



K R I S J O B O T

L E T ' S F I N D Y O U R J O B

A Friendly Chatbot In Finding Jobs A Breeze

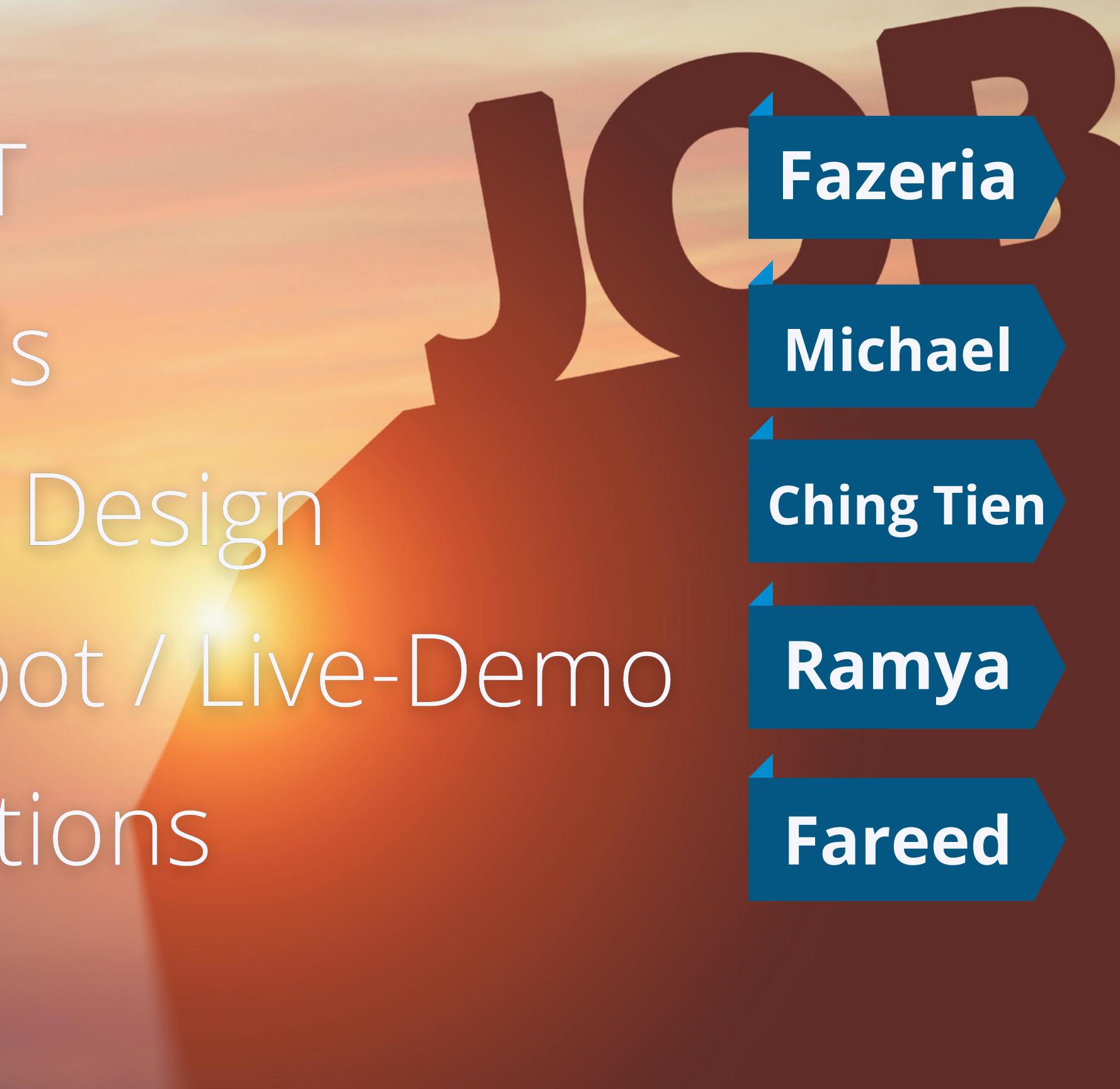
IBM IMVAI1502 GROUP 1

Team Members:

Fazeria, Michael Oh, Tan Ching Tien, Ramya, Fareed

Agenda

- Introduction & EDT
- AI Design Essentials
- Project Planning & Design
- Integration / Chatbot / Live-Demo
- Summary & Reflections



INTRODUCTION

A wide-angle photograph of a dark, star-filled night sky. A prominent, bright star is positioned directly below the horizontal line separating the title from the subtitle. Below the star, a dark silhouette of a mountain range is visible against the lighter sky. The overall atmosphere is mysterious and celestial.

ULTIMATE GOAL

To Assist Job Seekers Find Their Desired Job

TOOLS & APPLICATIONS

Presentation - **CANVA**



Team Collaboration & Enterprise Design Thinking & AI Design Essentials - **MURAL**



Watson Cloud - **IBM**

Watson Assistant & Watson Discovery - **IBM**

Integration Watson Assistant & Facebook Messenger

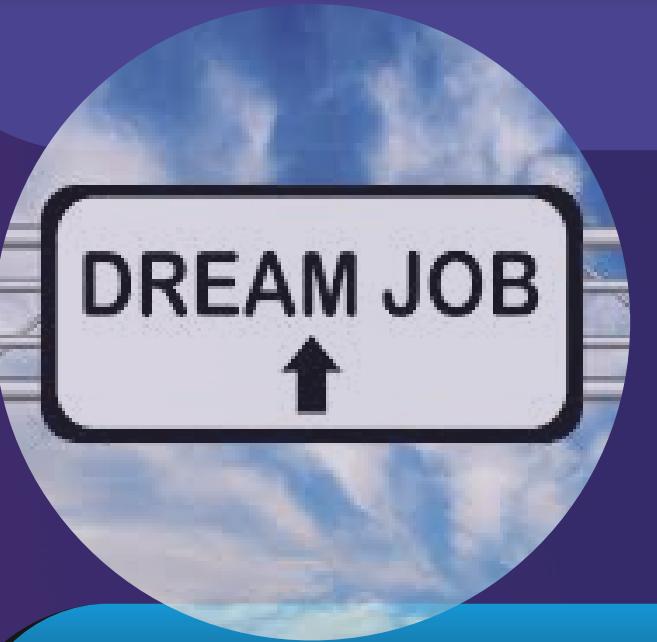
Flow Conversation Design of Dialog Nodes - **Cacoo**



Project Topic

Find / Match Jobs

After chatting with Kris Jobot, you can review and select your DREAM job.



Easy assess

Kris Jobot will identify your job level, location, employment type.



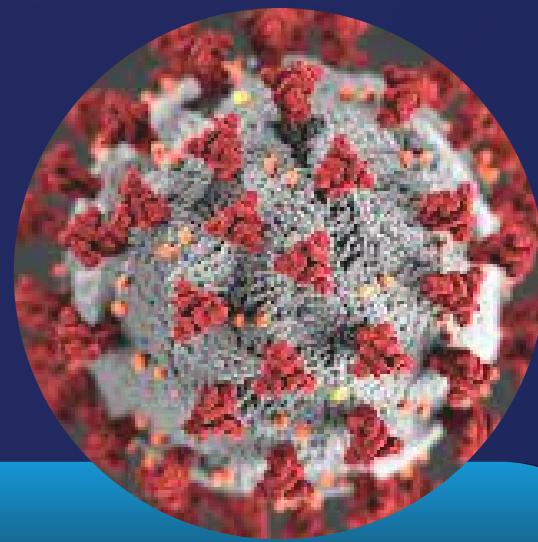
PANDEMIC

Job search went more crucial & difficult. Job seekers came in search for Job Online.



Imagine a world

Super Advanced Technology where we actually care about our CLIENTS. Their SUCCESS is our SUCCESS.



Project Background

What Is A Chatbot?

A chatbot is a service, powered by rules and sometimes artificial intelligence, that you interact with through a chat interface. The service could be any number of things, ranging from functional to fun, and it could live in any major chat product (Facebook Messenger, WhatsApp, Telegram, Text Messages, etc.).

Kris knows how to interact with HUMANS.

Kris is well tuned, we set the rules & teach how to communicate through AI technology & answer questions.
Kris is programmed to understand channeling signals to the right platform.

Kris will not be able to understand anything that isn't specifically explained.

5 Chatbots That Will Help You Find A Job

1. [Stella](#)

Stella is a chatbot that's made to help businesses find employees and job-seekers land new gigs. The company says it can help businesses reduce the time needed to find a new hire by 80 percent, or from around two months to two weeks.

3. [Wade and Wendy](#)

The typical American will [change jobs at least 10 times](#) in their lifetime. So, it just might be useful to have someone advise you about your career path. That's exactly what the AI chatbot Wade and Wendy does.

5. [Woo](#)

If you're a tech worker who's curious about what kinds of new opportunities could be out there, Woo is the perfect tool for you. To use it, you fill out your wish list of what you want in a job. This could be type of position, location, salary, and other criteria.

2. [Mosaic](#)

When you send in a resume to apply for a job, someone at the company may or may not look at it. Even if they do, it may be just a quick glance — [only six seconds](#), actually. If your resume doesn't stand out right away, it might not go anywhere.

4. [Newton](#)

Newton is another AI assistant that helps job-seekers find employment. You can text the chatbot through Newton's messaging interface. It will continuously search the web for jobs that are a good match for you and send you position recommendations. As you reply to the assistant's suggestions, it will utilize AI to fine-tune its knowledge about what you want in a job.



