

AI Recruiter ChatBot

Bias-free Shortlist a Suitable Candidate
for Specific Job Role



Team:

DataVengers

DataVengers



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Problem Statement

- 52% of talent acquisition leaders say that the most difficult part of their job is to shortlist the right candidate and 3% of candidates never hear back from a company after one touchpoint.
- On the flip side, it's a challenge for employers to communicate well with all their candidates.
- For high volume recruiting, this would require communicating with thousands of candidates, in addition to a recruiter's normal screening functions and other duties.
- Artificial Intelligence enabled software bots can definitely provide a solution to this problem.

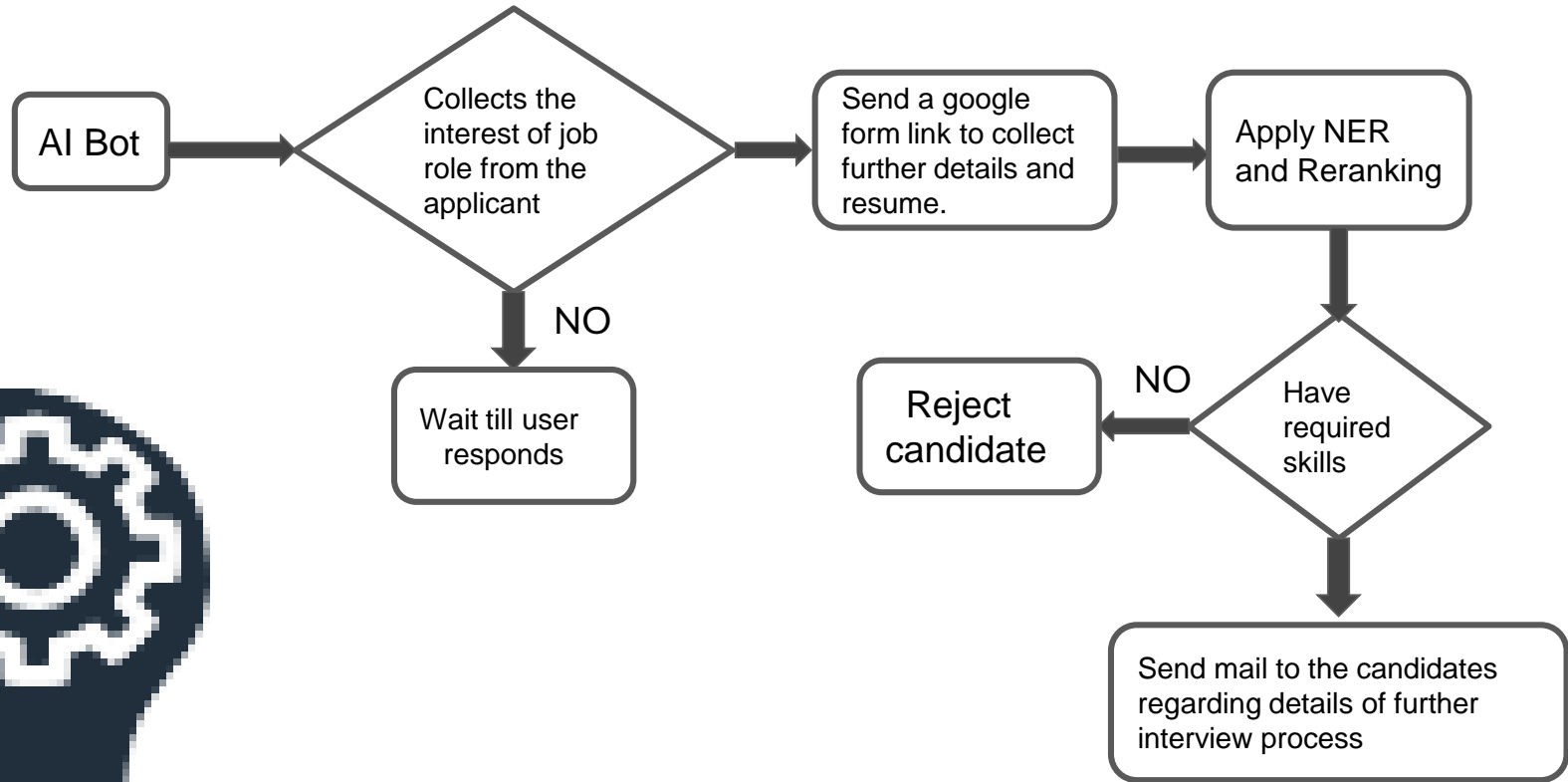
Proposed Solution

Build an AI-enabled Software Bot to:

