

# BUILDING AN HNG HIRE DATA MODEL AND HIRING STATISTICS DASHBOARD

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## 1.0 Overview

Prepare a data model for [HNG Hire](#), implement it in MySQL, and then build a dashboard that shows hiring statistics. Show available people per stack, those in interviews, those that are hired, etc. Think through all things that should be tracked for the model. Write some useful filters on the data.

## 2.0 Business Requirements

HNG Hire aims to match talent with opportunities by helping employers find the right candidates for their roles. For this project, we need to track:

**Candidates:** Basic details, technology stacks, status in the hiring process (available, in interview, hired, etc.)

**Hiring Process:** Details about interviews, offers, rejections, etc.

**Employers:** Information about companies that are hiring, the roles they are offering, etc.

## 3.0 Designing the Data Model

A dimensional data model (star schema) would be used to build the model for the HNG Hire Database. In a star schema, the data model will consist of fact tables that contain quantitative data and dimension tables that describe the dimensions around the facts.

### 3.1 Fact Table:

- **hiring**

hiring\_id: Primary key

candidate\_id: Foreign key to candidates

employer\_id: Foreign key to employers

job\_role\_id: Foreign key to job\_roles

stack\_id: Foreign key to stack

status\_id: Foreign key to status

date\_id: Foreign key to date

location\_id: Foreign key to location

interview\_score

years\_of\_experience

### **3.2 Dimension Tables:**

#### **1. candidates**

candidate\_id: Primary key

full\_name: Candidate's full name

email: Candidate's email

phone\_number: Candidate's phone number

github\_profile: Candidates github profile

linkedin\_profile: candidates linkedin profile

experience\_level: Candidate's experience level (e.g., Junior, Mid, Senior)

#### **2. employers**

employer\_id: Primary key

company\_name: Name of the hiring company

industry: Industry of the company

location: Location of the company

#### **3. job\_role**

job\_role\_id: Primary key

job\_title: Title of the job (e.g., Data Analyst, Frontend Developer)

description: Description of the job role

#### **4. stack**

stack\_id: Primary key

stack\_name: Name of the technology stack (e.g., Frontend, Backend, Mobile, etc.)

#### **5. status**

status\_id: Primary key

status\_name: Name of the status (e.g., Available, In Interview, Hired, Rejected)

#### **6. location**

location\_id: Primary key

Country: The country the candidate currently resides (e.g Nigeria, Ghana, etc)

City: The city the candidate currently resides in (e.g Lagos, Johannesburg, Accra)

