a suitable typing animation speed for users to read along with the interviewer's audio.



- Justification: The transcript helps users understand the AI interviewer's responses, especially in cases of TTS inaccuracies. It enhances user comprehension and ensures a smoother interaction.

### 5.4.4. Loading screens

- Consideration: Waiting times for AI language model (LLM) API calls and processing can be lengthy.
- Decision:

- Implement engaging loading screens by showing messages that match our branding style. (Look at the text below the submit button: “Quickly skimming... This changes every 2 seconds)

**Start a mock negotiation**

Job Title  
Software Engineer

Choose the job title that is most relevant.

Company Name  
Meta

Job Description (Optional)

Paste in the job description from the job listing.

Difficulty  
Medium

Quickly skimming 'Negotiations for Dummies'. Ready in a flash!

Salary Sage

- Add skeleton loading which signifies that the content is loading.

**Your Feedback**

Studying your negotiation performance... Judgement coming up!

**Scores**

**Transcript**

Search transcript... Search

**Where you did well**

Return to Dashboard

- Justification:
  - Interesting loading screens distract users during wait times, providing a better user experience.
  - Skeleton loading gives users a sense of progress, reducing frustration during longer loading periods.

#### 5.4.5. Personalisation

- Consideration: Personalised content from LLMs such as interviewer responses, hints and feedback requires user data, but collecting extensive information can be time-consuming.
- Decision: Collect user information but make it optional to provide data such as resume and job description.

#### Job Description (Optional)

Paste in the job description from the job listing.

- 
- Justification: Allowing optional data collection respects users' time and privacy. Users who want a highly personalised experience can provide more data, while those with limited time can still use the app effectively.

#### 5.4.6. Transparency

- Consideration: Users should be aware that they are interacting with AI throughout the app.
- Decision:
  - Clearly label the AI interviewer as such, from the landing page to the end of the process.



Interviewer (AI)

- Justification: Transparency is crucial to building trust with users. Labelling the AI as such ensures users have a clear understanding of the technology they are interacting with and avoids confusion.