Enterprise Design Thinking



HMW & Reframe HMW

PROBLEM STATEMENT

How Might We
Improve Job
Search
Experience

For
Job Seekers

So That
It Is Faster &
Simpler

ORIGINAL HMW STATEMENT

How Might We
Improve Job
Search
Experience

For
Job Seekers
with
SmartPhone

So That
Users Can
Get Hired
Fast

REFRAMED HMW STATEMENT

Persona

Persona's Motivation, Goals, Needs



Name

Jack

Profile

Age	26
Location	Singapore
Education	Degree Holder
Job	Job Seeker
Family	Single
Work experience	4 years
Technical literacy	Basic competence with use of technology Use smartphone

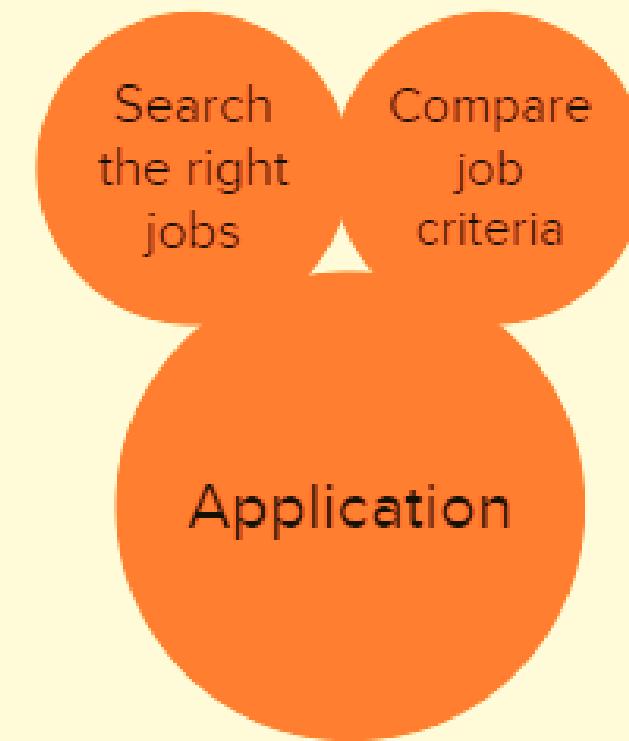
Motivations

How we arrived at Motivations - see 'THINKS'



Goals

How we arrived at Goals - see 'Does'

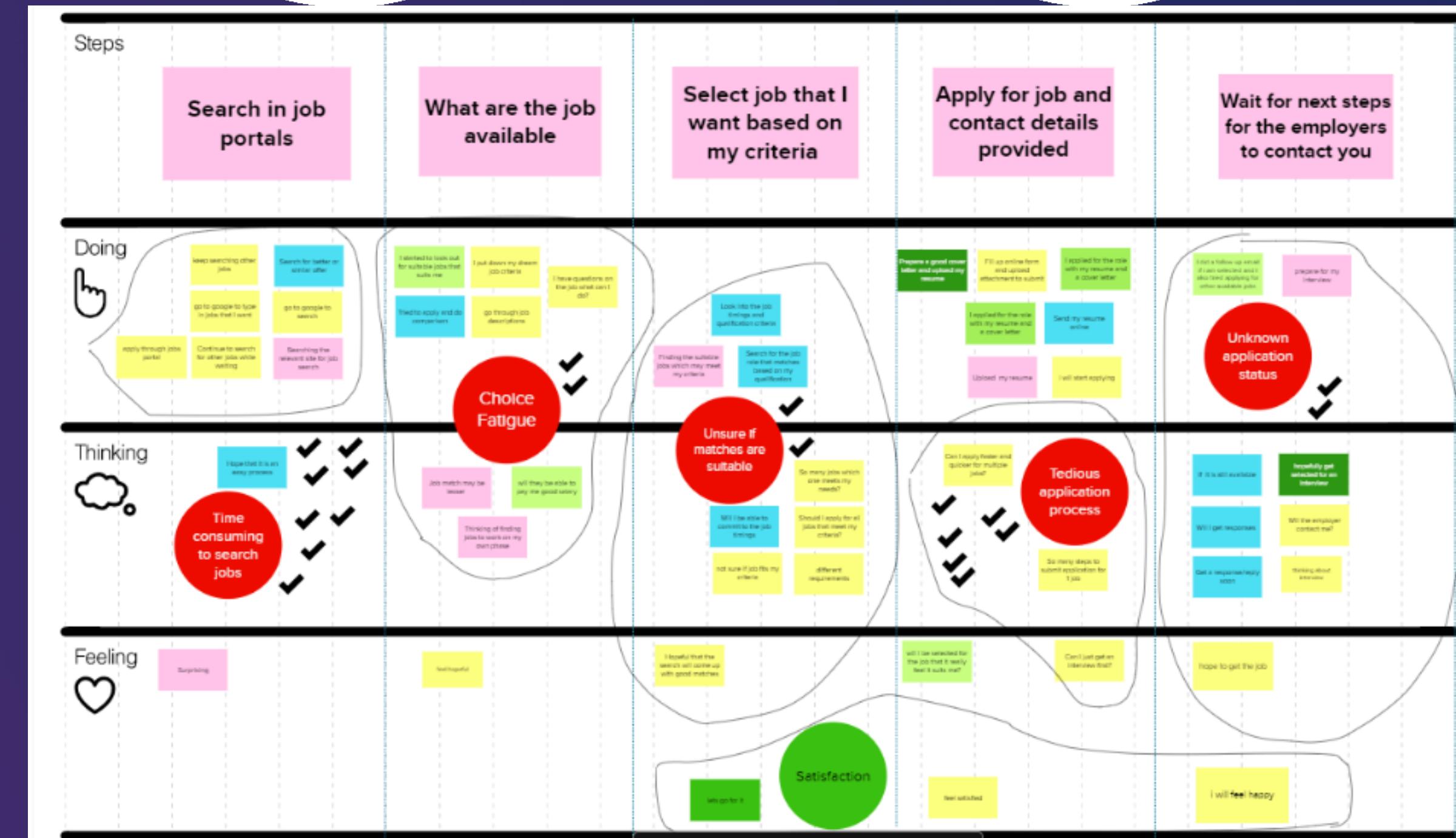


Needs

How we arrived at Needs - see 'Feels'



Pain Points



Time
consuming
to search jobs

Tedious
application
process

Overview - 15 Job Portals In Singapore



GENERAL JOBS

LinkedIn
JobStreet
MyCareersFuture
JobsCentral



EXPLORE COMPANIES

TalentTribe Asia
Glassdoor



JOB SEARCH ENGINES

Indeed
JobsDB
Google for Jobs



INTERNSHIPS

InternSG



STARTUPS JOBS

e27
Tech in Asia
StartUp Jobs Asia



PART-TIME JOBS

FastJobs
Freeboh

Overview - MyCareersFuture Portal



A Singapore Government Agency Website

my careersfuture [Switch to Employer](#)

[Search Jobs](#) [Seek Career Advice](#) [Log in](#)

Minimum Salary

Permanent

Professional Services

GOVERNMENT SUPPORT

- All available
- For mid-career switchers
If you are open to reskill and change careers/occupations
- For SME opportunities
If you are keen to consider employment with SMEs
- For short-term trials
If you want to try out new jobs/sectors with no obligation
- For Workplace Attachment
 If you are a fresh graduate seeking traineeship

METROPOLITAN WIRELESS INTERNATIONAL PTE. LTD.
Software Engineer (Java) #SGUP
📍 North ⏲ Permanent ... ⚙ Executive ✅ Professional Services ...
0% skills matched
13 applications Posted 7 days ago

JONES LANG LASALLE PROPERTY CONSULTANTS PTE LTD
Human Experience Services Director EMEA & APAC
📍 East ⏲ Permanent ... ⚙ Middle Management ✅ Professional Services ...
0% skills matched
25 applications Posted 11 days ago

SP SYSNET PTE. LTD.
Senior Network Engineer
📍 Islandwide ⏲ Permanent ⚙ Professional ✅ Professional Services ...
0% skills matched
1 application