#### **7. date**

date\_id: Primary key

full\_date: Date the candidate applied for role

year : Year the candidate applied for role

month: month the candidate applied for role

day: day the candidate applied for role

quarter: quarter the candidate applied for role

is\_weekend: was the role applied during the weekend

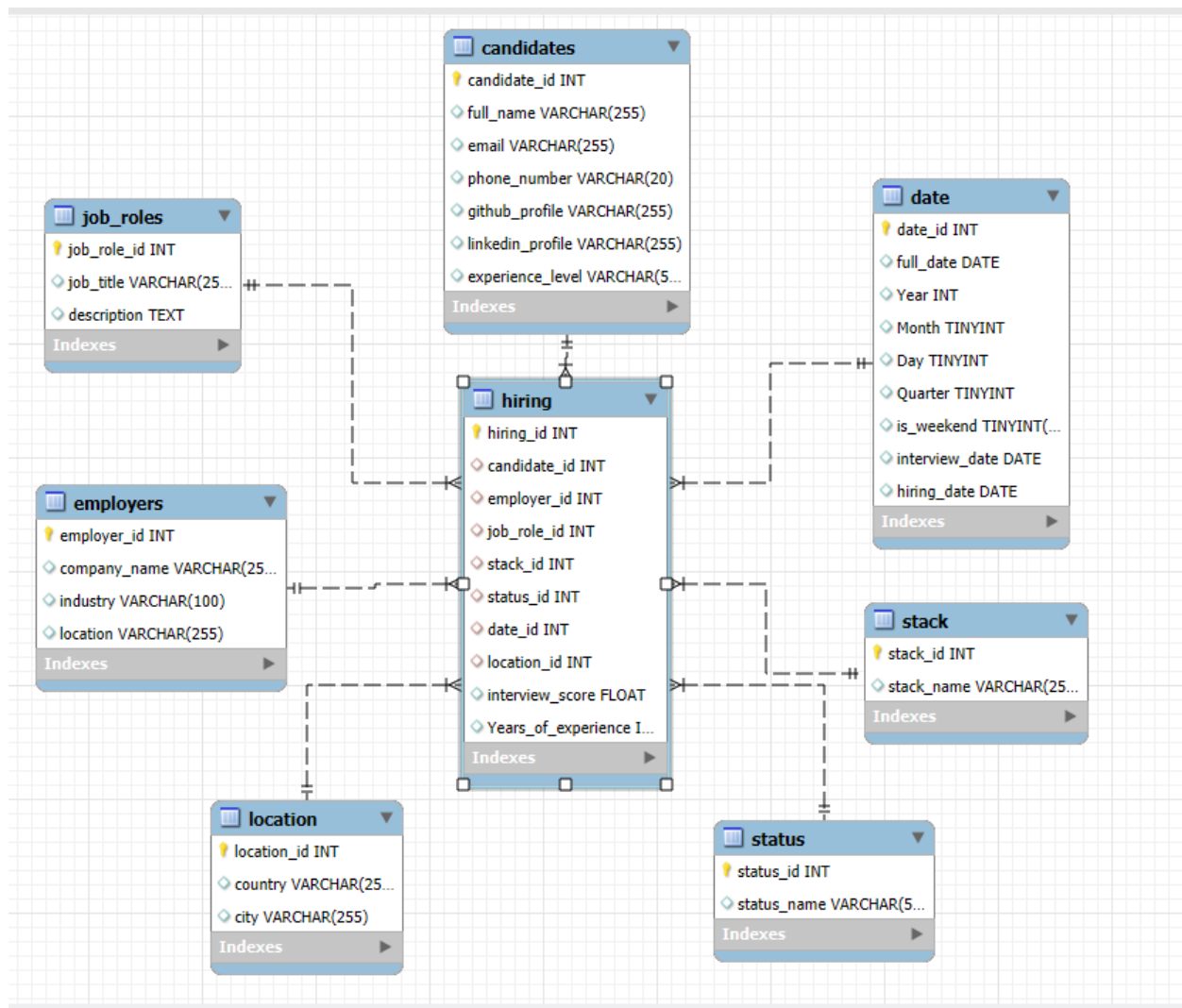
interview\_date: Date of interview (if applicable)

hiring\_date: Date of hiring (if applicable)

## 4.0 The Data Model (Star Schema Model)

A dimensional data model was constructed using MySQL and the database named **'hng\_hire'**. This data model adopts the star schema, consisting of a hiring fact table and seven additional dimension tables: **'job\_role'**, **'location'**, **'candidates'**, **'employers'**, **'status'**, **'stack'**, **'date'**.

The ER diagram screenshot below illustrates the relationships among these tables, connecting primary keys and foreign keys between the fact table and its associated dimensions.



## 5.0 Data Loading

Dummy data was randomly sourced and loaded into each of the tables in the **hng\_hire** database on MySQL, and the result of each of the tables after data loading are as follows:

- **candidates**

candidate_id	full_name	email	phone_number	github_profile	linkedin_profile	experience_level
1	John Doe	john.doe@example.com	1234567890	github.com/johndoe	linkedin.com/in/johndoe	Mid
2	Jane Smith	jane.smith@example.com	987654321	github.com/janesmith	linkedin.com/in/janesmith	Senior
3	Michael Brown	michael.brown@example.com	1122334455	github.com/michaelbrown	linkedin.com/in/michaelbrown	Junior
4	Sarah Johnson	sarah.johnson@example.com	2233445566	github.com/sarahjohnson	linkedin.com/in/sarahjohnson	Mid
5	Chris Lee	chris.lee@example.com	3344556677	github.com/chrislee	linkedin.com/in/chrislee	Senior
5	Emily Clark	emily.clark@example.com	7788990011	github.com/emilyclark	linkedin.com/in/emilyclark	Junior