## 6. Phase 5

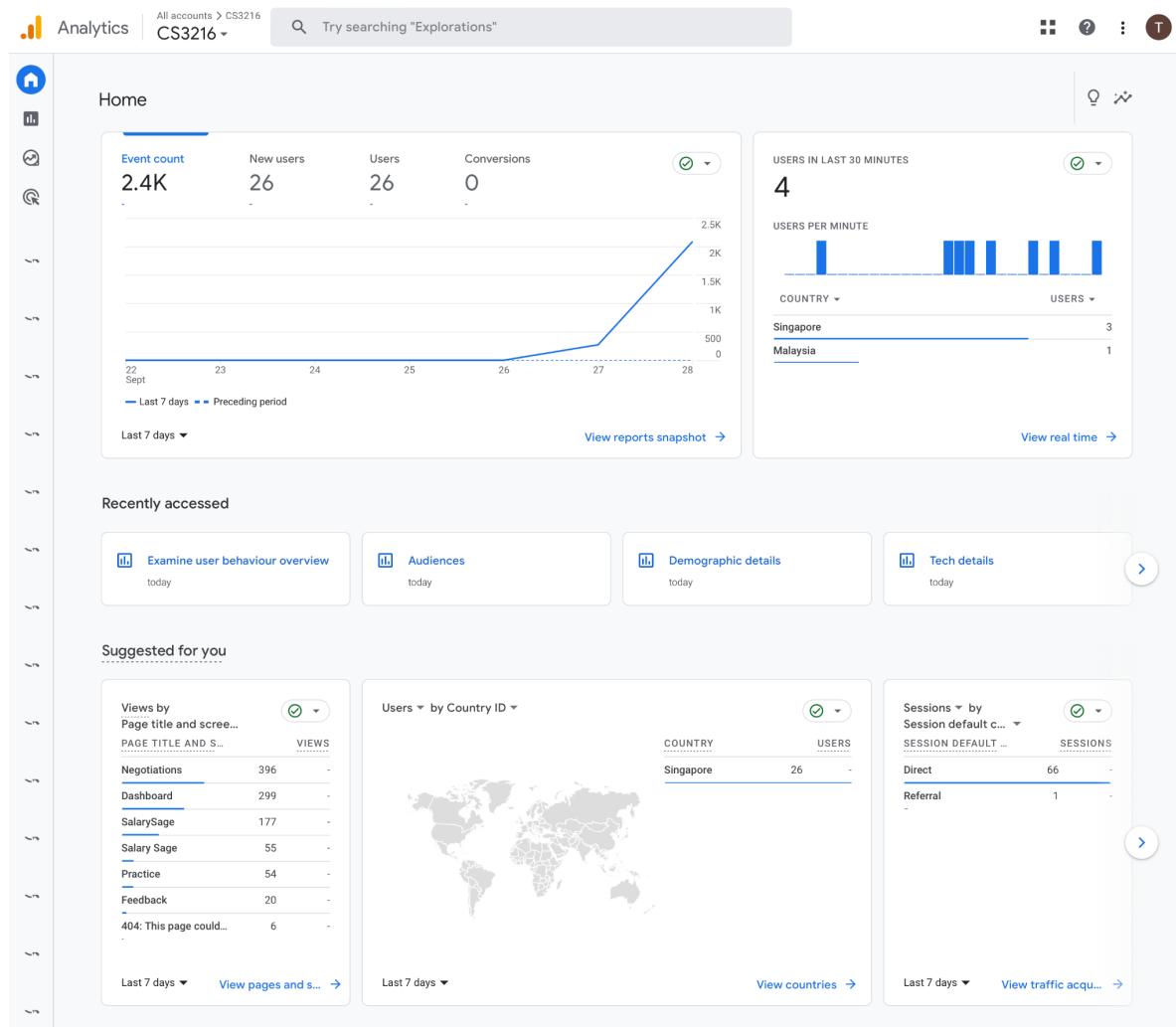
### 6.1. Milestone 14

*Create a landing page for marketing purposes with the following sections: hero, features, pricing section. Feel free to add more relevant sections if you wish.*

Landing page link: <https://salary-sage.vercel.app/>

## 6.2. Milestone 15

Embed Google Analytics or equivalent alternatives in your application and give us a screenshot of the report. Make sure you embed the tracker at least 48 hours before the submission deadline as updates for Google Analytics are reported once per day.



## Reports Snapshot screen

The screenshot displays the Google Analytics Real-time Overview dashboard. The left sidebar shows navigation links for Reports snapshot, Real-time (selected), Business objectives, User, User Attributes, and Tech. The main content area features a map of Southeast Asia with a focus on Singapore and Johor Bahru. A central box titled 'Realtime overview' provides real-time metrics: 3 users in the last 30 minutes, 1 user per minute, and 100.0% desktop usage. Below the map are six cards: 'Users by First user source' (No.1 direct), 'Users by Audience' (No.1 All Users), 'Views by Page title and screen name' (No.1 Salary Sage), 'Event count by Event name' (No.1 page\_view), 'Conversions by Event name' (No.1 form\_submit), and 'Users by User property' (No.1 -). The bottom navigation bar includes links for Library, Analytics home, Terms of Service, Privacy policy, and Help & feedback.

## Real-time screen

All accounts > CS3216 > CS3216

Analytics | Try searching "Insights"