✓ Government support for workplace attachments
\$3,600 to \$5,000 Monthly

✓ Government support for mid-career switchers
\$15,000 to \$20,000 Monthly

✓ Government support for SME opportunities
\$4,500 to \$8,000



Overview - Data Extraction

A	B	C	D	E	F	G	H	I	J	K	
1	Company	Job role	Location	Employment Type	Job Level	Industry	Experience	No Of Applicants	Minimum Salary	Maximum Salary	Minimum Experience
2	SEARCHASIA CONSULTING PTE. LTD	Graduate	Central	Permanent ...	Fresh/entry	Banking a	0% skills ma	0 application	\$3,000	\$4,500	0 year exp
3	VELA OPERATIONS SINGAPORE PT	Manufactur	South	Contract	Executive	Healthcar	0% skills ma	0 application	\$2,500	\$3,600	1 year exp
4	UNITED PERSONNEL SERVICES	Logistics	West	Permanent	Executive	Logistics /	0% skills ma	1 application	\$2,800	\$3,000	1 year exp
5	HCSA COMMUNITY SERVICES	Therapeut	East	Contract	Non-executi	Medical /	0% skills ma	0 application	\$1,640	\$2,480	0 year exp
6	SINGAPORE UNIVERSITY OF TECHN	Research	East	Contract ...	Non-executi	Sciences /	0% skills ma	0 application	\$3,200	\$6,000	0 year exp
7	ZENITH INFOTECH (S) PTE LTD.	Data Migr	Central	Contract	Executive	Informatic	0% skills ma	0 application	\$5,000	\$6,000	5 years exp
8	MULTIFLORA NOIBARA PTE. LTD.	TCM Spa	North	Permanent ...	Non-executi	Customer	0% skills ma	1 application	\$4,000	\$9,000	1 year exp
9	ADECCO PERSONNEL PTE LTD	Office Adm	Central	Contract	Executive	Admin / S	0% skills ma	3 applications	\$3,000	\$5,000	2 years exp
10	JONES LANG LASALLE PROPERTY Q	Facilities	East	Full Time	Executive	Real Estat	0% skills ma	0 application	\$4,000	\$4,500	3 years exp
11	SEARCHASIA CONSULTING PTE. LT	HR Busines	Central	Permanent ...	Fresh/entry	Consulting	0% skills ma	3 applications	\$3,000	\$4,500	1 year exp
12	ALLIANZ GLOBAL CORPORATE & S	Senior Fin	Central	Permanent ...	Executive	Insurance	0% skills ma	3 applications	\$6,000	\$11,000	5 years exp
13	INTERTEK MANPOWER RESOURCB	Assistant	North	Full Time	Non-executi	F&B	0% skills ma	0 application	\$1,700	\$3,400	2 years exp
14	RECRUIT EXPRESS PTE LTD	Incident M	South	Contract	Executive	Banking a	0% skills ma	0 application	\$7,000	\$10,000	8 years exp
15	KAMALK	Storeman	Central	Full Time	Fresh/entry	Logistics /	0% skills ma	0 application	\$1,800	\$2,000	1 year exp
16	SHANGHAI TUNNEL ENGINEERING	Driver	Islandwide	Permanent ...	Non-executi	Building a	0% skills ma	0 application	\$2,000	\$2,200	3 years exp
17	ORIENT FUTURES INTERNATIONAL	Risk Mana	Central	Full Time	Executive	Risk Mana	0% skills ma	6 applications	\$3,000	\$8,000	3 years exp
18	HCL SINGAPORE PTE. LTD.	Technical	Islandwide	Permanent ...	Professiona	Informatic	0% skills ma	0 application	\$7,000	\$13,500	10 years exp
19	THE SUPREME HR ADVISORY PTE.	IT Recruit	Central	Permanent ...	Executive	Human Re	0% skills ma	0 application	\$3,000	\$5,000	4 years exp
20	ALPHAEUS PTE. LTD.	ServiceNo	Central	Contract	Manager	Informatic	0% skills ma	0 application	\$7,500	\$8,200	4 years exp
21	CHEUNG WO FOOD SUPPLY SG PT	Assistant	East	Full Time	Manager	Events / P	0% skills ma	3 applications	\$3,000	\$7,000	4 years exp
22	DSC BIOTECH DTE LTD	IT Suppor	Islandwide	Contract	Junior Execu	Informatic	0% skills ma	1 application	\$2,500	\$3,200	2 years exp

Recovered_Sheet1

Count: 2279

100%



Overview - Data Conversion Json

```
JSON Raw Data Headers
Save Copy Collapse All Expand All Filter JSON

▼ 0:
  col1: "Name of the Company"
  col2: "Job role"
  col3: "Location"
  col4: "Employment Type"
  col5: "Job Level"
  col6: "Industry"
  col7: "Minimum Salary"
  col8: "Maximum Salary"
  col9: "Minimum Experience"

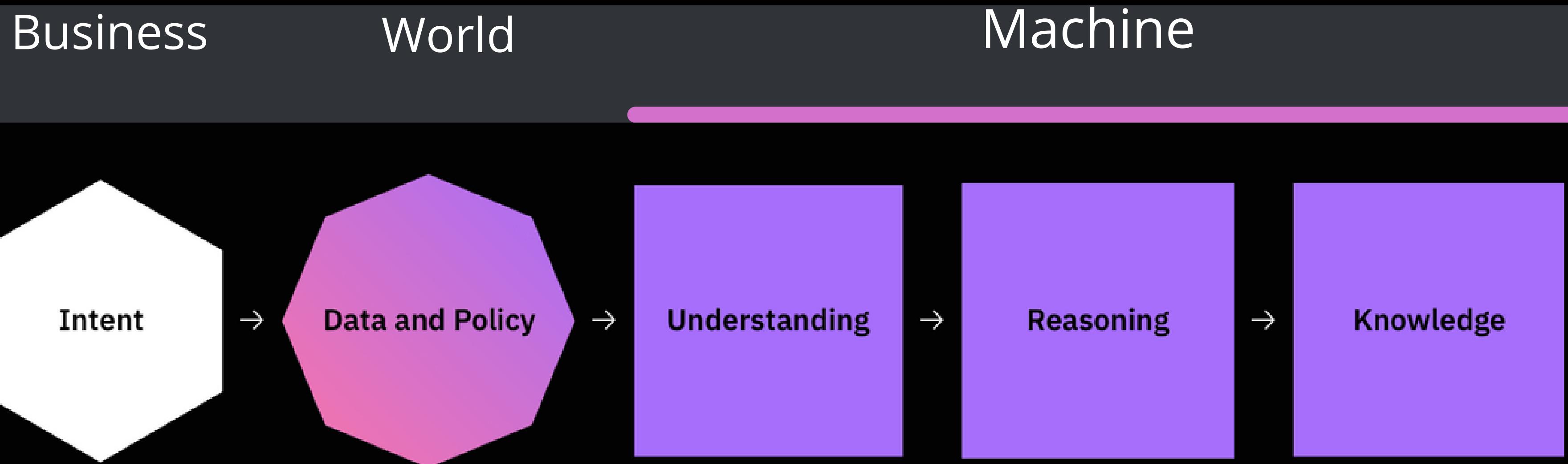
▼ 1:
  col1: "SEARCHASIA CONSULTING PTE. LTD."
  col2: "Graduate Recruiter (Business Development)"
  col3: "Central"
  col4: "Permanent ..."
  col5: "Fresh/entry level"
  col6: "Banking and Finance ..."
  col7: "$3,000"
  col8: "$4,500"
  col9: "0 years exp"

▼ 2:
  col1: "VELA OPERATIONS SINGAPORE PTE. LTD."
  col2: "Manufacturing Associate (Contract)"
  col3: "South"
  col4: "Contract"
  col5: "Part-time"
  col6: "Manufacturing"
  col7: "$2,500"
  col8: "$3,500"
  col9: "1 years exp"
```

AI DESIGN ESSENTIALS



AI DESIGN ESSENTIALS



AI INTENTS

Enrich user
interactions

Recommend with
confidence

AI Intents

Enrich user interactions

Recommend with confidence

Businesses

Companies can reach out to diverse pool of candidates from chatbot job search function

Businesses

Companies get more applications from best job match system

Users

- Use virtual assistant
- Voice activated application
- AI-assisted job search application