- **date**

date_id	full_date	Year	Month	Day	Quarter	is_weekend	interview_date	hiring_date
1	2024-08-01	2024	8	1	3	0	2024-08-05	2024-08-10
2	2024-08-02	2024	8	2	3	0	2024-08-06	2024-08-11
3	2024-08-03	2024	8	3	3	1	2024-08-07	2024-08-12
4	2024-08-04	2024	8	4	3	1	2024-08-08	2024-08-13
5	2024-08-05	2024	8	5	3	0	2024-08-09	2024-08-14
6	2024-08-20	2024	8	20	3	0	2024-08-24	2024-08-29

- **employers**

employer_id	company_name	industry	location
1	Tech Corp	Technology	San Francisco
2	HealthPlus	Healthcare	New York
3	EduInnovate	Education	Boston
4	FinServe	Finance	Chicago
5	MediaWorks	Media	Los Angeles
6	GreenEnergy	Energy	Houston

- **hiring**

hiring_id	candidate_id	employer_id	job_role_id	stack_id	status_id	date_id	location_id	interview_score	Years_of_experience
1	1	1	1	1	2	1	1	85.5	3
2	2	2	2	2	3	2	2	92	5
3	3	3	3	3	1	3	3	78	1
4	4	4	4	4	2	4	4	88	4
5	5	5	5	5	3	5	5	91	6
6	6	6	6	6	1	6	6	77	2

- **job\_roles**

job_role_id	job_title	description
1	Data Analyst	Analyze data and generate insights
2	Frontend Developer	Develop user interfaces
3	Backend Developer	Develop server-side logic
4	Product Manager	Manage product development
5	UX Designer	Design user experiences
6	DevOps Engineer	Manage CI/CD pipelines
7	Video Marketers	Create astonishing videos
8	Mobile Developer	Mobile app development

- **location**

location_id	country	city
1	USA	New York
2	Ghana	Accra
3	South Africa	Johannesburg
4	Nigeria	Abuja
5	Nigeria	Akwa Ibom
6	Germany	Berlin
7	Nigeria	Lagos

- **stack**

stack_id	stack_name
1	Data Analyst
2	Frontend
3	Backend
4	DevOps
5	Product Management
6	UI/UX Design
7	Video Marketing
8	Mobile Development