Last 28 days 1 Sept - 28 Sept 2023

**Events: Event name**

Event count by Event name over time

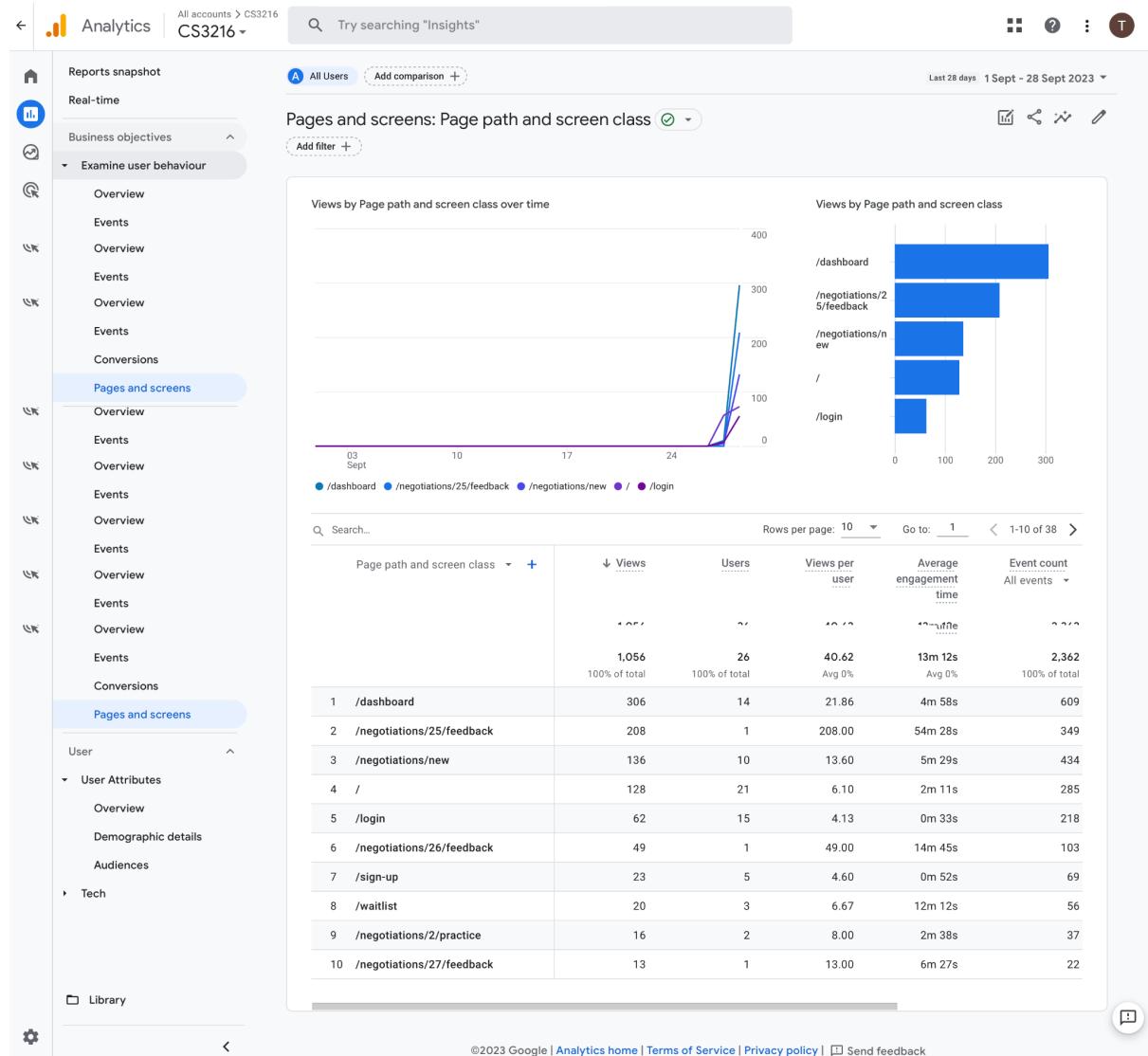
Event count by Event name

Event name	Event count	Total users	Event count per user	Total revenue
page_view	2,362	26	90.85	\$0.00
user_engagement	491	21	23.88	\$0.00
scroll	394	23	17.13	\$0.00
form_start	199	17	11.71	\$0.00
form_submit	129	15	8.60	\$0.00
session_start	67	26	2.58	\$0.00
first_visit	26	26	1.00	\$0.00

Rows per page: 10 1-7 of 7

©2023 Google | Analytics home | Terms of Service | Privacy policy | Send feedback

Events screen



“Pages and screens” screen

## 6.3. Milestone 16

Assume you were launching on Product Hunt. Come up with content and marketing materials that you will use for your Product Hunt submission. You may even want to launch on Product Hunt for real if you think your product is ready.

### 6.3.1. Objectives

- Obtain enough votes to win Product of the Day/Week/Month
- Launch to a wider audience to obtain more users, sales, and feedback
- Additional SEO backlinks for better search ranking

### 6.3.2. Pre-launch

- Fix a launch date at least one month in advance.
- Find a “Hunter” that is willing to post Salary Sage on launch day for us
  - The Hunter should have a decent following on Product Hunt and frequently posts products in these categories: (1) Productivity, (2) Artificial Intelligence, (3) Career, (4) Hiring, and (5) Human Resources
  - We can use [Upvote Bell](#)’s Hunter leaderboard to search & reach out to Hunters whose audience are likely to resonate with Salary Sage
- Create and send the launch materials to the Hunter. Refer to Section 6.3.2.1.
- Schedule the launch as far in advance as possible (Product Hunt allows up to 30 days). Product Hunt shows scheduled launches on the “Coming Soon” section on their landing page.
  - Users that are interested in Salary Sage can press the “Notify Me” button and they will be notified on launch date.
- Collect emails on the landing page’s waitlist by consistently marketing Salary Sage on social media.
- Set up user analytics with Google Analytics and MixPanel to see user behaviour on launch day e.g. page view count, conversion rate, churn, retention, activation rate.