Users

- Unbiased system
- Reliable system
- Best-fit recommendation system

Big Idea

Chatbot

Enrich User
Interactions

Recommend
with
Confidence

Virtual assistant

AI job matching

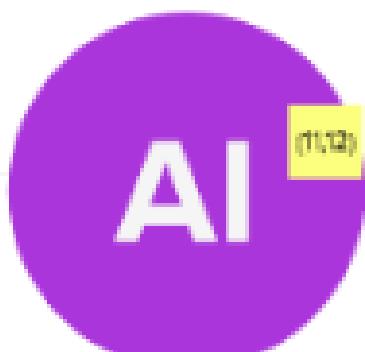
AI job search
and application

Personalized
recommendations

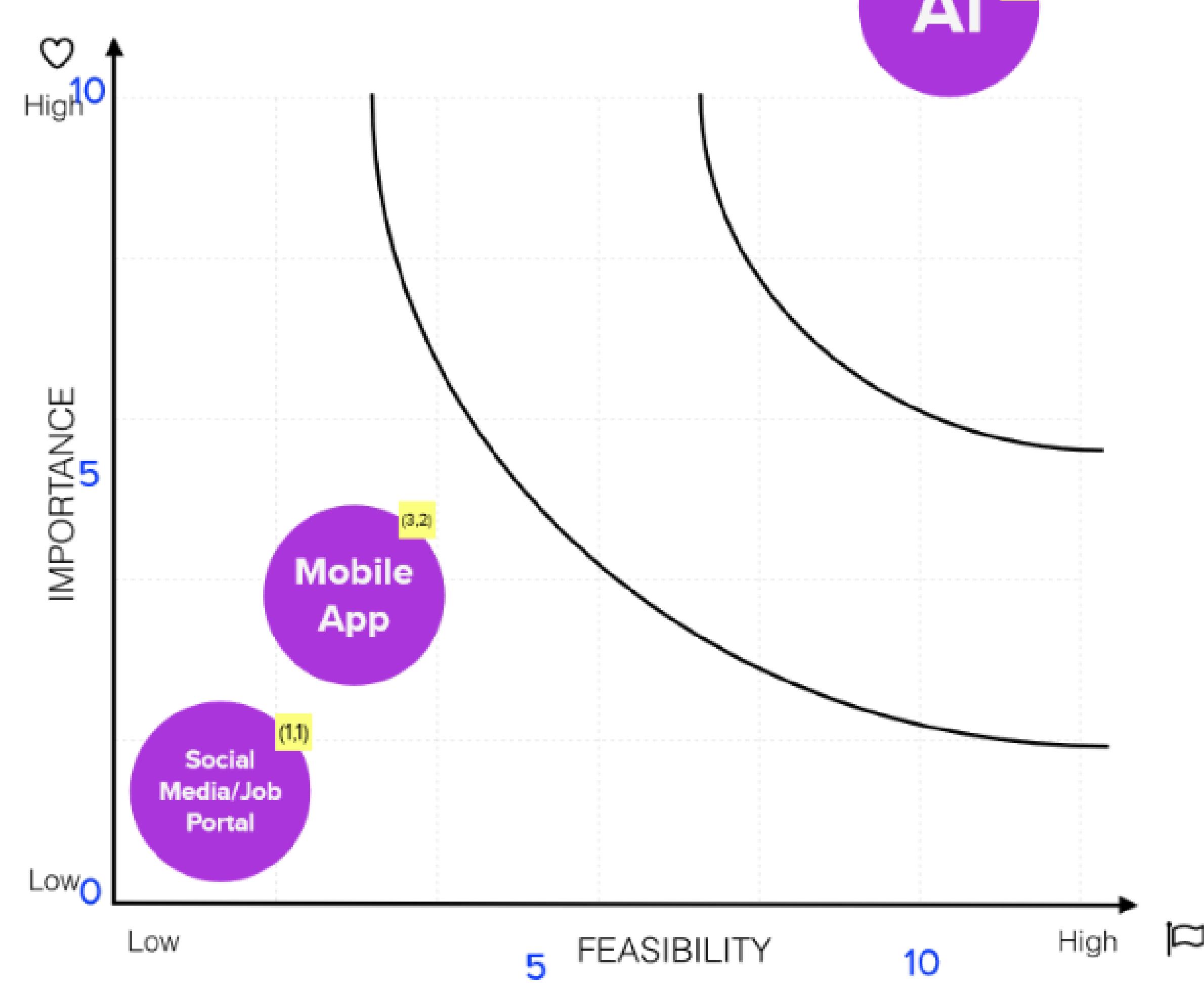
• Summarize Votes in a Prioritization Grid

⌚ 15 minutes

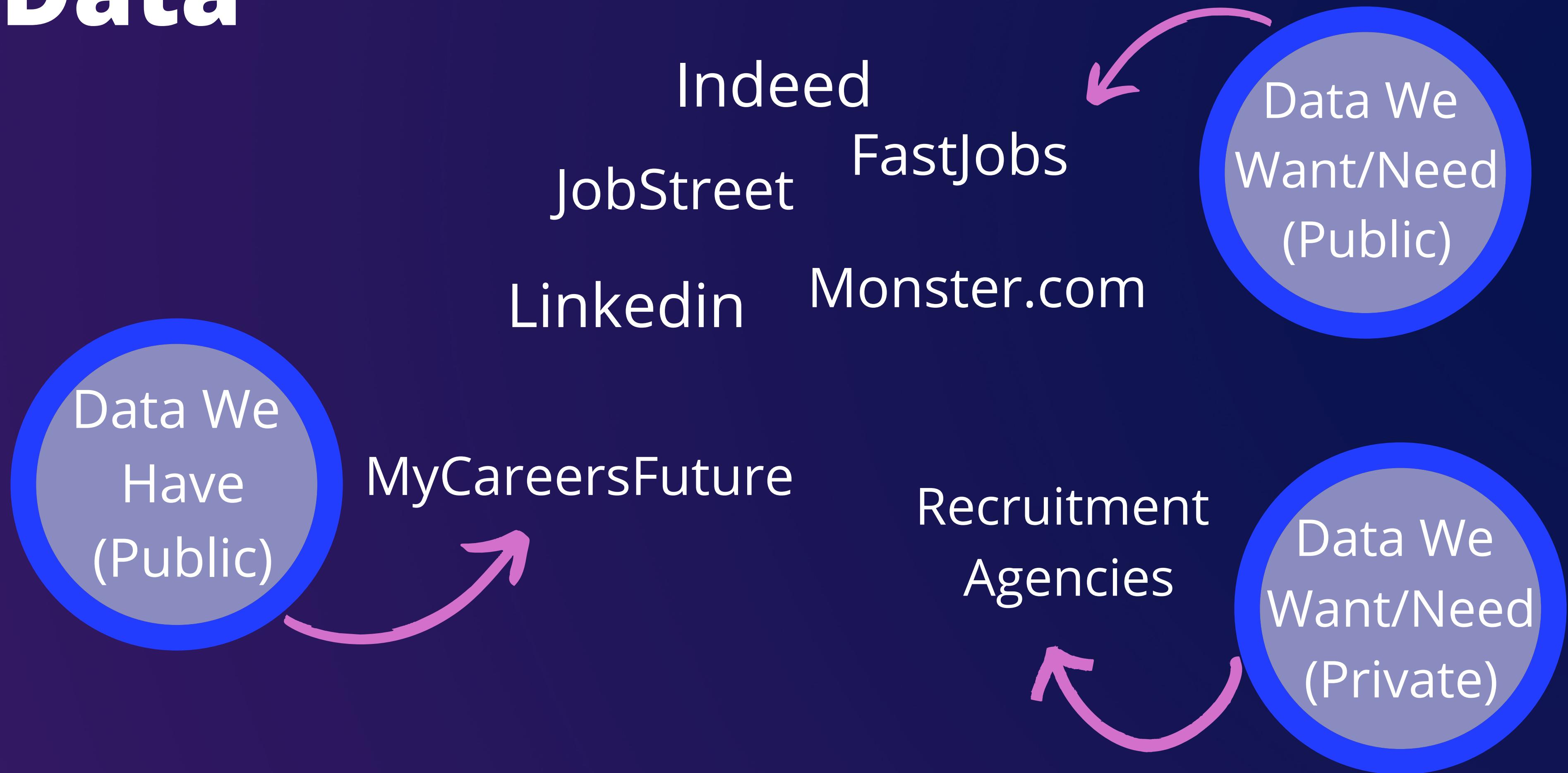
- ★ Importance
- 👍 Feasibility



Prioritization Grid



Data



Data

Data we do not
have but nice to
have

Private

Private company jobs

User

Job seeker's resume

Understanding

Structured Job Details

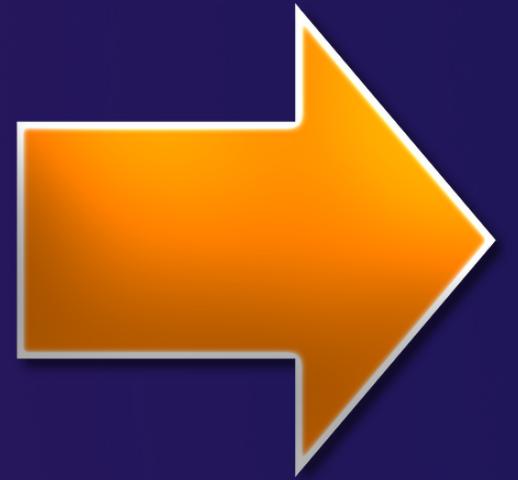
- Job level
- Company name
- Work location
- Working hours
- Salary details
- Job specialization
- Employment type
- Source of employment

