

Final Presentation

Job Recommendation System

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Algorithmic Selves Living
in an Algorithmic Society:
A 10-Week AIXD Project

Introduction

Algorithmic Society: Job Recommendation System

There are **certain discomforts when algorithms** attempt to define users, and these become particularly apparent in the **Job Recommendation System**

→ Because it relies heavily on personal information



Introduction

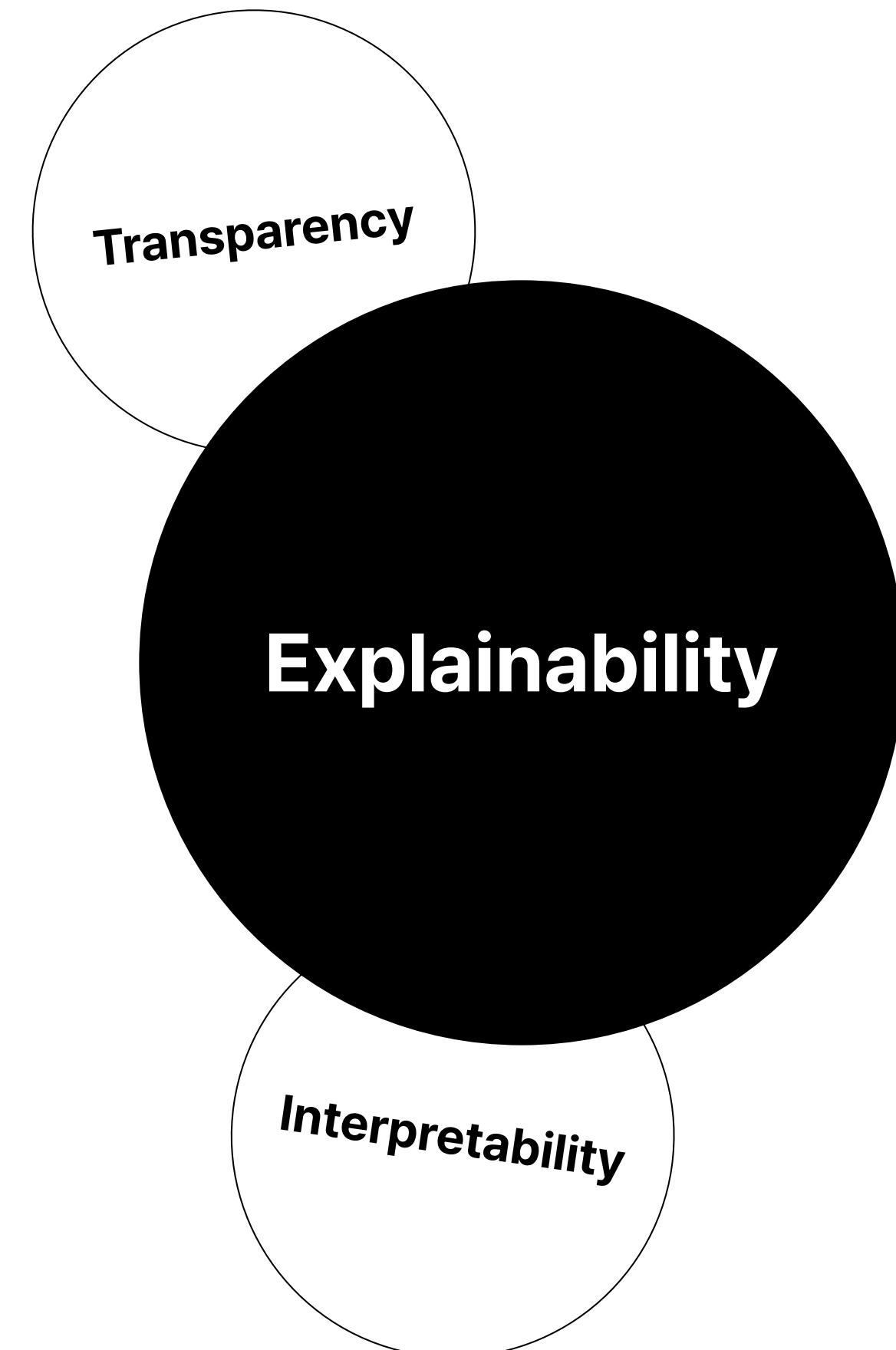
Main Value: Explainability

Young job seekers are genuinely experiencing discomfort
∴ They need **mentors** (including career-related ones)

Why Explainability?

Because with **LLMs**, it's not just about reinforcing **transparency**,
but also about adding **personalized, appropriate explanations**
for individuals through the model

