Make My Career

Description

Searching for a new job is a huge task. Making a career change is monumental. When you want a fresh start or a change in your career, you will need help in the form of advice and an outside perspective. When you want to go beyond your current role, and explore new roles, you can achieve it by simply adding a few more skills to the ones you already have under your belt. We have a system that will help you achieve this change.

MakeMyCareer is a system that will provide suggestions to a user in the form of prospective careers, positions, skills, and resources to add to their profile based on their current skills, expectations, and the job market. Also, the user will be able to make their profile impressive and enticing to prospective recruiters in terms of their resume, and their online presence for an easy hiring process.

The System will provide -

- Prospective Positions or Profiles based on the current skills a user already has, their work experience, expectations, and the demand in the job market. These expectations can include requirements like salary, work-life balance, and ideologies.
- Based on a Target Position, the user will want to know any additional skills missing from their profile. These will be looked up and filtered using the latter parameters, and the user's target companies.
- Once the user knows the skills required, they would need trending and quality resources to learn these skills.

Team:

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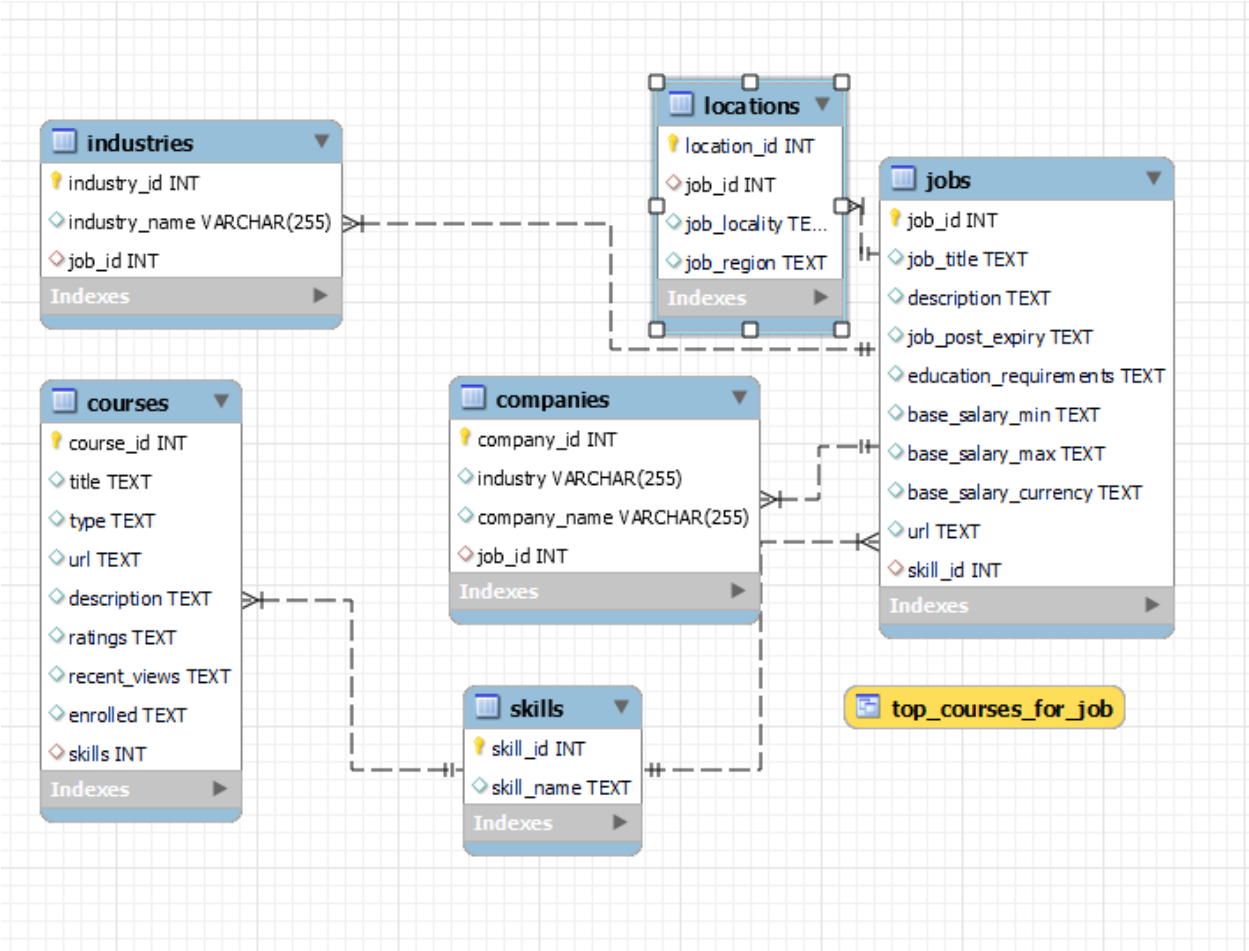
Entity Relationship Diagram