Employers

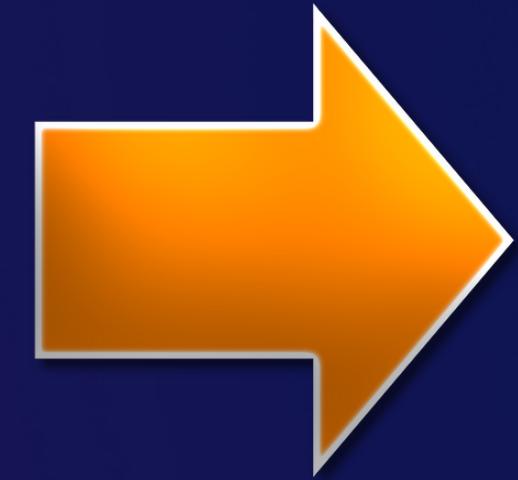
Recruiters

Reasoning

Original
Big
Idea



Refined
Big
Idea



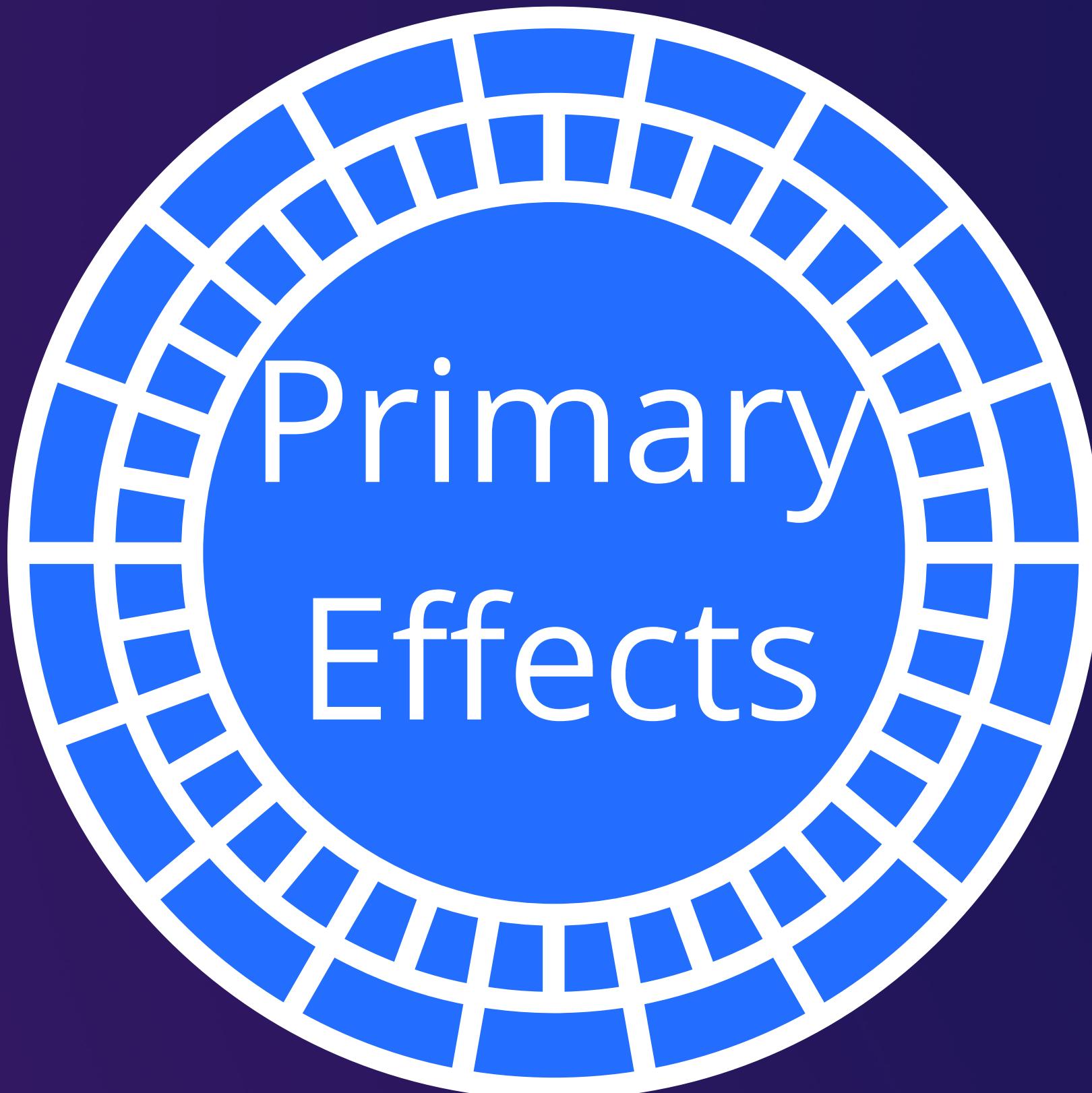
Reasoning
Statement

- Chatbot that can search and match jobs for job seekers

- AI chatbot that can understand users' inputs and provide top rated recommendations

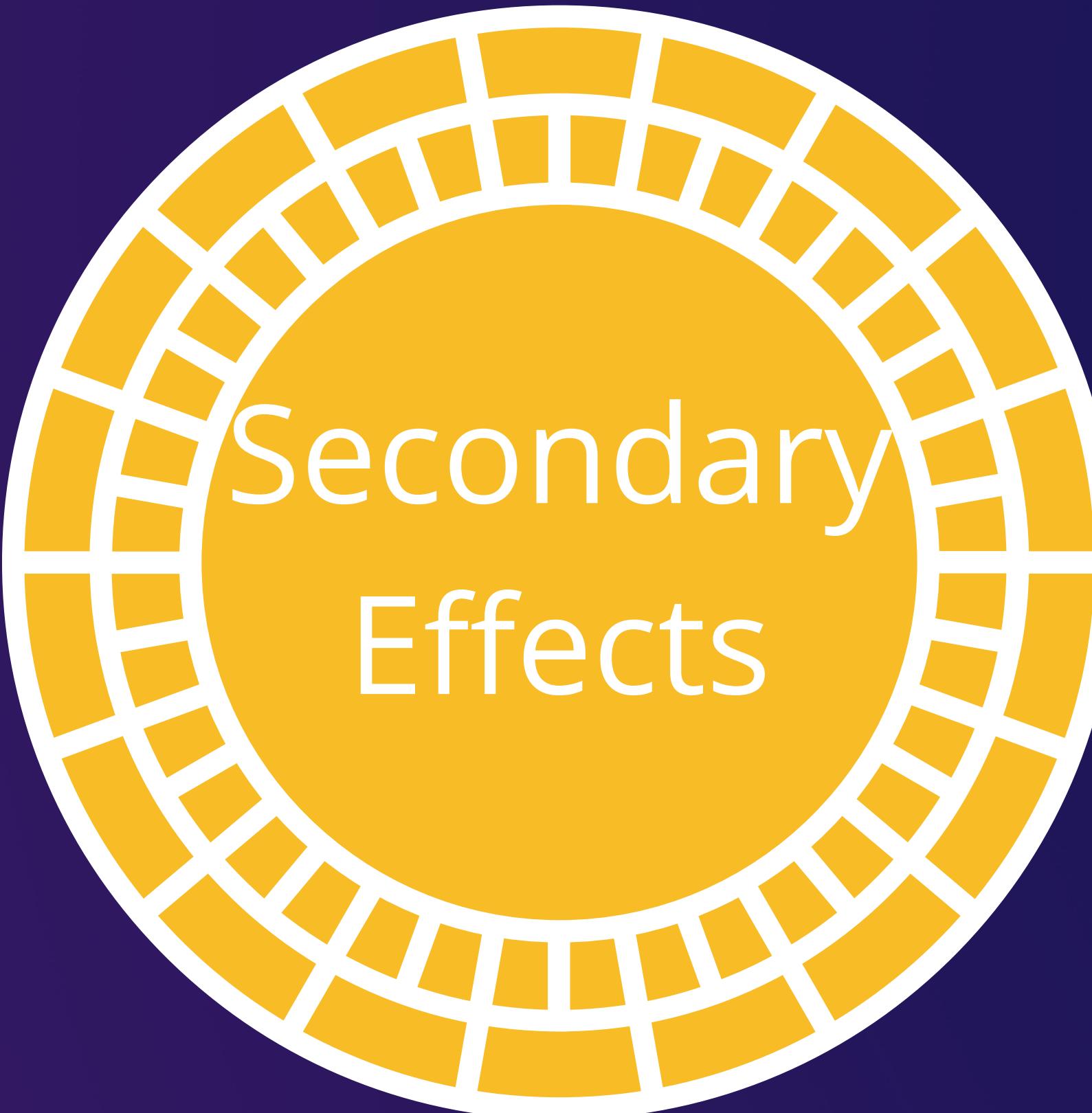
- AI chatbot can personalized job search services by auto-matching and recommending based on individual job seeker's criteria and available job portal data from different channels

Knowledge



- Ease of use
- An AI chatbot that job seekers can use to search and be matched for jobs

Knowledge



- The AI chatbot connects job seekers to available job portals
- Employers can benefit from better-fit candidates

Knowledge

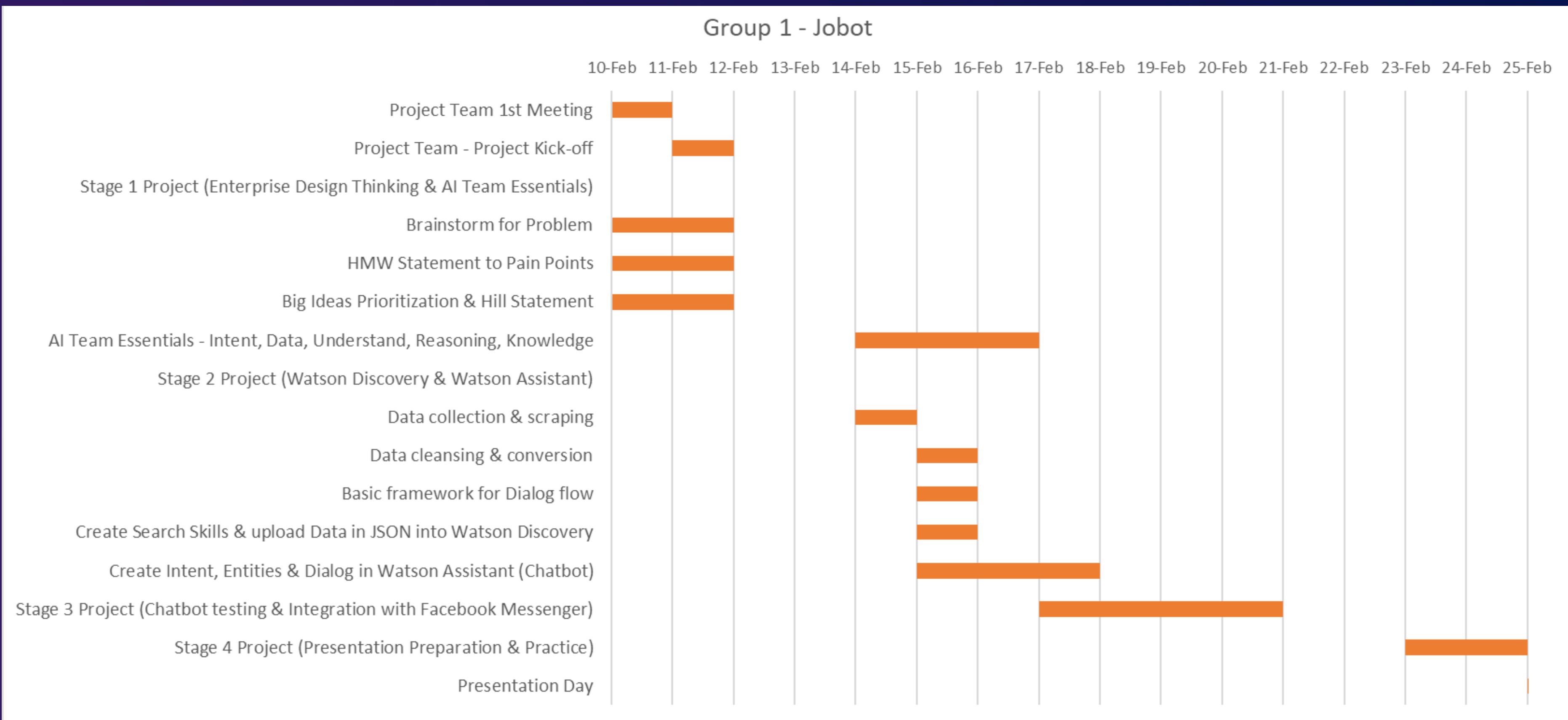


- The AI chatbot can disrupt recruitment agency services
- The AI chatbot can be spoofed and to commit identity fraud and collect job seekers' data
- The AI chatbot may make fake jobs to job seekers as job portal is 3rd party vendor, resulting in garbage in garbage out