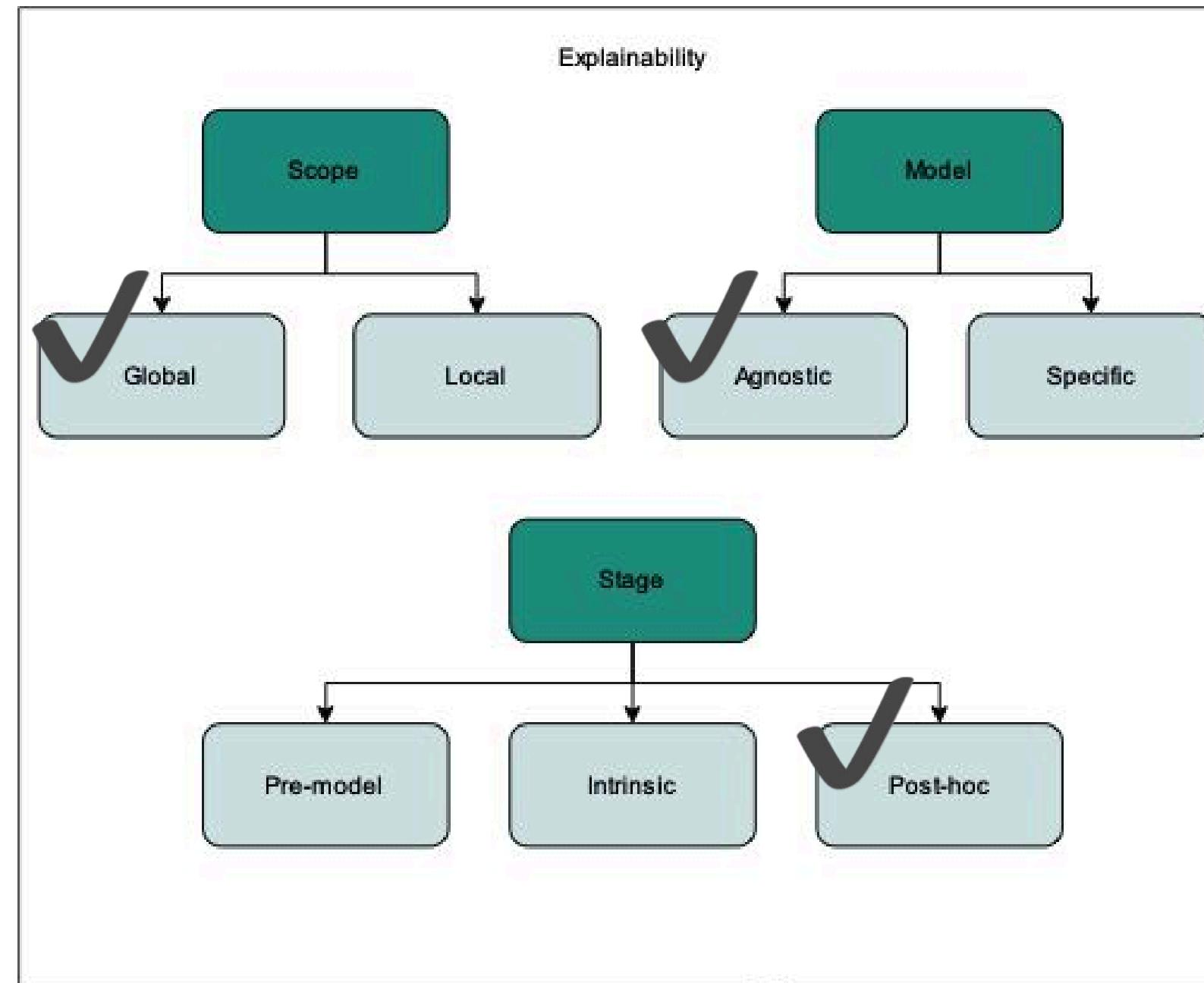
The value we aimed for was a **UX-oriented approach** through HCD



Background

AI Perspective

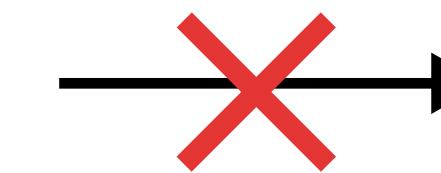
Why Post hoc LLM Explanations?



1. Data sparsity and domain complexity
2. Modular post-hoc design
3. Lightweight, interpretable, and scalable explanation

Background

HCD Perspective



AI JRS accuracy alone
can't explain everything

It can't fully address
human emotions

By applying LLM-based explanations in a deployed setting,
we **bridge the gap** between technical accuracy and human centered design

Persona



Hyunji Kim (23)

Seoul / Entry-level
Soon-to-graduate (UNIST)

Core Job Search Values

Autonomy

Explainability

Preferred Recommendation

- Understandable path based on personal info
- Future-oriented job suggestions

Current System Behavior

- Academic background-based
- Popular job rankings

Conflicts

- Limited exploration due to lack of explanation for job recsys
- Reduced trust and curiosity due to lack of autonomous exploration

"I don't know why this job was recommended to me"



Hyun Lim (30)

Ulsan / Seeking new role
3+ years in IT SME

Core Job Search Values

Fairness

Career shift

Preferred Recommendation

- Diverse roles based on previous experience (Career & Salary)
- Transparency in job-match logic (Graduation & Location info)