- **status**

status_id	status_name
1	Available
2	In Interview
3	Hired
4	Rejected
5	On Hold

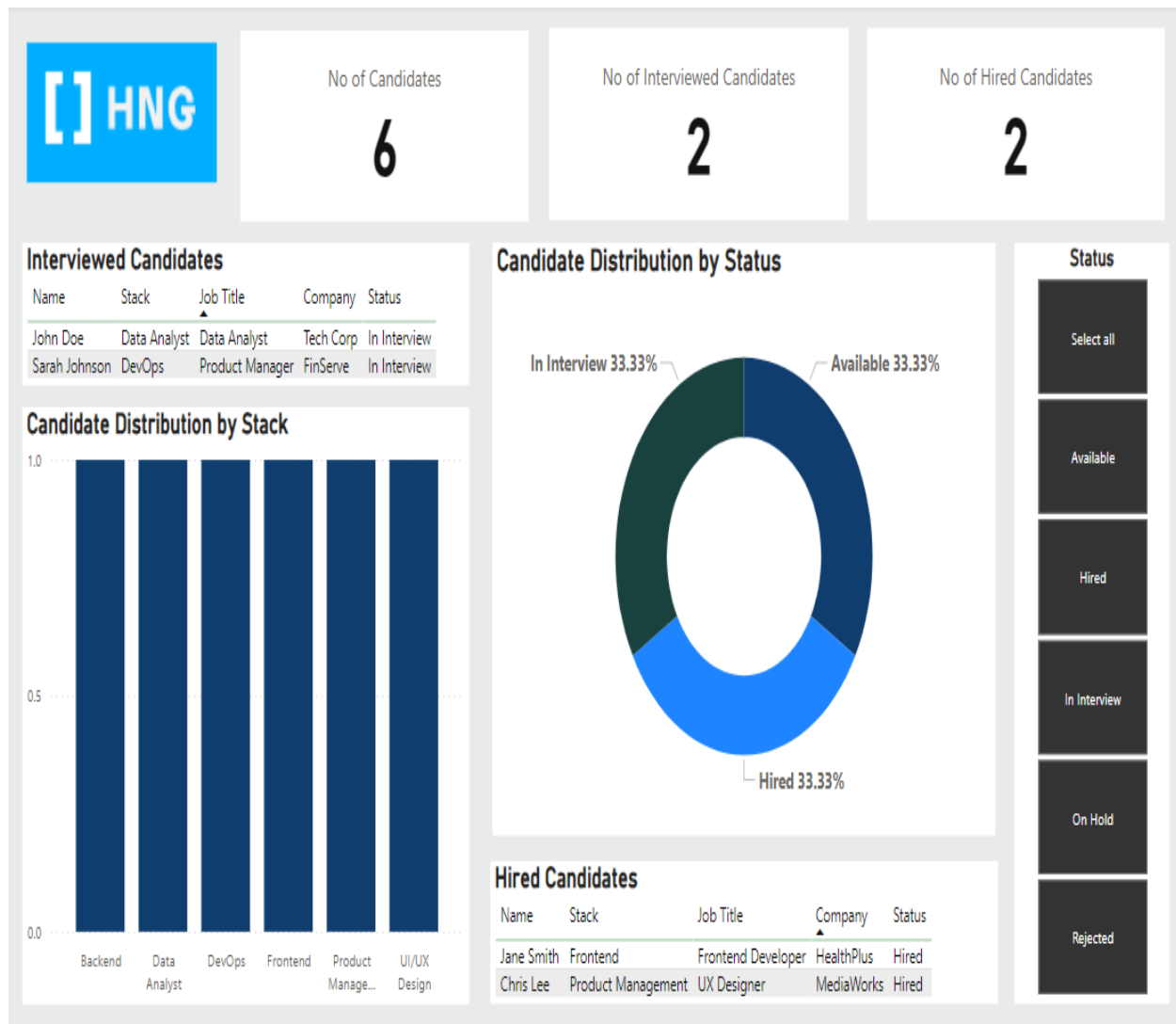
## 6.0 Building a Dashboard

The **hng\_hire** database was connected to Power BI and a dashboard was built that shows hiring statistics. Statistics computed for are:

- Available People per Stack: A bar chart showing the number of candidates available, grouped by their technology stack.
- Interviewed Candidates: A table showing candidates currently in the interview stage.



- Hired Candidates: A table showing candidates that have been hired, with the company name and job role.
- Status Overview: A pie chart showing the distribution of candidates across different hiring statuses.



## 7.0 Key Insights

- There are a total of 6 candidates in the HNG hire pool.
- 33% of candidates are currently being interviewed, 33% are available for a job, and 33% have being hired.

- 1 Frontend Designer and 1 UX Designer have being hired.
- 1 Data Analyst and 1 DevOps Engineer are currently being interviewed.
- Each of the Stacks have just 1 candidate in the HNG hire candidate pool.