PROJECT PLANNING & DESIGN

Gantt Chart - Project Planning & Timeline



Team Members' Task Allocation

Team Members	Task Allocation
Fazeria (Data Journalist)	 EDT Co-Lead Data Sourcing & Scraping Co-Lead Data Cleansing & Conversion Chatbot Testing & Integration Co-Lead
Michael (AI Analyst)	 AI Team Essentials Lead Data Sourcing & Scraping Chatbot Testing & Integration Co-Lead
Ching Tien (Project Coordinator)	 Data Sourcing & Scraping Co-Lead Chatbot Design & Testing Coordinator
Ramya (AI Engineer)	 Data Cleansing & Conversion Lead Chatbot Design & Testing Lead Chatbot Integration Lead
Fareed (Data Storyteller)	 EDT Co-Lead Presentation Design Lead Web Integration Lead

A photograph showing several people's hands and arms resting on a wooden table covered with various documents, a laptop, a tablet, and a smartphone. The documents contain colorful bar and line graphs. A pair of glasses lies on the table. In the background, there are green plants and a window with a view of the outdoors.

PROJECT PLANNING & CONSIDERATIONS

Planning & Consideration (1/2)

Watson Assistant

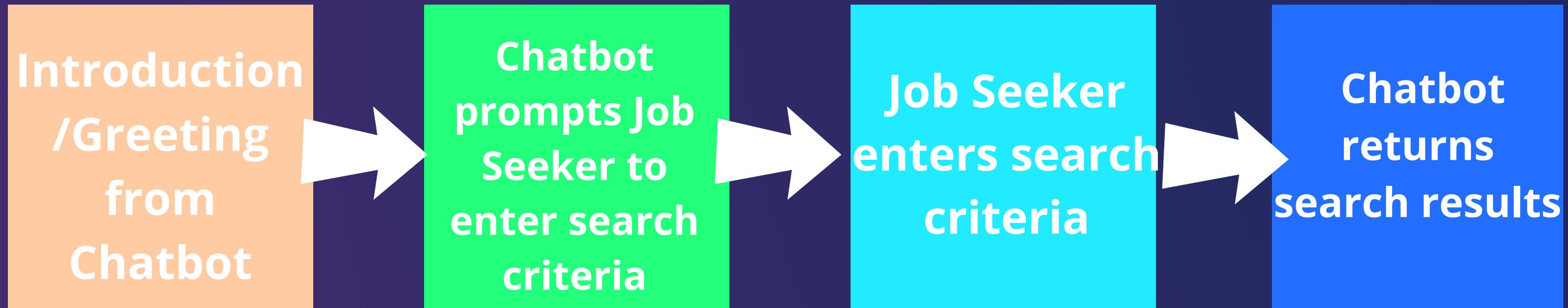
- Easy and simple enough for anyone to build a chatbot or virtual assistant
- Building, testing and integration can be done in one simple and intuitive interface
- Improve users' experience by providing answers from data in a conversational search experience using the Search skill

Planning & Consideration (2/2)

Watson Discovery

- With features powered by Natural Language Processing (NLP) and machine learning, Watson Discovery helps to quickly build cognitive, cloud-based applications that surface unseen and actionable insights hidden in structured and unstructured data .
- Offers NLP enrichments that include entity extraction, sentiment analysis, emotion analysis, keyword extractions, category classification, concept tagging, and more.
- Powered by Watson Discovery, Watson Assistant search skill enables virtual agents to respond to user's queries quickly and efficiently.

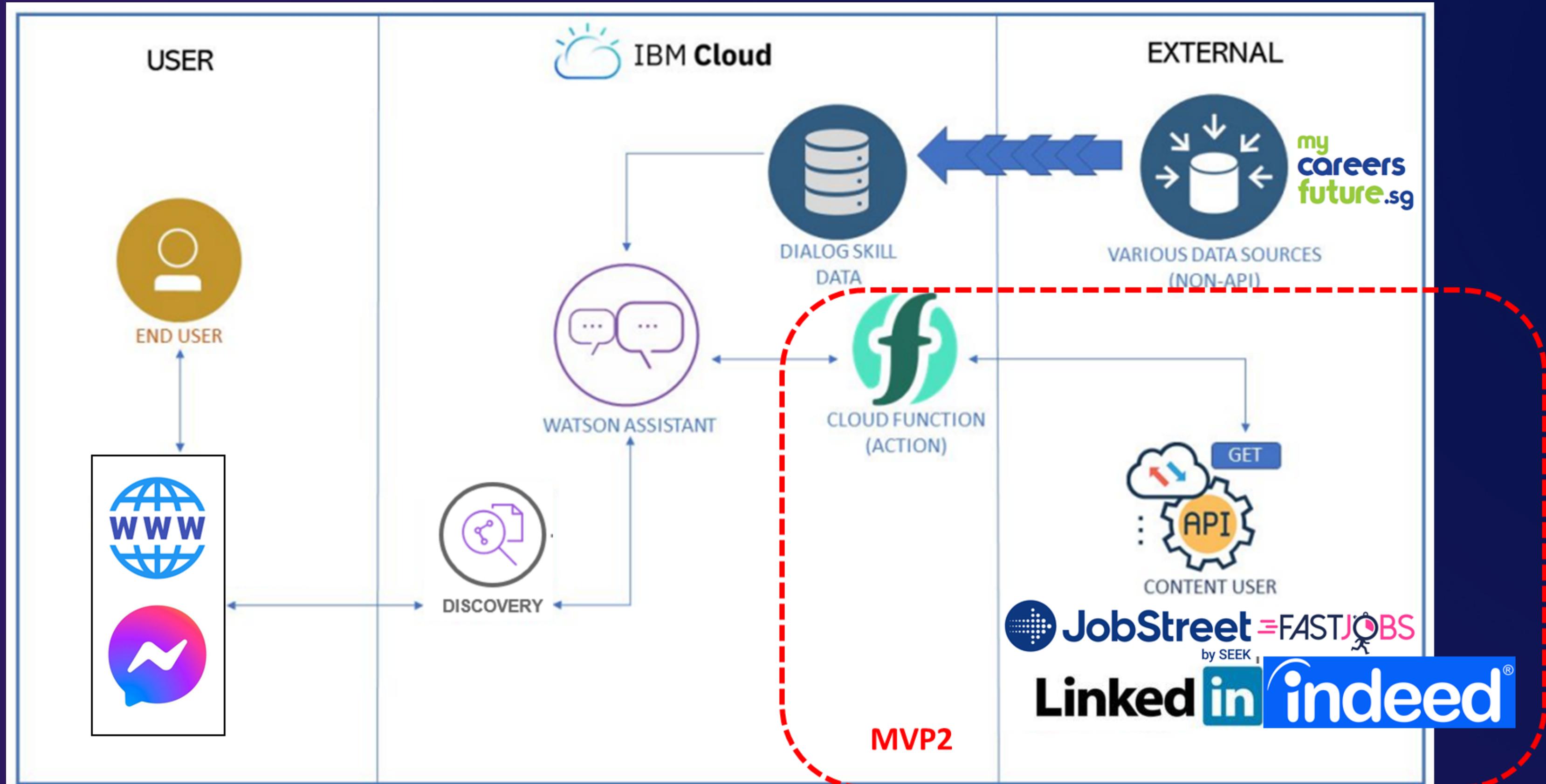
Flow Conversation Design



Implementation Overview

- Data file preparation
- Upload data file into IBM Watson Discovery
- Design Chatbot in IBM Watson Assistant
- Connect Watson Discovery and Assistant using Search skill
- Integrate Chatbot in a Web site
- Integrate Chatbot in Facebook Messenger

Chatbot Architecture



Live Chatbot Demo

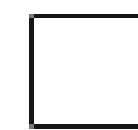


Intents



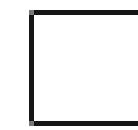
Intents (3) ↑

Description

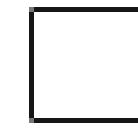


#job_seeker_query

Job Seeker Query



#Job_Seeker_Rejection



#job_seeker_response

Job Seeker Response

Entities(1/2)

<input type="checkbox"/> Entity (8) ↑	Values
<input type="checkbox"/> @employment_type	Part Time, Contract, Internship, Full Time, Permanent, Trainee
<input type="checkbox"/> @experience	24 years, 1 year, 2 years, 3 years, 4 years, 5 years, 6 years, 7 years, 8 years...
<input type="checkbox"/> @job_function	Manufacturing, General Management, Design, Accounting, Others, Sales, E...
<input type="checkbox"/> @job_level	Middle Management, Senior Management, Manager, Professional, Non-exec...
<input type="checkbox"/> @job_role	AVP Investment, Facilities Executive, HR Business Partner, Senior Financial ...
<input type="checkbox"/> @location	South East, North West, Central, South, West, East, North East, Islandwide, ...
<input type="checkbox"/> @salary_max	6000, 10000, 2000, 2200, 8000, 13500, 8200, 7000, 3200, 2500, 12000, ...