Sample Data

Jobs :

job_id	job_title	description	job_post_	education_re	base_sa	base_	base_	url	skill_id
0	Data Scientist Internship	iheartmediacurrent employee contingent ...	2022-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	0
1	Data Scientist Internship	iheartmediacurrent employee contingent ...	2022-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	16
2	Data Scientist Internship	iheartmediacurrent employee contingent ...	2022-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	18
3	Data Scientist Intern	task internship title interndept name risk ...	2022-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	0
4	Data Scientist Internship...	2022 75202asurion science internship or...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	0
5	Data Scientist Internship...	2022 75202asurion science internship or...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	4
6	Data Scientist Internship...	2022 75202asurion science internship or...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	7
7	Data Scientist Internship...	2022 75202asurion science internship or...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	15
8	Data Scientist Internship...	2022 75202asurion science internship or...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	16
9	Data Scientist Internship...	2022 75205asurion science internship ml...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	0
10	Data Scientist Internship...	2022 75205asurion science internship ml...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	4
11	Data Scientist Internship...	2022 75205asurion science internship ml...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	7
12	Data Scientist Internship...	2022 75205asurion science internship ml...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	15
13	Data Scientist Internship...	2022 75205asurion science internship ml...	2023-...	bachelor ...	NULL	NULL	NULL	https://www.linkedin.com/jobs/view/data-scien...	16

Courses :

course_id	title	type	url	description	ratings	recent_views	enrolled	skills
0	Accounting for Merg...	Course	https://www.coursera.org/learn/accounting-fo...	course aim assi...	NULL	9,141 recent views	NULL	4
1	Assisting Public Sect...	Course	https://www.coursera.org/learn/assist-public-s...	develop data a...	NULL	7,607 recent views	NULL	4
2	Assisting Public Sect...	Course	https://www.coursera.org/learn/assist-public-s...	develop data a...	NULL	7,607 recent views	NULL	5
3	AtenciÃ³n prehospit...	Course	https://www.coursera.org/learn/ictus-agudo-e...	el ictus e una e...	231 ratings	3,625 recent views	4,251 already enrolled	5
4	AtenciÃ³n prehospit...	Course	https://www.coursera.org/learn/ictus-agudo-e...	el ictus e una e...	231 ratings	3,625 recent views	4,251 already enrolled	17
5	Build, Train, and De...	Course	https://www.coursera.org/learn/ml-pipelines-bert	second course ...	115 ratings	17,709 recent views	9,797 already enrolled	4
6	Build, Train, and De...	Course	https://www.coursera.org/learn/ml-pipelines-bert	second course ...	115 ratings	17,709 recent views	9,797 already enrolled	5
7	Build, Train, and De...	Course	https://www.coursera.org/learn/ml-pipelines-bert	second course ...	115 ratings	17,709 recent views	9,797 already enrolled	15
8	Build, Train, and De...	Course	https://www.coursera.org/learn/ml-pipelines-bert	second course ...	115 ratings	17,709 recent views	9,797 already enrolled	17
9	Build, Train, and De...	Course	https://www.coursera.org/learn/ml-pipelines-bert	second course ...	115 ratings	17,709 recent views	9,797 already enrolled	18
10	Comercio, Inmigraci...	Course	https://www.coursera.org/learn/comercio-inmi...	este e el segu...	77 ratings	3,112 recent views	2,901 already enrolled	5
11	FPGA computing sys...	Course	https://www.coursera.org/learn/fpga-intro	course anyone...	224 ratings	7,362 recent views	13,249 already enrolled	4