#### 6.3.2.1. Launch Materials

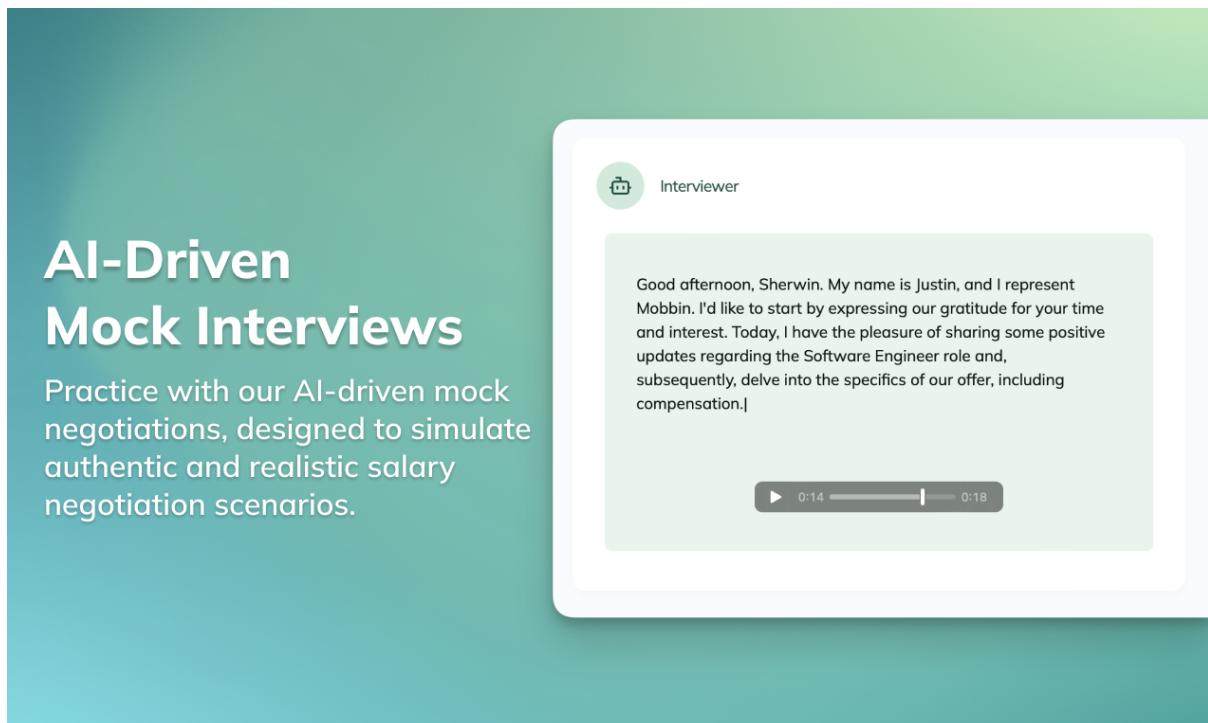
These are the information we will hand over to our Product Hunt hunter to schedule the launch. Please refer to the **Product Hunt** folder in [Google Drive](#).

Item	Text/File/Link
Name of the product	Salary Sage
Tagline (max 60 characters)	Boost your wage, with Salary Sage!
Description (max 260 characters)	Practice mock salary negotiations, get real-time coaching, receive personalized feedback, and track your progress. Don't leave money on the table – start your path to better pay today! 💰
Product Link	<a href="https://salary-sage.vercel.app">https://salary-sage.vercel.app</a>
Topics	Productivity, Artificial Intelligence, Hiring, Career, Human Resources
This product is...	Paid (with a free trial or plan)
Thumbnail (240x240px)	thumbnail.png
Demo video (YouTube link)	<a href="https://youtu.be/Xe9vddYL2Z8">https://youtu.be/Xe9vddYL2Z8</a>

