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CSCI - 6622

5a – Business Section

Explain what the business is that hired you to develop a database

The Transparent Job Market Project, TJMP**,** goal is to help the general public and companies get a better understanding for the current state of job markets. The state of a job market is a very large problem. The TJMP, focuses on skill valuation to reduce the scope of the job market problem. The TJMP is a startup in the software industry. The Software they are developing is made for Human Resources Departments of any companies. The first market TJMP will focus on is the US.

TJMP will offer individual the possibility to query their database to identify the value of a skill. Either monetarily, who much money can you expect to earn if you have a specific skill. Based on competitors, how many people have this skill. Or based on opened opportunities, how many jobs are opened and require this skill.

The Monetary Valuation will be isolated or within a context. The TJMP assumes that greater value is generated with more precise information.

The isolated value of a skill will not be very precise as the skill on its own will be evaluated. Offering an isolated value, is a strategy to gather individual information and interests. It is also an easy way for users to interact with the platform with very few constraints.

The skill evaluation within a context will require the user to provide personal information, LinkedIn profile, resume… and will return a more detailed skill valuation. This should help with career planning.

Finally, TJMP should generate most of its revenues through business services. The skills database would be leveraged to help a company's HR department assess their position in the job market and identify key assets.

Provide a brief description of the problem that the business has

The Transparent Job Market Project, TJMP, is a startup and needs to create a database in order to store the data they will need on jobs and skills. Without the skills database, the business cannot start. Data accuracy will be critical to provide reliable information and quality analysis as the company plans to offer services for businesses. The TJMP, wants to start by importing all jobs, employees, companies, job searchers information from LinkedIn as a start.

The user should be able to see, the value of a skill in monetary terms, the number of jobs available requiring a specific skill, the number and average of people who have a specific skill.

Once the database is created, TJMP, will have to collect the data, make sure of its accuracy, build strong security, create an interface to query the database and start advertising. Database maintenance and updates will be required. TJMP should also keep an eye on its competitors and secure investments to capture market share quickly.

Provide a series of specifications that the business needs

Storing information from LinkedIn:
The Database should store data on people, skills, companies and jobs. This covers the information available on LinkedIn needed to define a skills value.

Skill information will be gathered through, opened jobs information and user profiles. This information is stored in the SKILLS table.

Opened jobs information will also be use to fill the JOBS table.

User profile information can be stored in the PEOPLES and JOBS tables. The PEOPLES table holds very basic information on people, first name, last name … It is linked to a EDUCATION table so we can have access to degrees people have. This information is stored for potential future use. We could now get information on skills and degrees, which program to choose to build specific knowledge.

Companies information is stored in the COMPANIES table. It is linked to the JOBS table. We know what jobs are provided at which companies

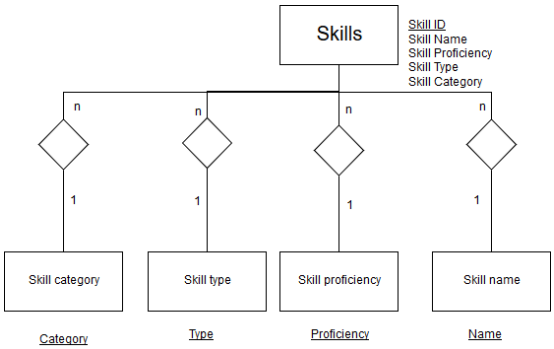
A premium account will be required when making the queries to gather more specific information.

Returning the value of a skill:
The following list of queries regarding skill values must be answered by the design.
What is the skill value:
-Based on salary
-Based on number of job openings
-Based on number of job openings
-Based on number of jobs needing it
-Based on people with that skill
-Flexibility to add new tables: We are not sure this has been achieved.

Data Accuracy:

Reference tables are created to limit the input of certain fields. This puts constraints on what data can be found in tables like, SKILLS and JOBS tables. This will guarantee data accuracy.

The ER diagram on the right shows the design of the SKILLS table. Skill category holds the fields hard and soft. This way all the Skills ID's will have to be hard or soft. This will guarantee data consistency. To achieve this, a database administrator is required.