Skills :

skill_id	skill_name
0	django
1	php
2	java
3	numpy
4	ai
5	ui
6	mysql
7	flask
8	pytorch
9	spark
10	tensorflow
11	tableau

Locations :

location_id	job_id	job_locality	job_region
0	0	Texas	United States
1	1	Farmington Hills	MI
2	2	Nashville	TN
3	3	Nashville	TN
4	4	Home	MN
5	5	Wayne	NJ
6	6	Parsippany	NJ
7	7	Raleigh	NC
8	8	Phoenix	AZ
9	9	Los Angeles	CA
10	10	Home	PA
11	11	Los Angeles	CA

Companies :

company_name
iHeartMedia
Mercedes-Benz Financial Services USA LLC
Asurion
Digi-Key Electronics
Valley Bank
Langan Engineering & Environmental Services
IBM
Amgen
Highmark Health
BioSpace
Dana-Farber Cancer Institute

Industries

industry_name
Radio and Television Broadcasting
Financial Services
Insurance
Appliances and Electrical and Electronics Manuf...
Banking
Civil Engineering
Computer Hardware Manufacturing
Biotechnology Research
Pharmaceutical Manufacturing
Hospitals and Health Care
Online Audio and Video Media

Views based on Use Cases

Find skills required for a particular Job Position -

```
CREATE VIEW skills_for_job AS (
SELECT skills.skill_id,skills.skill_name,jobs.job_title FROM skills JOIN jobs ON jobs.skill_id=skills.skill_id
WHERE jobs.job_title='Data Analyst'GROUP BY skills.skill_id);

SELECT * FROM skills_for_job;

CREATE VIEW top_courses_for_job AS (
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

skill_id	skill_name	job_title
1	php	Data Analyst
2	java	Data Analyst
4	ai	Data Analyst
6	mysql	Data Analyst
9	spark	Data Analyst
11	tableau	Data Analyst
15	sql	Data analyst
16	fastai	Data analyst
7	flask	Data analyst
0	django	DATA ANALYST

Find top courses for my job position -

```
CREATE VIEW top_courses_for_job AS (
SELECT courses.course_id, courses.title,courses.type,courses.description,
courses.ratings,courses.recent_views,courses.enrolled,skills.skill_name,jobs.job_title
FROM courses JOIN (skills JOIN jobs ON jobs.skill_id=skills.skill_id ) ON courses.skills=skills.skill_id
WHERE jobs.job_title in ('Data Analyst') ORDER BY courses.ratings);

SELECT * FROM top_courses_for_job;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

course_id	title	type	description	ratings	recent_views	enrolled	skill_name	job_title
1316	Architecting Solution...	Course	looking get technical looking ...	NULL	51,491 recent views	2,230 already enrolled	ai	Data Analyst
320	Advanced Data Mod...	Course	develop working knowledge f...	NULL	4,923 recent views	NULL	mysql	Data Analyst
1295	Aprendizado de mÃi...	Course	este curso mergulha no fund...	NULL	2,221 recent views	NULL	ai	Data Analyst
1341	Arquitecturas de Big ...	Course	el curso de arquitecturas de ...	NULL	2,002 recent views	NULL	spark	Data Analyst
924	Advanced Data Mod...	Course	develop working knowledge f...	NULL	4,923 recent views	NULL	mysql	Data Analyst
1310	Architecting Google ...	Course	questo corso architecting go...	NULL	NULL	NULL	ai	Data Analyst
1311	Architecting Google ...	Course	questo corso architecting go...	NULL	NULL	NULL	ai	Data Analyst
1313	Architecting Google ...	Course	questo corso architecting go...	NULL	NULL	NULL	ai	Data Analyst
1437	Attracting and Sourci...	Course	shortlisting interviewing proc...	NULL	1,750 recent views	NULL	ai	Data Analyst
1388	Aruba Networking Ba...	Course	aruba networking essential v...	NULL	1,889 recent views	NULL	ai	Data Analyst