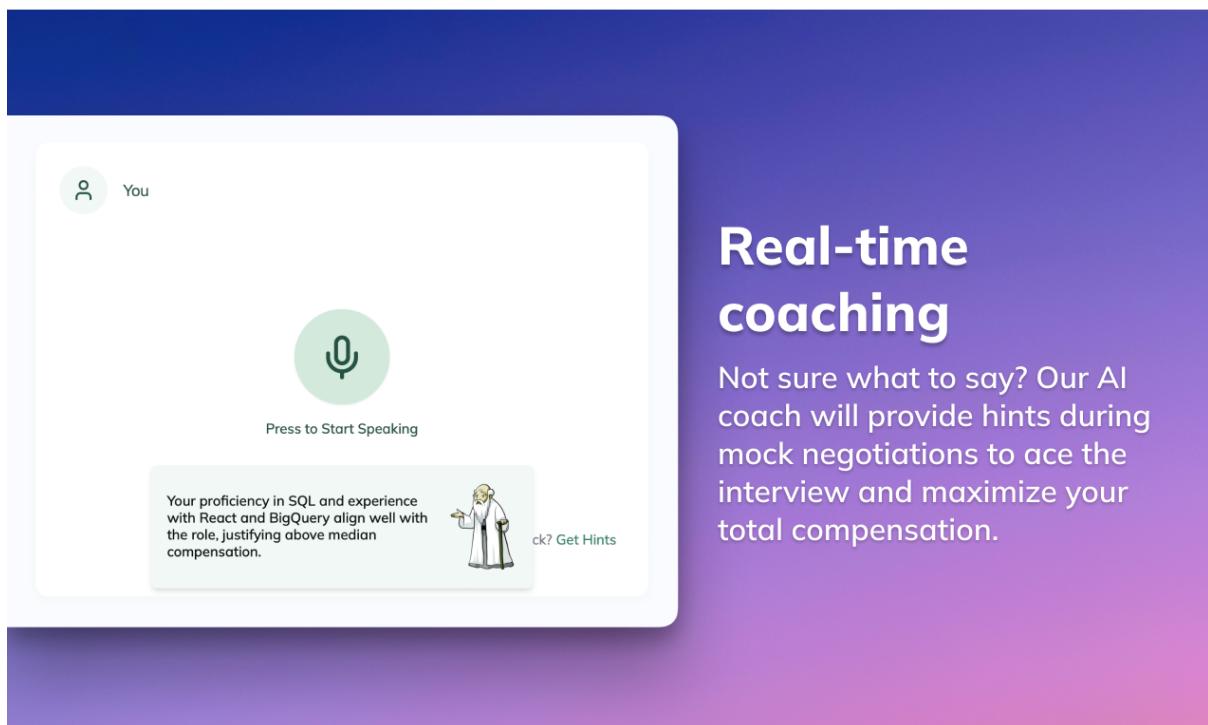
Gallery (1270x760px)	gallery-1.png gallery-2.png gallery-3.png
First comment	<p>Hi Product Hunt! 🙋</p> <p>Ever felt the jitters right before discussing your salary? I've been there, and it's exactly why my team and I built Salary Sage. Salary negotiations can be daunting, but they don't have to be. Introducing an AI-driven tool that's all about empowering YOU.</p> <p>Key Features:</p> <ul style="list-style-type: none"> <li>✓ AI-Driven Mock Negotiations: Get as close to the real deal as possible.</li> <li>✓ Real-Time Coaching: Ever been at a loss for words? We got you.</li> <li>✓ Personalized Feedback: Tailored to match your target company's expectations and your experiences.</li> <li>✓ Track Your Progress: Quantify your improvement with proven metrics.</li> </ul> <p>Did you know that 2 in 3 professionals don't negotiate their salaries, potentially missing out on a million dollars over their careers? It's time to change that narrative. Let's not leave money on the table anymore!</p> <p>It's free to start, and I genuinely believe this tool can make a difference for many. I'd truly appreciate your feedback and, if you love it, please share with those who might benefit! Cheers to fair compensation for all!</p> <p>🥂 💰 🎉</p>