Current System Behavior

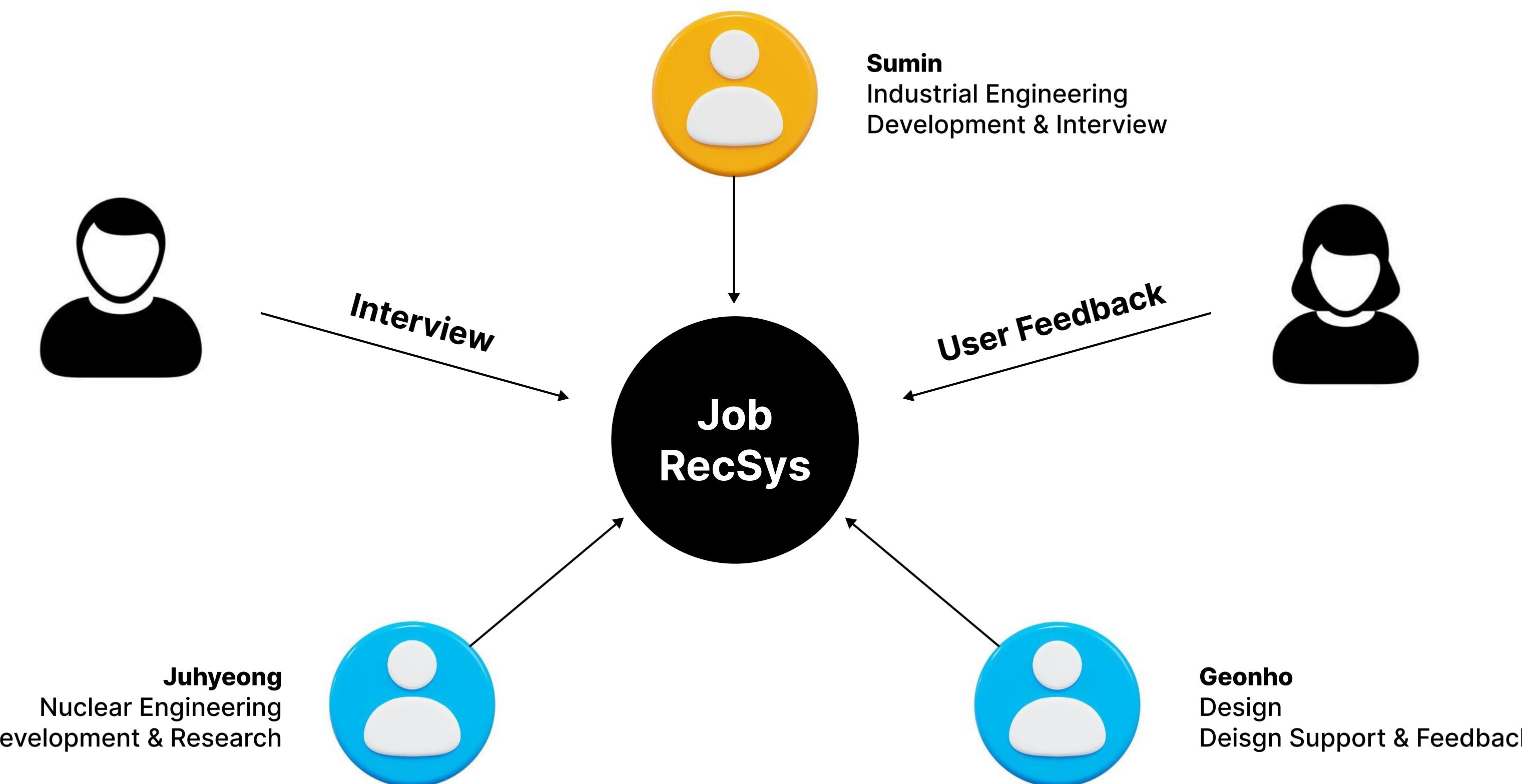
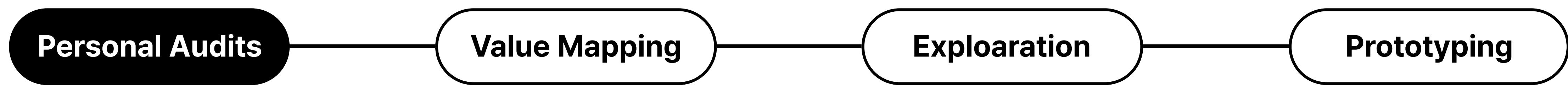
- Similar titles based on past roles
- Career-focused suggestions based on resume & application history