- Collect information of candidate
- Identify his skills & personality traits through conversation.
- Screens the candidate application
- Bias-free shortlist based on ranking
- Send email to shortlisted candidate for further recruiting process



Block Diagram



Implementation Details

1. Watson Chatbot

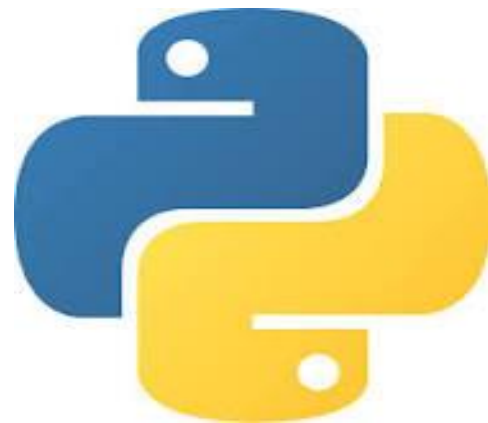
2. Algorithms

- **Named Entity Recognition**
- **Reranking Algorithm**
 1. DetGreedy
 2. DetCons
 3. DetRelaxed
 4. DetConstSort

3. Automated Emailing

Technology Stack

- Python3
- NLP
- spaCy: For resume summarization.
- PyPDF2: Working with Resumes.
- IBM Watson Assistant for Chatbot creation



Results

Assistant preview

Hello. Iam HR at Data Avengers.

We are currently hiring for following posts.

1. Product Manager:
Job Function: Product Management
Employment: Full time
Skills : Product Management, analytical skills, product marketing, customer engagement/ marketing, Resource planning, customer experience
Experience : 3- 4 yrs in product management
Education :- Bachelor's degree

2. Data analyst:
Job Function : Data analysis
Employment : Full time
Skills : Advanced SQL skills
R or Python ,
Jupyter notebook, Excel / Sheets ,
Knowledge about Data visualization tools, data management/ analysis,
Analytical skills
Experience : 2-5 yrs
Education : Bachelor's degree

Type something...



Assistant preview

Scripting,
RDBMS, Data science
ML/ deep learning
Experience : 2-4 yrs
Education : Bachelor's degree

Which job post are you interested in?

Select from the following

Product Manager

Data Analyst

Software Development Engineer

Data Scientist

Software Development Engineer

Apply for your job [here](#)

Interview dates for further rounds will be intimated to you after your resume submission through email. Thank you. Have a nice day!

Type something...



Chatbot preview

sample- AI recruiter

The name and photo associated with your Google Account will be recorded when you upload files and submit this form. Not [vaibhuchinnari@gmail.com](#)? [Switch account](#)

*Required

Email address *

Your email address

Name *

Your answer

Gender *

☐ Female

☐ Male

☐ Other:

Attach Resume *

name it as <phone_no>_resume.pdf

[Add File](#)

