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Assignment

Database design & development

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# Task 1 - Introduction:

The aim of this project is to provide a robust database management system for the Looking Glass Recruitment. The company operates as a human resources agency. The current informal paper-based system frequently encounters issues when it comes to aligning a candidate's skills and qualifications with those needed for a specific job opening, as well as maintaining precise records of an employer's vacancies.

With a growing number of job seekers (referred to as candidates within the agency) availing the services of Looking Glass Recruitment, there is a need for a database application to streamline the processes of monitoring employers' vacancies and candidates' particulars. The primary objective of this new application is to establish a sturdy system that ensures employers receive accurate candidate information and candidates are directed towards suitable vacancies. It is imperative that this new application enhances the efficiency of Looking Glass Recruitment's services, leading to heightened satisfaction levels for both employers and candidates, and a substantial increase in its employer clientele.

The database must be designed and optimized according to the business requirements listed in table below:

|  |  |
| --- | --- |
| Application Requirements | |
| Form Requirements | Reports Required |
| * Enter, modify, or delete candidates. * Enter, modify, or delete vacancies. * Add or remove skills or qualifications to or from a candidate. * Add or remove skills or qualifications to or from a vacancy. * Apply a candidate to a vacancy. * Mark a vacancy as filled. | * All filled vacancies. * All unfilled vacancies. * All unfilled vacancies with candidates interested. * Vacancies by category * Vacancies by employer * All candidates |

The two most important processes are:

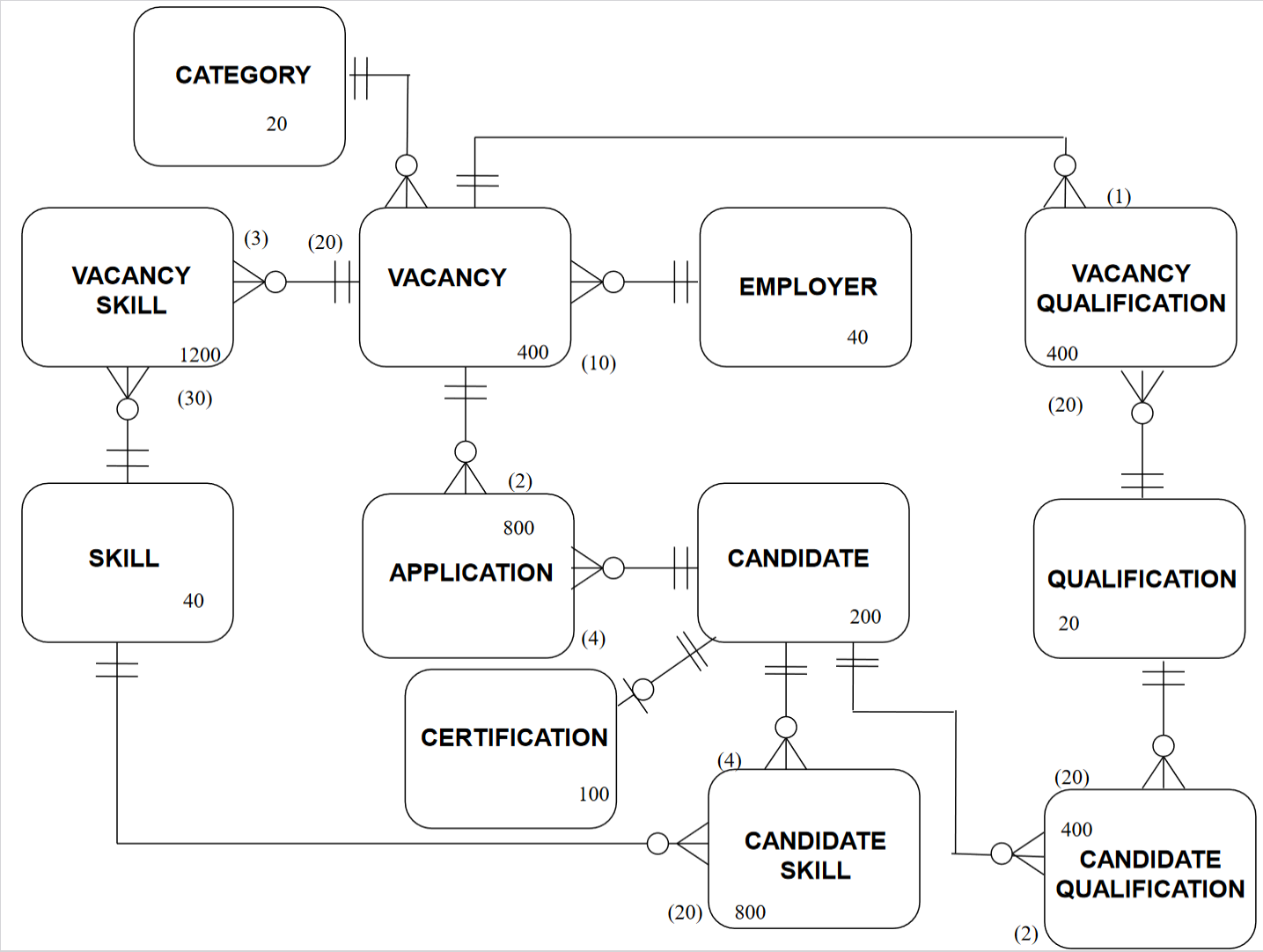
* All filled vacancies

On average 5 times a day

* All unfilled vacancies with candidates interested.