Conflicts

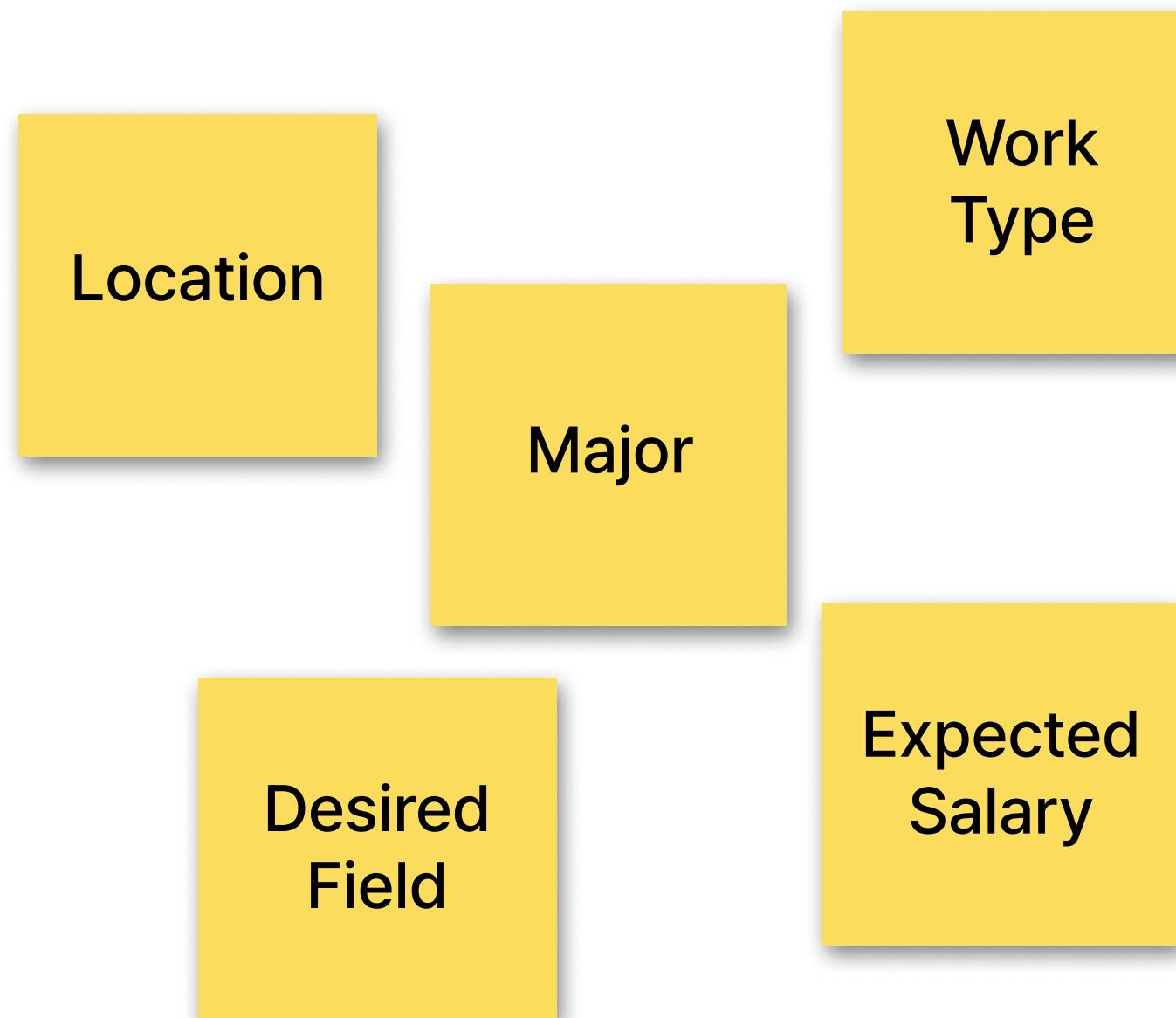
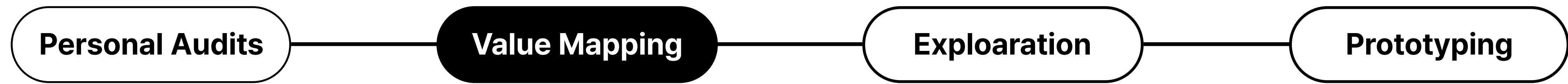
- Limits on exploring new fields (e.g. Graduation period & Location)
- System treats career shifts as a sign of unfitness

"Is this really what I want, or just the system's guess?"

Design Process



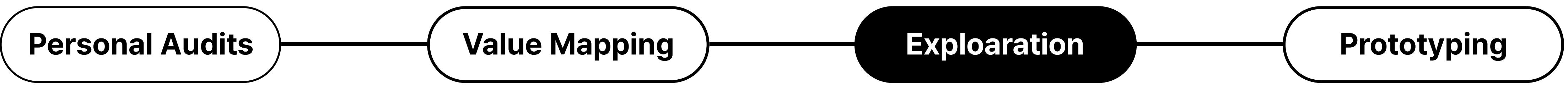
Design Process



- **Existing** GNN-based algorithms utilized these factors
- We selected the necessary values from those existing elements
- Considering **user anxiety** from an **HCD** perspective