## 8.0 Appendix

### ***SQL Queries Utilized***

```
CREATE DATABASE hng_hire;
USE hng_hire;
```

-- Dimension Tables

```
CREATE TABLE candidates (
  candidate_id INT AUTO_INCREMENT PRIMARY KEY,
  full_name VARCHAR(255),
  email VARCHAR(255),
  phone_number VARCHAR(20),
  github_profile VARCHAR(255),
  linkedin_profile VARCHAR(255),
  experience_level VARCHAR(50)
);
```

```
CREATE TABLE employers (
  employer_id INT AUTO_INCREMENT PRIMARY KEY,
  company_name VARCHAR(255),
  industry VARCHAR(100),
  location VARCHAR(255)
);
```

```
CREATE TABLE job_roles (
  job_role_id INT AUTO_INCREMENT PRIMARY KEY,
  job_title VARCHAR(255),
  description TEXT
);
```

```

CREATE TABLE stack (
    stack_id INT AUTO_INCREMENT PRIMARY KEY,
    stack_name VARCHAR(255)
);

CREATE TABLE status (
    status_id INT AUTO_INCREMENT PRIMARY KEY,
    status_name VARCHAR(50)
);

CREATE TABLE location (
    location_id INT AUTO_INCREMENT PRIMARY KEY,
    country VARCHAR(255),
    city VARCHAR(255)
);

CREATE TABLE date (
    date_id INT AUTO_INCREMENT PRIMARY KEY,
    full_date DATE,
    Year INT,          -- Year as a numeric value
    Month TINYINT,     -- Month as a numeric value (1-12)
    Day TINYINT,       -- Day as a numeric value (1-31)
    Quarter TINYINT,   -- Quarter as a numeric value (1-4)
    is_weekend BOOLEAN, -- Boolean to indicate if the date is a weekend (1
for true, 0 for false)
    interview_date DATE, -- Interview date stored as a DATE type
    hiring_date DATE     -- Hiring date stored as a DATE type
);

-- Fact Table
CREATE TABLE hiring (
    hiring_id INT AUTO_INCREMENT PRIMARY KEY,
    candidate_id INT,
    employer_id INT,
    job_role_id INT,
    stack_id INT,
    status_id INT,
    date_id INT,
    location_id INT,
    interview_score FLOAT,
    Years_of_experience INT,
    FOREIGN KEY (candidate_id) REFERENCES candidates(candidate_id),
    FOREIGN KEY (employer_id) REFERENCES employers(employer_id),

```

```
FOREIGN KEY (job_role_id) REFERENCES job_roles(job_role_id),
FOREIGN KEY (stack_id) REFERENCES stack(stack_id),
FOREIGN KEY (status_id) REFERENCES status(status_id),
FOREIGN KEY (date_id) REFERENCES date(date_id),
FOREIGN KEY (location_id) REFERENCES location(location_id)
);
```

```
--- Find out the set import folder
SHOW VARIABLES LIKE "secure_file_priv";
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/candidates.csv'
INTO TABLE candidates
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(full_name, email, phone_number, github_profile, linkedin_profile,
experience_level);
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/employers.csv'
INTO TABLE employers
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(company_name, industry, location);
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/job_roles.csv'
INTO TABLE job_roles
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(job_title, description);
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/stack.csv'
INTO TABLE stack
FIELDS TERMINATED BY ','
```

```
ENCLOSED BY ''
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(stack_name);
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/status.csv'
INTO TABLE status
FIELDS TERMINATED BY ','
ENCLOSED BY ''
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(status_name);
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/location.csv'
INTO TABLE location
FIELDS TERMINATED BY ','
ENCLOSED BY ''
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(country, city);
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/date.csv'
INTO TABLE date
FIELDS TERMINATED BY ','
ENCLOSED BY ''
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(full_date, Year, Month, Day, Quarter, is_weekend, interview_date, hiring_date);
```

```
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server
8.0/Uploads/hiring.csv'
INTO TABLE hiring
FIELDS TERMINATED BY ','
ENCLOSED BY ''
LINES TERMINATED BY '\n'
IGNORE 1 LINES
(candidate_id, employer_id, job_role_id, stack_id, status_id, date_id, location_id,
interview_score, Years_of_experience);
```

```
select * from candidates;  
select * from date;  
select * from employers;  
select * from hiring;  
select * from job_roles;  
select * from location;  
select * from stack;  
select * from status;
```