Provide at least 8 reports that the business would want to see

JOIN 1 Return the top 10 average salary for skills

```
SELECT TOP 10
s.SkillName,
FORMAT(AVG(j.Salary), 'C') AvgSalary
FROM JOBS j
JOIN JOBS_AND_SKILLS js
ON j.JobID = js.JobID
JOIN SKILLS s
ON js.SkillID = s.SkillID
GROUP BY s.SkillName
ORDER BY AvgSalary DESC
```

	SkillName	AvgSalary
1	Competitive spirit	$68,436.35
2	Interpersonal relationships	$64,721.25
3	Integrity	$64,278.77
4	Composer	$63,724.36
5	Decision Making	$63,504.99
6	Automotive repair	$62,707.86
7	Taking Criticism	$62,442.97
8	Multi-lingual	$61,691.17
9	Encryption	$61,002.75
10	Honesty	$60,168.07

JOIN 2 Skills with the most opening

```
SELECT
SkillName,
COUNT(SkillName) AS NumberOfJobAvalableForSkill
FROM Jobs j
JOIN JOBS_AND_SKILLS js
ON j.JobID = js.JobID
JOIN SKILLS s
ON js.SkillID = s.SkillID
WHERE (J.Filled = 'Published' OR J.Filled = 'Writing
Description')
GROUP BY SkillName
ORDER BY NumberOfJobAvalableForSkill DESC
```

	SkillName	NumberOfJobAvalableForSkill
1	Photography	21
2	Science	19
3	Self Motivation	18
4	Multi-lingual	18
5	Legal	17
6	Manufacturing	17
7	Reporting	17
8	Mathematics	16
9	Project Management	14
10	Self-confidence	14
11	Schedule management	14
12	Smart worker	13

GROUP BY 1 Return number of job openings per job for opening not published and not reviewed by HR currently

```
SELECT
JobTitle,
COUNT(JobTitle) AS CountOfOpenedJobs
FROM JOBS
WHERE (Filled = 'Published' OR Filled = 'Writing
Description' ) AND Filled<> 'YES'
GROUP BY JobTitle
ORDER BY CountOfOpenedJobs DESC
```

	JobTitle	CountOfOpenedJobs
1	Meals on Wheels Driver	7
2	Mathematician	6
3	Operations Professional	6
4	Research Assistant	6
5	Operations Director	5
6	Owner	5
7	Locksmith	5
8	Manager	5
9	Managers	4
10	Managing Member	4
11	Maintenance Engineer	4

GROUP BY 2 Number of jobs in the database by title

```
SELECT
JobTitle,
COUNT(JobTitle) AS NumberOfJobsInTheDatabase
FROM JOBS
GROUP BY JobTitle
ORDER BY NumberOfJobsInTheDatabase DESC
```

	JobTitle	NumberOfJobsInTheDatabase
1	Conservation Scientist	8
2	Chief Executive Officer	7
3	Grant Writer	7
4	Meals on Wheels Driver	7
5	Mathematician	6
6	Operations Professional	6
7	Research Assistant	6
8	Bellhop	6
9	Copywriter	6
10	Electrician	6
11	Entrepreneur	6

REGULAR QUERY 1 Return the JOBS table

```
SELECT *
FROM JOBS
```

JobID	Description	JobTitle	Experience	Filled	JobType	Department	OfficeName	StartDate	EndDate	CompanyName	Salary
1	NULL	Scrum Master	15	Writing Description	Part Time	Technical	Tupsipon	2006-12-24	NULL	Tuptanepan Direct Inc	73034.9621
2	NULL	Mathematician	17	Published	Internship	Marketing	Rapwerop	2000-07-05	2003-09-06	Raptumamor	82006.548
3	NULL	Mathematician	16	Published	Internship	Marketing	Adcadew9	2013-01-23	2016-07-18	Adbanefor Direct Corp.	77150.2349
4	NULL	Handyman	11	Ongoing Process	Full Time	InternationalSales	Monquestomm11	2006-07-25	2009-11-16	Monjubefentor International Corp.	56478.8774
5	NULL	Credit Counselor	4	Interviewing	Full Time	Corporate Care	Gropickim8	2003-05-23	2005-12-26	Grokilonin Direct Corp.	21794.2656