Value mapping Workshop & Problem Definition

Design Process



LinkedIn

Existing Concerns & Inconvenience

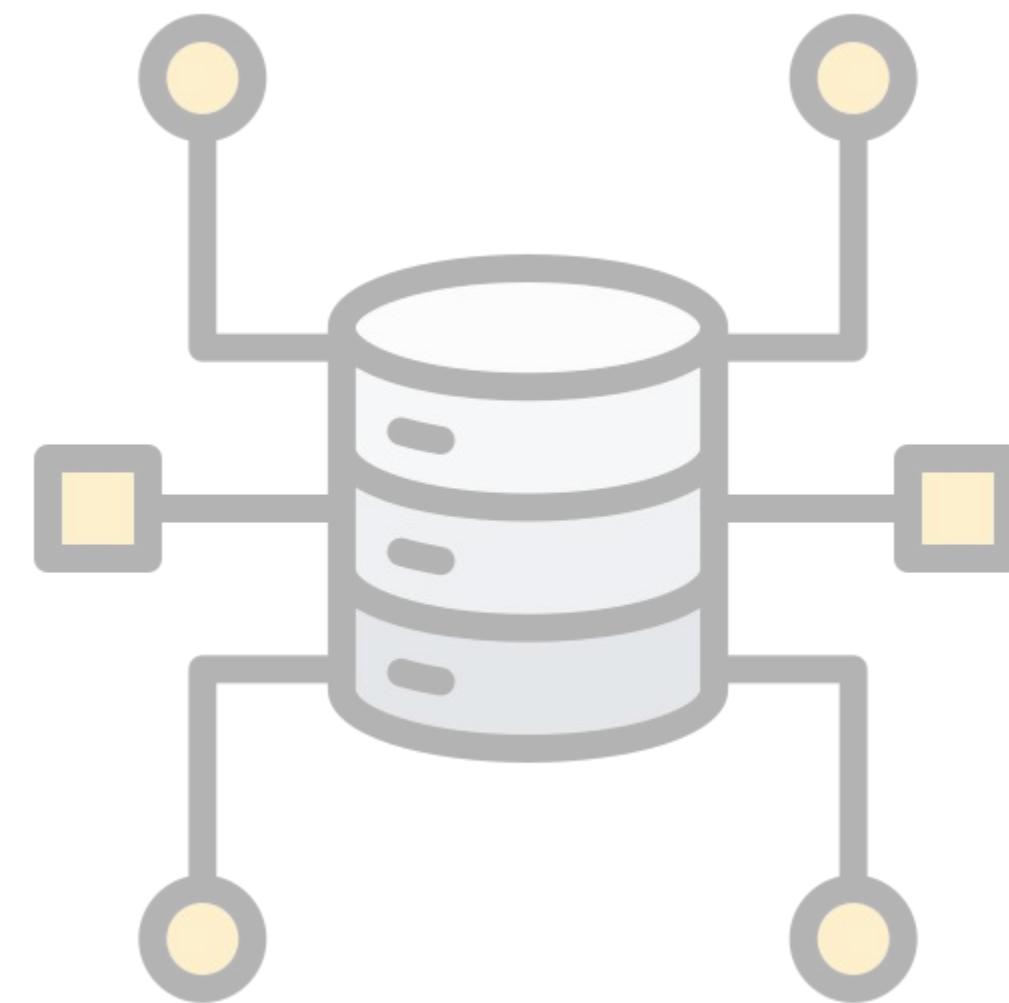
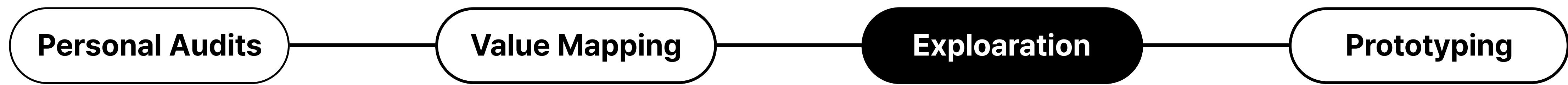
• 서류전형 > 면접 전형(1차/2차) > 처우협의 > 최종 합격 및 입사
※ 회사 상황에 따라 추가 전형이 진행될 수 있습니다.
Hanwha Ocean

위 내용은 한화오션의 [지원담당] 채용의 job description이야.

아래는 나의 정보야
1. UNIST 산업공학과 4학년 졸업예정
2. 연봉: 5000만원 희망
3. 희망분야: 마케팅
4. 근무형태: 풀타임

나의 정보를 바탕으로 추천받은 위 회사(job description 참고)와 내가 얼마나 적합한것 같아??

Design Process



Synthetic Data Model

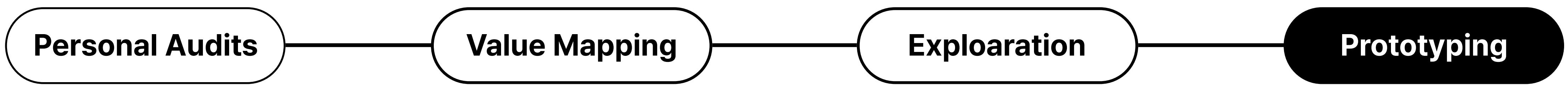
vs



Large Language Model

This was due to **practical limitations in time and resources** for completing the project within the period

Design Process



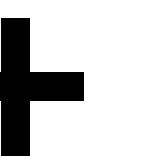
The screenshot shows a LinkedIn job listing for 'Bring Your Voice to AI Training - Malay'. The job is listed under the 'Outlier' company. The page includes sections for 'About the job', 'Who Should Apply', 'Requirements', 'Nice To Haves', and 'What You'll Do'. A callout box highlights the 'Outlier' logo and the job title.

The screenshot shows the LinkedIn Company Analysis interface for the Outlier job listing. It displays various AI-generated insights such as 'Outlier', '연봉 및 보상:' (Salary and Benefits), '복지 혜택:' (Benefit Features), '직무 적합도:' (Job Fit), and '종합 평가:' (Overall Evaluation). A button labeled '모의 데이터 사용' (Use Mock Data) is visible at the top right.



Like having a mentor right next to you

LinkedIn



with LLM model

Conceptual Design

Initial Design

This screenshot shows the initial design of a LinkedIn company analysis tool. At the top, there's a navigation bar with a URL, a refresh icon, a star icon, and a puzzle piece icon. Below it, the title "LinkedIn 회사 분석기" is displayed. There are two main buttons: "Ollama 연결 확인" and "모의 데이터 사용". A section titled "Outlier" shows a 5-star rating. Under "연봉 및 보상:", it says "정보 없음". Under "복지 혜택:", it also says "정보 없음". Under "직무 적합도:", it lists "[직무] MATLAB Student Ambassador - 주 5시간, 캠퍼스 행사 주최 및 소셜 미디어 홍보 [요구사항] 정보 없음 [적합한 사람] 정보 없음". Under "종합 평가:", it says "주어진 정보만으로 작성 가능한 한 문장 요약". At the bottom, there's a button labeled "회사 목록으로 돌아가기".