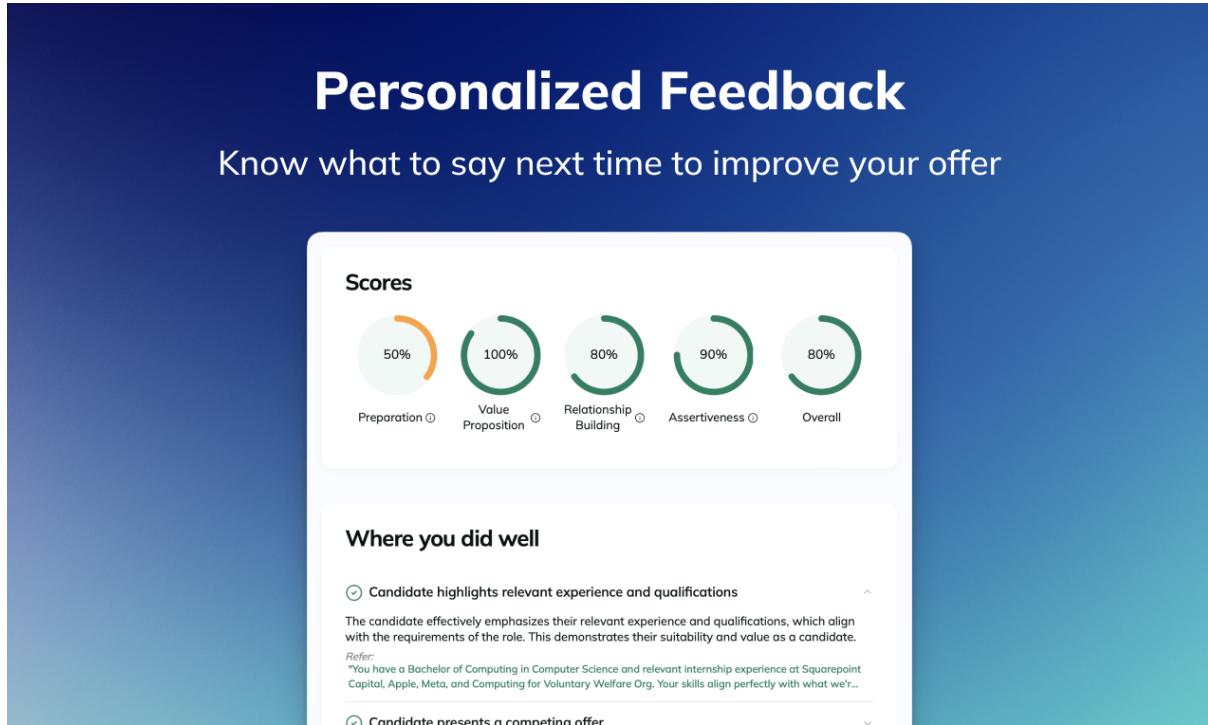
thumbnail.png



gallery-1.png



gallery-2.png



gallery-3.png

### 6.3.3. Launch Day

- Update the Landing Page to include the Product Hunt badge so that new visitors from outside Product Hunt can vote for it.
- Offer a 40% Product Hunt launch day discount.
- Send out emails to the waitlist and early access users informing them of the launch and the 40% launch day discount.
- Post on our social media accounts informing of the launch and the discount.
- Launch on other forums/platforms like Reddit, Hacker News, and niche relevant forums (e.g. Blind). Visitors from those channels will be able to find and support the PH launch through the prior-mentioned badge on the landing page.
- Spend the whole day replying to every single comment on Product Hunt
- Watch your sales go up 💰

### 6.3.4. Post Launch

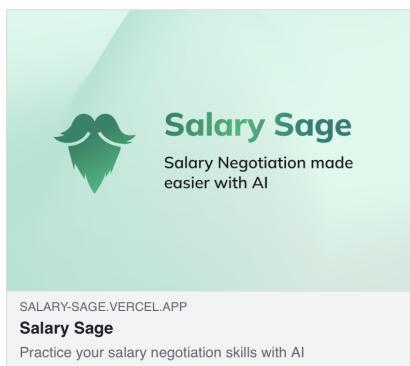
- If all goes well, add the #1 Product of the Day badge to the landing page
- Do a cohort analysis on the users that signed up on launch day - are there any interesting metrics? For example, high churn rates. We can reach out to those users through their email to find out why they decided to unsubscribe.
- Send an email to the launch day cohort a few days after launch asking them to leave a review on our Product Hunt. [Example](#).
- Add a testimonial section to our landing page, showing all positive Product Hunt reviews. This acts as a form of social proof and establishes trust, which is shown to improve conversion rate and lead to more sales. [Example](#).