Entities(2/2)

@job_function

<input type="checkbox"/> Values (27) ↑
<input type="checkbox"/> Accounting
<input type="checkbox"/> Administration
<input type="checkbox"/> Advertising
<input type="checkbox"/> Banking and Finance
<input type="checkbox"/> Building and Construction
<input type="checkbox"/> Consulting
<input type="checkbox"/> Customer Service

@job_level

<input type="checkbox"/> Values (7) ↑
<input type="checkbox"/> Executive
<input type="checkbox"/> Fresh Level
<input type="checkbox"/> Manager
<input type="checkbox"/> Middle Management
<input type="checkbox"/> Non-executive
<input type="checkbox"/> Professional
<input type="checkbox"/> Senior Management

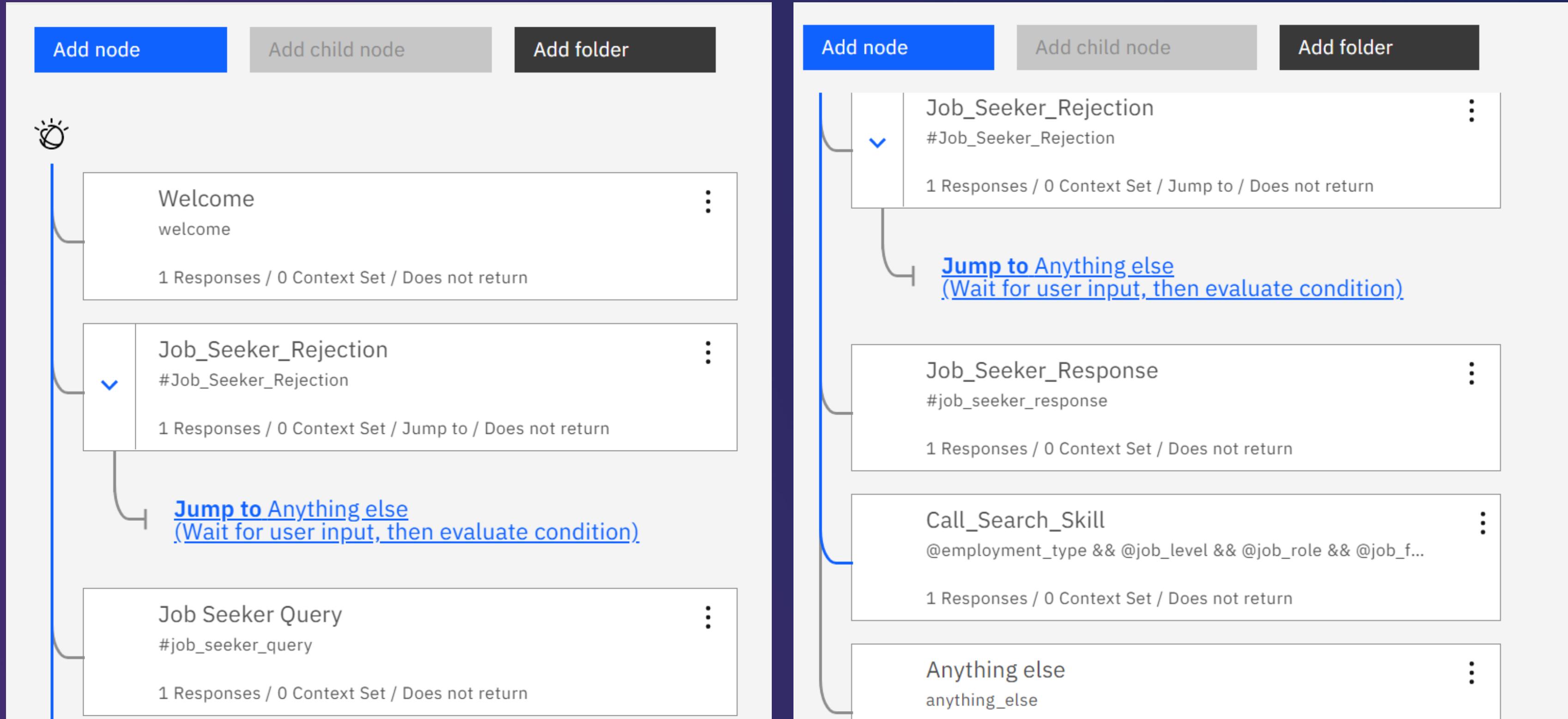
@job_role

<input type="checkbox"/> Values (91) ↑
<input type="checkbox"/> AI Courseware Engineer
<input type="checkbox"/> Assistant Group Accountant
<input type="checkbox"/> Assistant Supervisor
<input type="checkbox"/> Associate
<input type="checkbox"/> Associate Engineer
<input type="checkbox"/> Audit associate

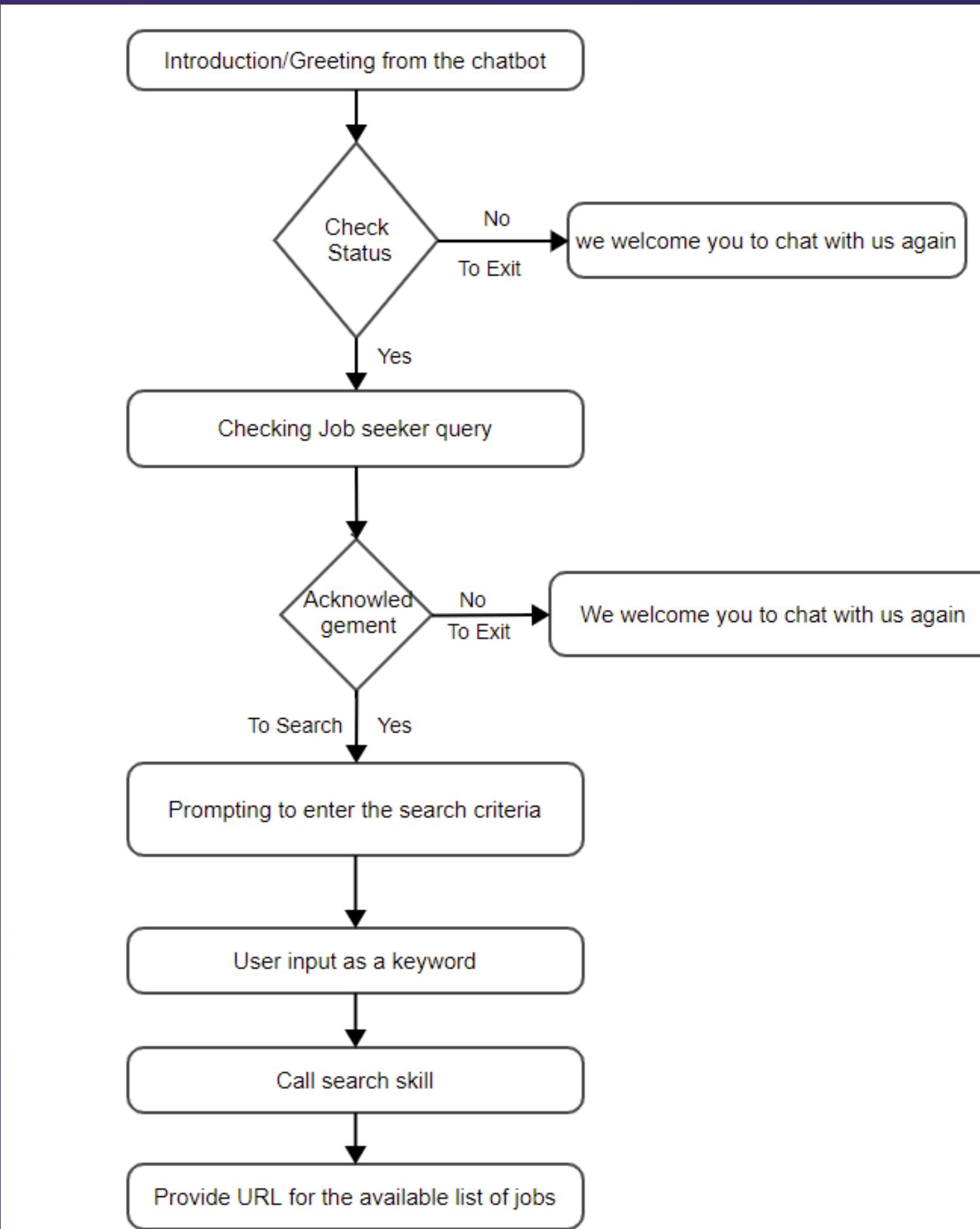
@location

<input type="checkbox"/> Values (10) ↑
<input type="checkbox"/> Central
<input type="checkbox"/> East
<input type="checkbox"/> Islandwide
<input type="checkbox"/> North
<input type="checkbox"/> North East
<input type="checkbox"/> North West