User Feedback

Improved Design

This screenshot shows the improved design of the LinkedIn company analysis tool. It features a "Custom Profile" section where users can enter their LinkedIn profile URL, name, age, location, and industry. Below this is a "Select a company to analyze" dropdown menu with several options, each with "Analyze" and "Info" buttons. The "Coupang" entry is highlighted. To the right, there's a detailed analysis for Coupang. It includes an "Overall Rating" of 3 stars, a "Salary and Compensation" section noting that salary details are missing, a "Benefits" section mentioning hybrid work arrangements, a "Job Fit" section comparing the role to the user's background, a "Summary" section, and a "전문 분야" (Specialty) section with bullet points. At the bottom, there's a "목록으로 돌아가기" button.

Conceptual Design

Custom Profile

Check how **each element is reflected**,
with both total score and category breakdown visible

The screenshot shows a LinkedIn search results page with several job listings. One listing is highlighted: "Product Designer with Japanese Proficiency (Coupang Eats UX)". The listing includes a brief description, location (Seoul, South Korea), and a "지원" (Apply) button. Other visible job titles include "Interaction Designer", "Product Designer (O2O)", "Frontend UX Engineer", "Senior Product Designer (WMS 물류시스템)", and "Principal Quantitative User Experience Researcher".

Case 1

Custom Profile

LinkedIn 프로필 URL: <https://www.linkedin.com/in/usei> 가져오기

이름: 김현지 ✓
나이: 23 ✓
거주지: 서울
전공: 산업공학과 ✓
희망 분야: 웹 개발 ✓
희망 연봉(만원): 5000
근무 형태: 풀타임 ✓
보유 기술: Python, Javascript ✓
취소 저장

Case 2

Custom Profile

LinkedIn 프로필 URL: <https://www.linkedin.com/in/usei> 가져오기

이름: 김현지 ✓
나이: 23 ✓
거주지: 서울 ✓
전공: 산업공학과 ✓
희망 분야: 웹 개발
희망 연봉(만원): 5000
근무 형태: 풀타임
보유 기술: Python, Javascript ✓
취소 저장

Coupa

Overall Rating: ★★★★☆

Salary and Compensation:
Coupang is known for offering competitive salaries and compensation packages that align with the market standards in South Korea, especially for roles requiring specialized skills such as Japanese proficiency in product design. Considering your expertise and the demand for such roles, it's likely that Coupang would offer a salary that reflects both the specialized nature of the position and the cost of living in Seoul. However, specific details about the salary and compensation for this role weren't provided. Rating: 4/5

Benefits:
Coupang provides a comprehensive benefits package to its employees, including health insurance, parental leave, and employee discounts. The company also emphasizes career development, which matches your interest in professional growth opportunities. While the job listing does not detail all benefits, Coupang's reputation for caring for its employees suggests a strong benefits package. Rating: 4/5

Coupa

Overall Rating: ★★★★☆

Salary and Compensation:
The job posting does not specify salary details for the Product Designer position with Japanese proficiency at Coupang. Given your target salary of above 80,000,000 KRW per year, it's essential to directly inquire or negotiate with Coupang during the hiring process to ensure they can meet or exceed your salary expectations.

Benefits:
While the job posting does not detail specific benefits, Coupang is known for offering competitive employee benefits, including mentorship and technical training opportunities, which align with your desire for career growth and development. However, details on work-life balance policies, such as flexible hours or vacation policies, are not provided and should be discussed during the interview process.

Conceptual Design

To better ensure **explainability**, we display a breakdown and summary of each category's score

Salary & Compensation



Benefits



Job Fit



Coupang

Overall Rating:



Salary and Compensation:

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Job Fit:

Given your background in industrial engineering and skills in Python and JavaScript, transitioning to a Product Designer role focused on UX for Coupang Eats might require some adaptation, especially since the role seems to emphasize design skills and Japanese language proficiency. However, your interest in web development and working in a collaborative, innovative environment aligns well with Coupang's work culture and the job's emphasis on teamwork and creativity. The role's focus on delivering high-quality design solutions and improving the customer experience through design aligns with your skills and interests, assuming you're open to focusing on UX/UI design. Rating: 3/5



Summary:

In summary, This company rating is 4 out of 5. When comparing companies based on 김현지's background and aspirations, Coupang presents a compelling opportunity. The company's culture and commitment to innovation and employee development align well with your career objectives and values. While the job fit may present some challenges, particularly in aligning your engineering background with a design-focused role, the overall match with Coupang's dynamic environment and the role's requirements suggests a potentially rewarding career path.