Find jobs for set of skills in user's profile-

```sql
CREATE VIEW jobs_for_skill AS (
SELECT courses.course_id, courses.title,courses.type,courses.description,
courses.ratings,courses.recent_views,courses.enrolled,skills.skill_name,jobs.job_title
FROM courses JOIN (skills JOIN jobs ON jobs.skill_id=skills.skill_id )
ON courses.skills=skills.skill_id WHERE skills.skill_name in ('ai','python', 'sql')
 GROUP BY skills.skill_name);

SELECT * FROM top_courses_for_job;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

course_id	title	type	description	ratings	recent_views	enrolled	skill_name	job_title
1316	Architecting Solution...	Course	looking get technical looking ...	NULL	51,491 recent views	2,230 already enrolled	ai	Data Analyst
320	Advanced Data Mod...	Course	develop working knowledge f...	NULL	4,923 recent views	NULL	mysql	Data Analyst
1295	Aprendizado de mÃi...	Course	este curso mergulha no fund...	NULL	2,221 recent views	NULL	ai	Data Analyst
1341	Arquitecturas de Big ...	Course	el curso de arquitecturas de ...	NULL	2,002 recent views	NULL	spark	Data Analyst
924	Advanced Data Mod...	Course	develop working knowledge f...	NULL	4,923 recent views	NULL	mysql	Data Analyst
1310	Architecting Google ...	Course	questo corso architecting go...	NULL	NULL	NULL	ai	Data Analyst
1311	Architecting Google ...	Course	questo corso architecting go...	NULL	NULL	NULL	ai	Data Analyst
1313	Architecting Google ...	Course	questo corso architecting go...	NULL	NULL	NULL	ai	Data Analyst
1437	Attracting and Sourci...	Course	shortlisting interviewing proc...	NULL	1,750 recent views	NULL	ai	Data Analyst
1388	Aruba Networking Ba...	Course	aruba networking essential v...	NULL	1,889 recent views	NULL	ai	Data Analyst

Which courses are available on AI which provide a certificate?

```sql
CREATE VIEW cert_courses_for_skill AS (
SELECT * FROM courses JOIN skills ON courses.skills=skills.skill_id
WHERE skills.skill_name='ai' and type = 'Course');

SELECT * FROM cert_courses_for_skill;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

course_id	title	type	url	description	ratings	recent_views	enrolled	skills	skill_id	skill_nar
0	Accounting for Mergers and Acquisitions: Foun...	Course	https://www.coursera...	course aim assisting in...	NULL	9,141 recent views	NULL	4	4	ai
1	Assisting Public Sector Decision Makers With Pol...	Course	https://www.coursera...	develop data analysis ...	NULL	7,607 recent views	NULL	4	4	ai
5	Build, Train, and Deploy ML Pipelines using BER...	Course	https://www.coursera...	second course practic...	115 ratings	17,709 recent views	9,797 alre...	4	4	ai
11	FPGA computing systems: Background knowled...	Course	https://www.coursera...	course anyone passio...	224 ratings	7,362 recent views	13,249 alr...	4	4	ai
13	Future Healthcare Payment Models | Coursera	Course	https://www.coursera...	course review driver h...	34 ratings	3,911 recent views	3,719 alre...	4	4	ai
14	Improving Immunity Based on Traditional Easte...	Course	https://www.coursera...	exercise medicine regu...	61 ratings	6,906 recent views	3,718 alre...	4	4	ai
17	Incrementar - Parte 2 y Controlar | Coursera	Course	https://www.coursera...	el curso explora herra...	NULL	5,330 recent views	NULL	4	4	ai
19	IntelÃ® Network Academy - Network Transfor...	Course	https://www.coursera...	welcome intelâ networ...	473 ratings	20,587 recent views	29,575 alr...	4	4	ai
20	Introduction to Academic Writing | Coursera	Course	https://www.coursera...	welcome introduction ...	NULL	19,604 recent views	NULL	4	4	ai
21	Know Thyself - The Value and Limits of Self-Kno...	Course	https://www.coursera...	according legend inscri...	507 ratings	32,696 recent views	51,281 alr...	4	4	ai
22	Les bits et les octets des rÃ©seaux informatiq...	Course	https://www.coursera...	ce cours est conã u po...	NULL	4,896 recent views	NULL	4	4	ai
24	Mandarin Chinese for Intermediate Learners: P...	Course	https://www.coursera...	mandarin chinese 1 chi...	102 ratings	4,579 recent views	9,988 alre...	4	4	ai