REGULAR QUERY 2 Return all the data from the SKILLS table ordered by skill name and then skill proficiency

```
SELECT *
FROM SKILLS
ORDER BY SkillName ASC,
      SkillProficiency ASC
```

SkillID	SkillName	SkillProficiency	SkillType	SkillCategory
691	NULL	NULL	NULL	NULL
803	NULL	NULL	NULL	NULL
940	NULL	NULL	NULL	NULL
988	Ability to work in a team	1	Hard	Business
760	Ability to work in a team	1	Hard	Business
686	Ability to work in a team	1	Hard	Business
658	Ability to work in a team	1	Hard	Business
467	Ability to work in a team	1	Hard	Business
395	Ability to work in a team	1	Hard	Business
289	Ability to work in a team	1	Hard	Business
163	Ability to work in a team	1	Hard	Business
91	Accounting	1	Hard	Business

SUB QUERY 1 Returning Company info for companies founded after 2000

```
SELECT *
FROM COMPANIES
WHERE CompanyName IN (
SELECT CompanyName
FROM COMPANIES_AND_TIMES
WHERE YearFounded >2000)
```

	CompanyName	Industry	YearFounded	Corporatewebsite	CEOName
1	Addiminentor WorldWide	Business Services	2005	www.Addiminentor.com	Mays
2	Adfropinicator Company	Savings & Loans	2006	www.Adfropinicator.com	Jarvis
3	Adpickepazz Holdings Inc	Indian Gaming	2003	www.Adpickepazz.com	Ware
4	Adtumanax Direct	Non-profits, Foundations & Philanthropists	2011	www.Adtumanax.com	Lopez
5	Barerefex WorldWide Group	Chiropractors	2016	www.Barerefex.com	Morgan
6	Barnipanan International	Foundations, Philanthropists & Non-Profits	2003	www.Barnipanan.com	Brooks
7	Barsipilar WorldWide	Air Transport Unions	2002	www.Barsipilar.com	Suarez
8	Bartinegax Direct Company	Computer Software	2010	www.Bartinegax.com	Chaney
9	Bartumedgax Direct Inc	Republican Candidate Committees	2009	www.Bartumedgax.com	Vaughan
10	Barzapefax International	Construction	2017	www.Barzapefax.com	Cameron
11	Dopbaneficator International Company	Oil & Gas	2016	www.Dopbaneficator.com	Mcintosh

SUB QUERY 2 Return first name, last name date of birth of people with a master's degree

```
SELECT FirstName, LastName, DateOfBirth
FROM PERSONS
WHERE PersonID IN (
SELECT PersonID
FROM PERSONS_DEGREES
WHERE DegreeName LIKE '%Master''s%'
)
```

	FirstName	LastName	DateOfBirth
1	Nichole	Nichols	1981-12-15
2	Robbie	Alvarado	1993-07-11
3	Earl	Day	1989-05-26
4	Joseph	Mc Bride	1992-10-21
5	Ebony	Watkins	1979-02-08
6	Roderick	O'Neill	1998-06-25
7	Fredrick	Clayton	1979-10-04
8	Cesar	Copeland	1997-12-05
9	Angela	Knight	1989-09-09
10	Keisha	Cummings	1999-09-02
11	Tamara	Banks	1988-01-21

EXTRA QUERY Returns number of people per skills

```
SELECT SkillName,
COUNT(SkillName) AS NumberOfPeopleWithTheSkill
FROM SKILLS s
JOIN PERSONS_AND_SKILLS ps
ON s.SkillID = ps.SkillID
JOIN PERSONS p
ON ps.PersonID = p.PersonID
GROUP BY SkillName
ORDER BY NumberOfPeopleWithTheSkill DESC
```

	SkillName	NumberOfPeopleWithTheSkill
1	Photography	21
2	Tolerance	21
3	Science	19
4	Filming	19
5	Hardware	18
6	Enthusiasm	18
7	Creativity	18