Conceptual Design

User Feedback

We integrate **user feedback** to ensure the model aligns with **HCD** principles
Users can freely **submit feedback**, which is stored in a database for further analysis



Conceptual Design

Company Info

To enhance **convenience and UX**,
the LLM also allows **direct access** to
company information

This can be further improved later through
methods like web crawling

- Industry
- Company Size
- Founded
- Location
- Website
- Brief Introduction
- Expertise

The screenshot shows a user interface for analyzing companies. At the top, a header reads "<Select a company to analyze>". Below it is a list of company names, each with two buttons: "Analyze" and "Info". A callout line points from the "Info" button next to the first item, "Coupang", to a detailed company profile box on the right.

Coupang

산업: 이커머스, 온라인 리테일
회사 규모: 10,001+명
설립일: 2010
본사 위치: 서울, 대한민국
웹사이트: <https://www.coupang.com>

회사 소개

쿠팡은 고객의 쇼핑과 식사, 생활 전반을 편하게 만들기 위해 노력하는 대한민국의 대표적인 이커머스 플랫폼입니다. 로켓배송으로 유명한 쿠팡은 빠른 배송, 다양한 상품 선택, 경쟁력 있는 가격으로 고객 만족을 극대화하며, 국내 커머스 시장에서 혁신을 리드하고 있습니다.

전문 분야

- 이커머스
- 로켓배송
- 온라인 쇼핑
- 모바일 커머스

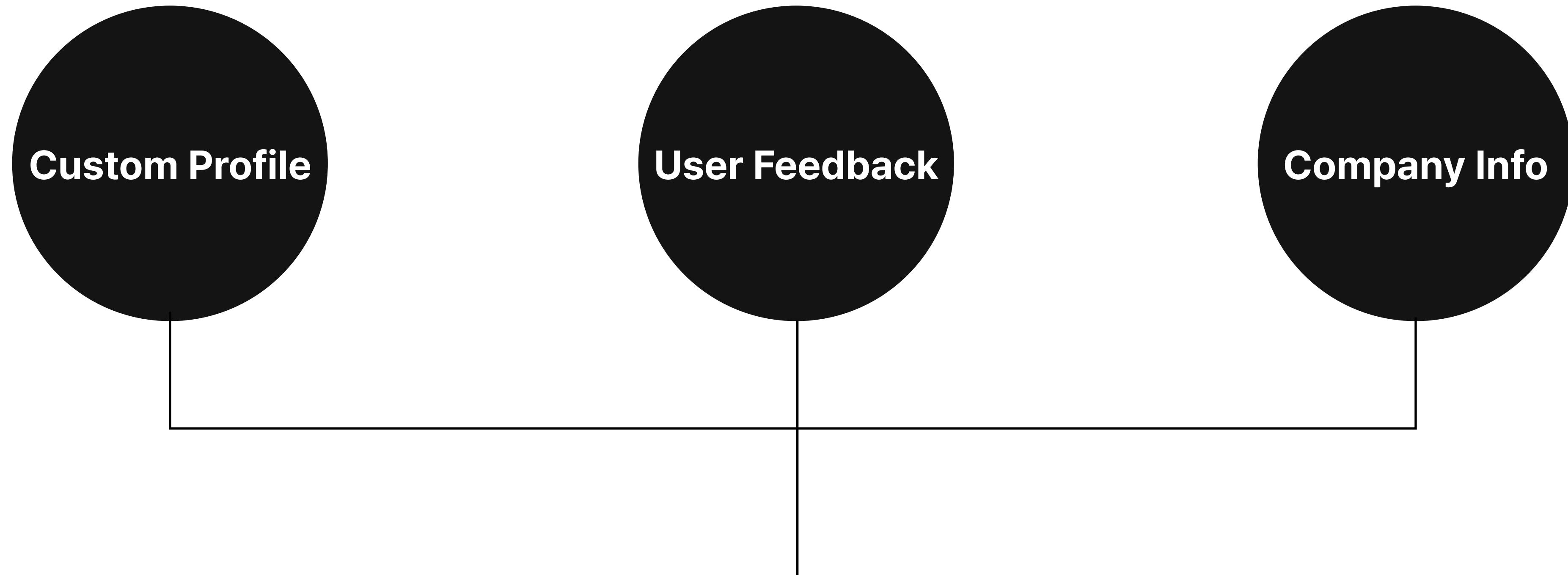
목록으로 돌아가기

Other items listed in the dropdown menu include:

- Interaction Designer
Interaction Designer with verification
- Product Designer with Japanese Proficiency (Coupang Eats UX)
Product Designer with Japanese Proficiency (Coupang Eats UX) with verification
- [PUBG STUDIOS] UI Designer - KIZNA Cell (3년 이상)
[PUBG STUDIOS] UI Designer - KIZNA Cell (3년 이상) with verification
- Product Designer (O2O)
Product Designer (O2O)
- Frontend UX Engineer
Frontend UX Engineer
- Senior Product Designer (WMS 물류시스템)
Senior Product Designer (WMS 물류시스템) with verification

Implications & Reflection

What Worked Well



Overall, we think it effectively incorporates both AI capabilities and user-centered design