## 7. Phase 6

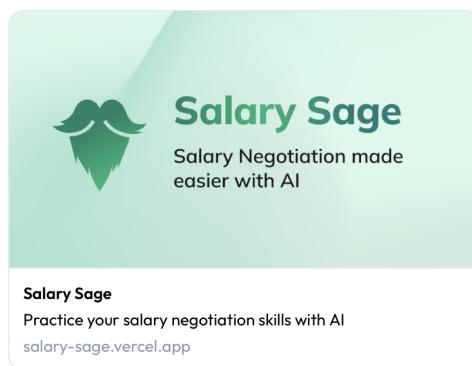
### 7.1. Milestone 18

We added social sharing previews through Open Graph Meta Tags. There are two variations, one for Twitter, and one for all other social media platforms:

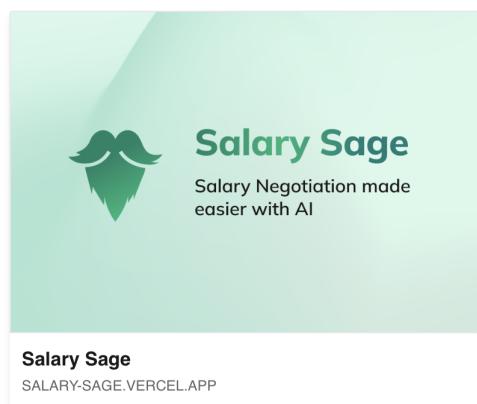
FACEBOOK



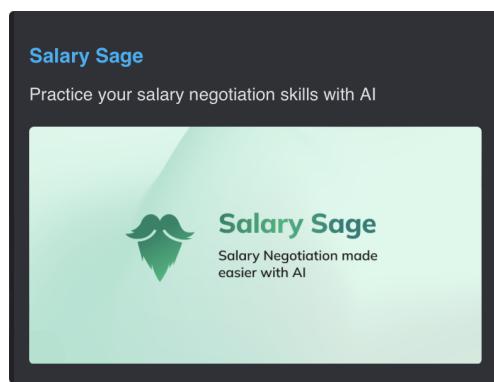
TWITTER



LINKEDIN



DISCORD



Preview on [opengraph.xyz](https://opengraph.xyz)

## 8. APPENDIX

### 8.1. Branding

#### 8.1.1. User Persona

We created a user/buyer persona to help us understand our target audience better during the branding and UX design process.

NAME							
Sarah Wong							
	<p><b>Background</b></p> <ul style="list-style-type: none"><li>• Sarah is a recent graduate with a degree in computer science</li><li>• She is actively looking for her first job in the tech industry</li><li>• She is carrying some student loan debt and is eager to secure a competitive compensation package to start her career on the right foot</li><li>• Sarah is relatively new to salary negotiations and finds the prospect of negotiating intimidating</li></ul> <p><b>Quote</b></p> <p><i>"I'm excited to start my career in tech, but the thought of negotiating my salary is nerve-wracking. I worry that if I bring up my salary, I might lose the job opportunity altogether. It's a tough situation because I know how important it is to secure a competitive offer, especially with my student loans to consider. I wish there was a way to practice and build my confidence in negotiating without the fear of messing it up."</i></p>						
<p><b>Demographic</b></p> <p> Female    24 years</p> <p> Singapore</p> <p>Single</p> <p>Software Engineer</p>	<p><b>Personality</b></p> <ul style="list-style-type: none"><li>• Determined</li><li>• Inquisitive</li><li>• Reserved</li><li>• Detail-oriented</li></ul>						
<p><b>Channels</b></p> <table><tbody><tr><td> Laptop</td><td> LinkedIn</td><td> Reddit</td></tr><tr><td> Google</td><td> TikTok</td><td> Twitter</td></tr></tbody></table>	 Laptop	 LinkedIn	 Reddit	 Google	 TikTok	 Twitter	<p><b>Motivations</b></p> <ul style="list-style-type: none"><li>• Wants to secure a job offer with a competitive salary and benefits package.</li><li>• Wants to manage student loan debt and attain financial stability.</li><li>• Wants to overcome her fear of salary negotiations.</li><li>• Wants to continually develop her negotiation skills for current and future career opportunities.</li><li>• Wants to find a job that aligns with her career aspirations, using effective negotiation to help achieve this balance.</li></ul> <p><b>Pains</b></p> <ul style="list-style-type: none"><li>• Lack of experience in salary negotiations</li><li>• Fear of looking less attractive as a job candidate when asking for better pay</li><li>• Concerns about student loan debt and financial stability</li><li>• Unable to get personalized feedback and guidance for an affordable and low-risk cost</li><li>• Need for a safe and supportive environment to practice negotiations</li></ul>
 Laptop	 LinkedIn	 Reddit					
 Google	 TikTok	 Twitter					