Dialog Flow



Flow Conversation Design of Dialog Nodes



Project Learnings



Constraints and Challenges

- Integrating chatbot from Watson Assistant to FB Messenger
- Due to the liteplan we could only use 99 of our datasets
- Short project turnaround time
- Restricted access to job portals data
- Not able to do webcrawl
- Consolidation of data & cleansing the data to what the machine can understand

Takeaways

Fazeria

"Indeed challenging as the TIME frame given is limited & with great team work/support, we did our best... "

Michael

This is really a challenging project but one completed with the best teammates i could have ever imagined

Ramya

This project gives an opportunity to explore more about AI and potential areas where we can implement AI solutions

~ Fareed

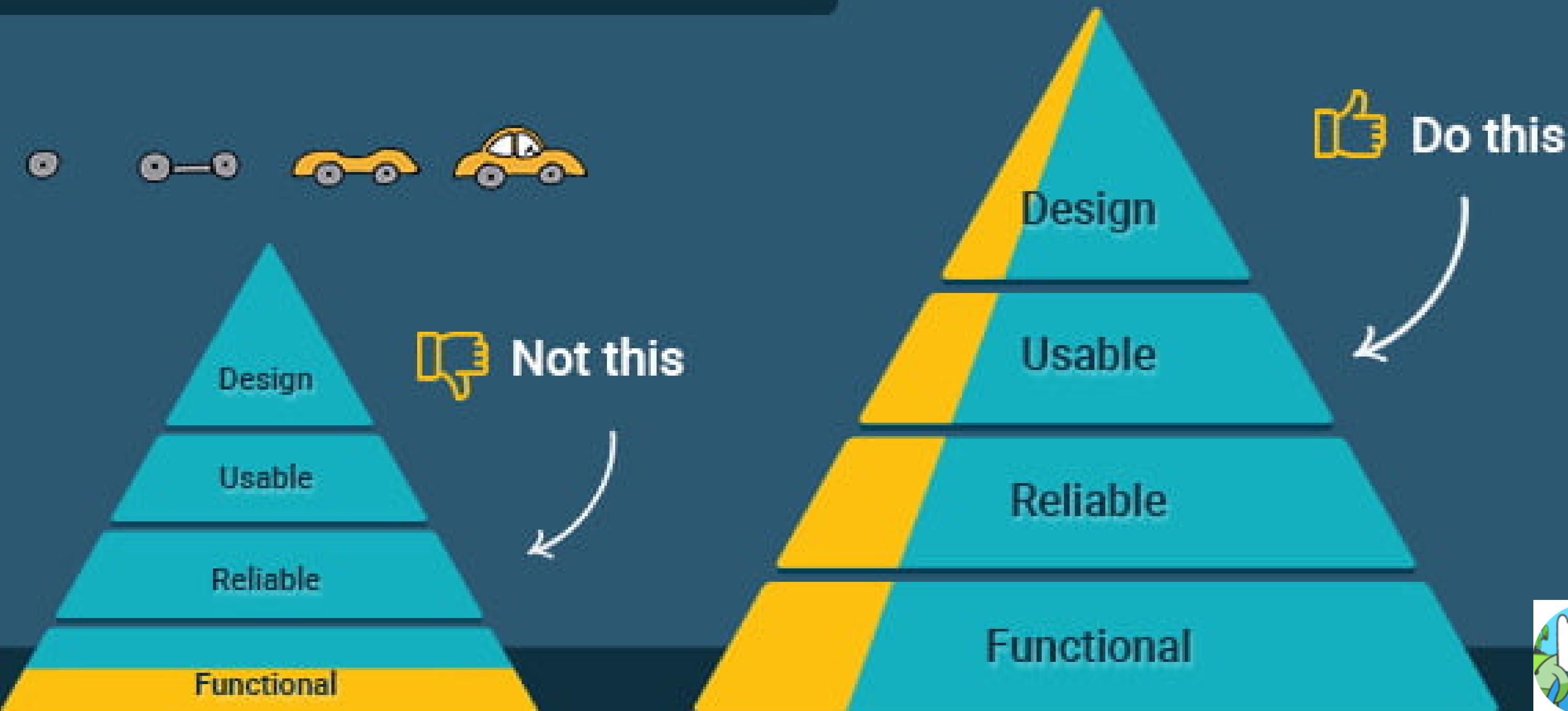
Coming from a background with minimal technical skillset. The project was a challenge. But managed to go through with the team and accomplish it together.

E
A
M

Ching Tien

"Humbled by the experience of building a bot from scratch, getting it live and workable...it is harder than I thought..."

Minimum Viable Product



KRIS
JOBOT
LET'S FIND YOUR JOB

Future Enhancements

MVP Goals



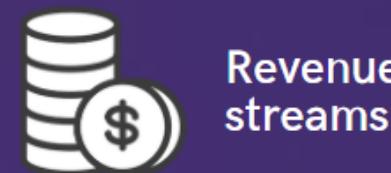
Users



Partnerships



Customisation
of solutions



Revenue
streams

MVP 2

Improve UX

MVP 3

Voice recognition integration

MVP 4

International Job Search

Integrate with Jobs Website

Power the jobs chatbot
for private companies

Metaverse

Integrate interview scheduling

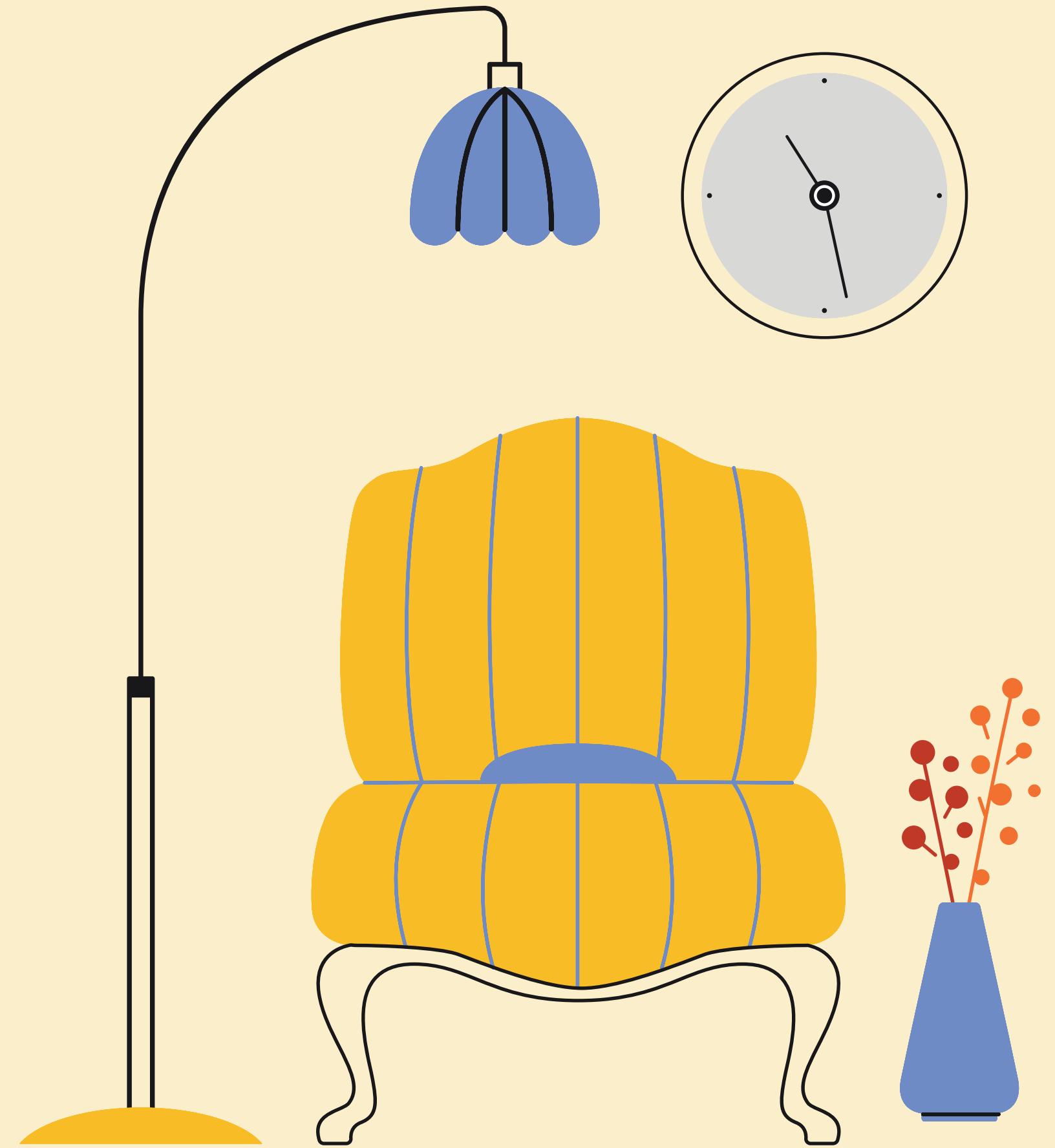
Live video Interview

Customized solution

Ads income: Targeted

Premium Subscription model

Customized solution



THANK YOU!

WE WISH YOU ALL THE BEST FOR YOUR
EXAMS!



Meet Our Team



RAHBEIATUL
FAZERIA
Data Journalist



MICHAEL OH
AI Analyst



TAN CHING TIEN
Project Coordinator



RAMYA
ANANDAN
AI Engineer



FAREED
OSMAN
DATA Storyteller

Chatbot Video Demo