Which is the most trending course on mysql?

```sql
CREATE VIEW courses_for_skill AS (
SELECT * FROM courses JOIN skills ON courses.skills=skills.skill_id
WHERE skills.skill_name='ai' ORDER BY recent_views DESC);

SELECT * FROM courses_for_skill LIMIT 1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

course_id	title	type	url	description	ratings	recent_views	enrolled	skills	skill_id	skill_name
1003	Advanced Styling wit...	Course	https://www.cours...	used case eve...	4,297 ratings	99,922 recent views	102,646 already enrolled	4	4	ai

Scripts used :

https://github.com/anibahs/MakeMyCareer/blob/main/FinalProject/mmc_views.sql

Steps

Sources :

For this project,one of top websites which could provide a substantial amount and clean information on job openings and additional information related to job searches was LinkedIn and was scraped to obtain a snapshot of data on current job openings. Also Coursera was used to scrape data on skills and resources.

Scraping:

Two python scripts were used along with beautifulsoup library to download data from LinkedIn and Coursera directories, hit the subsequent page for each job/course and extract information from each html based on the right tags. This data was stored in their respective CSV files to be cleaned by a different python script.

Files:
https://github.com/anibahs/MakeMyCareer/blob/main/FinalProject/Scripts/CourseraScraper.ipynb
https://github.com/anibahs/MakeMyCareer/blob/main/FinalProject/Scripts/LinkedInScraper.ipynb

Data Cleaning:

Another python script along with pandas, numpy and matplotlib and other libraries was used to clean the data.
It ensured the data does not contain null values - empty values were converted to Nan and completed empty rows were deleted.
Any data in different languages was removed.
Multi-valued entries were removed by creating multiple entries for each attribute. In jobs data, industries, companies and skills were found to be multivalued. In courses, skills were multivalued.

Data Quality Analysis:

Data visualization in the form of countplot were created to check if the number of jobs were accurate and consistent with the industry and skills in the job market. Data completeness was ensured by removing null values and multivalues.

File -
https://github.com/anibahs/MakeMyCareer/blob/main/FinalProject/Scripts/DataExtraction.ipynb

Data Extraction:

Using a sample set of technical skills the model MultinomialNB was trained on this data to predict additional technical skills and some of the top skills were used to relate to the job positions.

Database Creation:

All pandas dataframes on jobs, courses, skills, and locations were formed, cleaned and also linked with relevant attributes.
Tables were created using SQL queries with all the necessary constraints for primary and foreign key relationships.
This data was then inserted into a database on MySQL Workbench through a connection with python using mysql libraries..

Normalization:

Once the database was set up, the data was found to be already in First Normal Form. It was then converted into Second Normal Form by moving data with partial dependencies (company, industry) into new tables . Location and Skills were already removed and linked with foreign keys.
It was then converted into 3rd normal form by removing redundant data from the tables and eliminating transitive dependencies.

SQL scripts used -
https://github.com/anibahs/MakeMyCareer/blob/main/FinalProject/Scripts/1NF.sql
https://github.com/anibahs/MakeMyCareer/blob/main/FinalProject/Scripts/2NF.sql
https://github.com/anibahs/MakeMyCareer/blob/main/FinalProject/Scripts/3NF.sql