Implications & Reflection

Challenge

Incomplete fine-tuning due to lack of model/resources

With enough time and data, better services and models could be built

Hallucination of company information

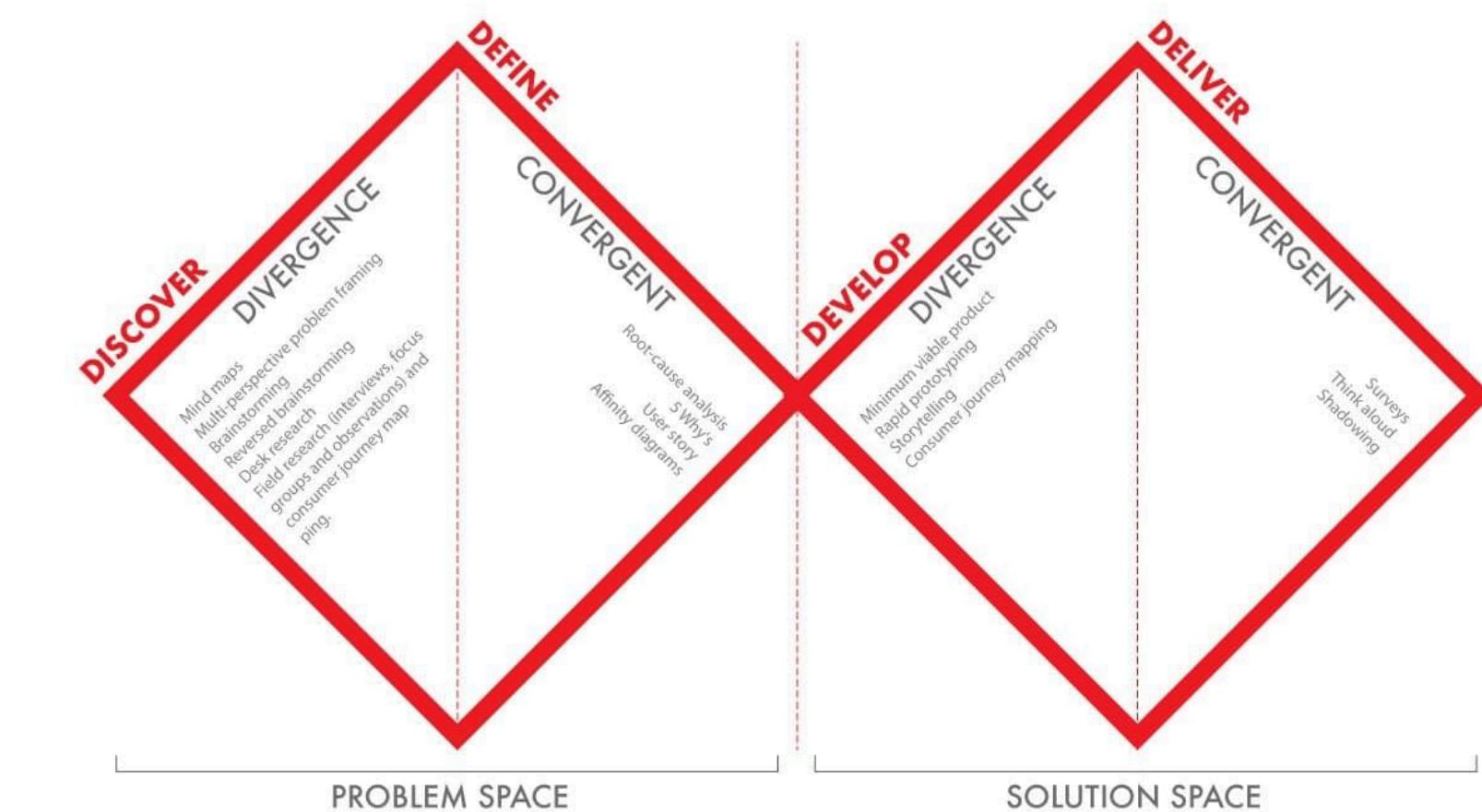
Need for search-based information retrieval instead of relying on LLM

Difficulty in the quantitative evaluation of LLM outputs

Possible to take an HCD approach by collecting user feedback as data

Conclusion

- We aimed to create a service where users could gain **emotional support** through an **explainable LLM mentor** as they actually use it
- **Combining AI with human-centered thinking** helped us understand users' needs and reflect on real usability
- Working as a team of **3 with different background** was meaningful
We shared roles well and had **great teamwork**
(Development: Sumin & Juhyeong / Design: Geonho)



Reference

- [1] Li, L., Zhang, Y., & Chen, L. (2023). Personalized Prompt Learning for Explainable Recommendation. Journal of the ACM, 37(4), Article 111. <https://doi.org/10.1145>
- [2] Liu, X. et al. (2024). LinkedIn's Next-generation Recommendation System: Architecture and Algorithms. arXiv preprint arXiv:2402.11139. <https://arxiv.org/abs/2402.11139>
- [3] Ying, R. et al. (2019). GNNExplainer: Generating Explanations for Graph Neural Networks. arXiv preprint arXiv:1903.03894. <https://arxiv.org/pdf/1903.03894>
- [4] Binns, R. et al. (2022). Algorithmic Personas: User Perceptions of Algorithmic Identity and Explanation. arXiv preprint arXiv:2202.07371. <https://arxiv.org/abs/2202.07371>
- [5] Howard, D., Buskermolen, D., & Frens, J. (2022). Human-centered AI: The Role of Human-centered Design Research in the Development of AI. In DIS '22: ACM Conference on Designing Interactive Systems. <https://doi.org/10.1145/3532106.3533496>