On average 4 times a day

# Task 2 - Data Volume Map: Looking Glass Recruitment



# Task 3.1 - Data Usage Map: All Vacancies Filled

A diagram of a job

Description automatically generated

# Task 3.2 - Data Usage Map: All Unfilled Vacancies with Candidates Interested.

A diagram of a job application

Description automatically generated

# Task 4 - Business processes to physical design techniques matrix table using the business processes.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Data Entity types  Business functions | One-one Relationship | One-many Relationship(reference) | Associative Entity | Duplication | Horizontal Partitioning | Vertical Partitioning | Indexing |
| 1.Enter, modify, or delete candidates. | Yes | No | Yes | No | Yes |  | Yes |
| 2.Enter, modify, or delete vacancies. | No | Yes | Yes | No | Yes |  | Yes |
| 3.Add or remove skills or qualifications to or from a candidate. | No | No | No | No | Yes |  | Yes |
| 4.Add or remove skills or qualifications to or from a vacancy. | No | No | No | Yes | Yes |  | Yes |
| 5.Apply a candidate to a vacancy. | No | No | No | Yes | Yes |  | Yes |
| 6.Mark a vacancy as filled. | No | Yes | Yes | Yes | Yes |  | Yes |
| 7.All filled vacancies. | No | Yes | Yes | Yes | No |  | No |
| 8.All unfilled vacancies. | No | Yes | Yes | Yes | No |  | No |
| 9.All unfilled vacancies with candidates interested. | No | No | No | Yes | No |  | No |
| 10.Vacancies by Category. | No | No | No | Yes | No |  | Yes |
| 11.Vacancies by Employer. | No | No | No | Yes | No |  | Yes |
| 12.All Candidates. | Yes | No | Yes | No | No |  | Yes |

# Task 5

## - Enter, modify, or delete candidates.

1. List candidate details (candidate ID, last name, first name, street address, suburb, phone number, and status) by first name within last name.
2. List certification details (notes and certification date) for a selected candidate.

|  |  |
| --- | --- |
| Current SQL | 1. SELECT \* FROM CANDIDATE   ORDER BY LASTNAME, FIRSTNAME.   1. SELECT CERTIFICATIONDATE, NOTES FROM CERTIFICATION   WHERE CANDIDATEID =4; |
| De-normalization opportunity |  |
|  |  |
|  |  |
|  |  |
|  |  |

De-normalization opportunities: 1)

## - Enter, modify or delete vacancies.

1. List vacancy details (vacancy ID, description, type, status, hourly rate, employer name, and category name) by description.
2. List employers (employer ID, employer name) by employer name.
3. List categories (category ID, category name) by category name.

## 3 - Add or remove skills or qualifications to or from a candidate.

1. List candidate details (candidate ID, last name, and first name) by first name within last name.
2. List skills (skill id and description) by description.
3. List skills (skill id, description, and years) by description for a selected candidate.
4. List qualifications (qualification id, level and description) by description.
5. List qualifications (qualification id, level and description) by description for a selected candidate.

## 4 - Add or remove skills or qualifications to or from a candidate.

1. List vacancy details (vacancy ID, description, and employer name) for unfilled vacancies only by description.
2. List skills (skill id and description) by description.
3. List skills (skill id, description, and years) by description for a selected vacancy.
4. List qualifications (qualification id, level and description) by description.
5. List qualifications (qualification id, level and description) by description for a selected vacancy.

## 5 - Apply a candidate to a vacancy.

1. List vacancy details (vacancy ID, description, type, and employer name) for unfilled vacancies only by description.
2. List applications (candidate’s last name and first name) for a selected vacancy by candidate’s last name
3. List candidate details (candidate ID, last name, and first name) by first name within last name.
4. List skills (skill id, description, and years) by description for a selected vacancy.
5. List qualifications (qualification id, level and description) by description for a selected vacancy.
6. List skills (skill id, description, and years) by description for a selected candidate.
7. List qualifications (qualification id, level and description) by description for a selected candidate.

## 6 - Mark a vacancy as filled.

1. List vacancy details (vacancy ID, description, type, hourly rate and employer name) for unfilled vacancies only by description.
2. List applications (status, candidate’s last name and first name) for a selected vacancy by candidate’s last name

## 7 - All filled vacancies.

1. For each filled vacancy list the vacancy id, description, type, status, category name, employer name, employer street address, employer suburb, descriptions of skills, and descriptions of qualifications.

## 8 - All unfilled vacancies.

1. For each unfilled vacancy list the vacancy id, description, type, status, category name, employer name, employer street address, employer suburb, descriptions of skills, and descriptions of qualifications.

## 9 - All unfilled vacancies with candidates interested.

1. For each unfilled vacancy list the vacancy id, description, type, status, employer name, descriptions and years of skills, descriptions of qualifications and full names of the candidates.

## 10 - Vacancies by Category.

1. For each vacancy list the vacancy id, description, hourly rate, and category name. Sort by category name.

## 11 - Vacancies by Employer.

1. For each vacancy list the vacancy id, type, status, and employer name. Sort by employer name.

## 12 - All Candidates.

1. For each candidate list the candidate id, last name, first name, street address, suburb, phone number, status, and certification date (if applicable). Sort by first name within last name.