Phone Number *

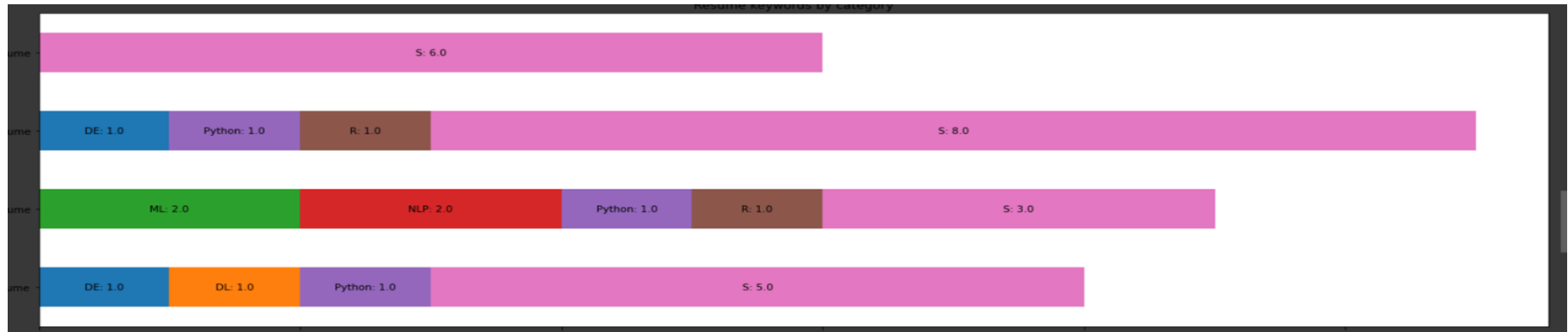
Your answer

Submit

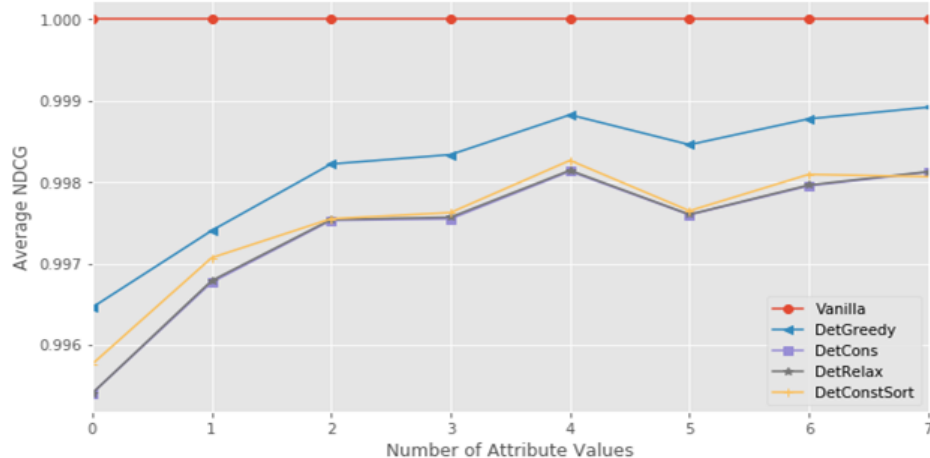
Google Form

	A	B	C	D	E	F	G	H
1	Timestamp	Email Address	Name	Gender	Attach Resume	Phone Number	Score	
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3	6/29/2020 13:12:	qwe@gmail.com	qwe	Male	https://drive.google.com/file/d/1WUwTtYDQFvXGKdR9BzEgZlHnNjCk7m/view?usp=sharing	7894561230	9	
4	6/29/2020 13:11:	abc@gmail.com	abc	Female	https://drive.google.com/file/d/1WUwTtYDQFvXGKdR9BzEgZlHnNjCk7m/view?usp=sharing	1234567890	8	
5	6/28/2020 11:23:	venkateshr0711@gmail.com	Venkateshwar Reddy	Male	https://drive.google.com/file/d/1WUwTtYDQFvXGKdR9BzEgZlHnNjCk7m/view?usp=sharing	8296401470	6	
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7	6/29/2020 13:22:	chetan.vm4070@gmail.com	chetan	Male	https://drive.google.com/file/d/1WUwTtYDQFvXGKdR9BzEgZlHnNjCk7m/view?usp=sharing	7353104070	0	
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9	6/28/2020 22:06:	vaibhuchinnari@gmail.com	Vaibhavi	Female	https://drive.google.com/file/d/1WUwTtYDQFvXGKdR9BzEgZlHnNjCk7m/view?usp=sharing	9901445482	0	
10								
11								

CSV file after adding scores



Results



Reranking Algorithms

Invitation to participate in next round of interview

Inbox x



datavengersteam@gmail.com

to me ▾

Hi, VAIBHAVI

Greetings from Data Vengers!

Congrats on being shortlisted for the next round of interview.

Thanks, I will be there.

I accept the invitation.

I am not interested.

Reply

Forward

Screenshot of mail

Future enhancement

- Integrating Google Calendar API with the Application for sending Google meet link to shortlisted candidates through automated mailing.
- Run Re-Ranking algorithms with real world dataset. Integrate, evaluate and deployment in practice

Reference

1. <https://marutitech.com/14-powerful-chatbot-platforms/>
2. <https://chatbotsmagazine.com/how-to-develop-a-chatbot-from-scratch-62bed1adab8c>
3. <https://ideal.com/recruitment-chatbot/>
4. Fairness-Aware Ranking in Search & Recommendation Systems with Application to LinkedIn Talent Search <https://arxiv.org/abs/1905.01989>



Q & A

“It was an excellent occasion for us to team up, don the thinking hats, and pickle our brains”

Thank You !

