WILCO CONSTRUCTION COMPANY
"STATE QUALIFIED CONTRACTORS"
Part - 2

To

Jack Wilson

BY,

TEAM - D (DELTA)

Rushikeshwar Reddy Gaddam
Rokeya Akanda Sriti
Divya Katta
Revanth Vatturi
Alekhya Bojedla

BIS 636 SYSTEM ANALYSIS AND DESIGN

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Introduction:

According to the case study, Wilco Construction Company must observe the Equal Employment Opportunity Commission (EEOC) law during the initial phases of establishing and implementing an EEOC compliance system. EEOC law must be strictly followed by any organization or firm. In this Systems Analysis and Design report, we resolved significant issues. We mentioned important business rules as well as made important ERDs based on business rules. We sorted out the roles of different groups who work in developing the compliance system and future applications are also suggested.

Importance of EEOC compliance:

The equal employment opportunity (EEO) compliance system is crucial for any construction company. The system ensures that the company provides equal employment opportunities to all employees and applicants. Entities and attributes are essential components of an EEO compliance system in a construction company.

Scope of ERDs:

ERD is a graphical representation of the data structures and their dependencies within the System. It comprises entities that hold the data of a particular department or category. The attributes hold the possible characteristics of these categories. Relationships and rules determine how the entire data is interlinked with the help of the primary key and foreign key. These diagrams will serve as the blueprint for database creation. The scope of ERD is widespread across several streams of stakeholders within an organization. It acts as a reference document for database administrators, developers, analysts, and end users.

Need for ERDs:

ERD diagrams play a crucial role in designing the data management of a system. It provides an entire documentation of data and how it is interconnected. Efficient data management and data storage is the foundation for data analytics and data management. Therefore, ERD diagrams will increase the Performance and efficiency of a system. ERD diagrams will also help the database developers design the databases in an efficient manner. On top of such databases, it will help the data analysts to make predictions and draw observations and trends. Therefore, organizations will make profitable decisions. Overall, ERD will enable the business to present the entire data flow and core departments of their system such as the types of entities, their attributes, and relationship between them in a simplified form.

Entity and Attribute Descriptions:

Position:

The POSITIONS entity contains details about various job positions within an organization. Each position is uniquely identified by a Position ID and is described by a Position Name. Positions are categorized according to a Job Classification, which is linked to another entity through a foreign key. The entity also tracks the number of hours worked in each position by gender and minority

status, indicated by Female Hours, Male Hours, Non-Minority Hours, and Minority Hours. Each position is associated with a contractor, denoted by the Contractor ID foreign key.

Timesheet:

The TIMESHEET entity records the hours worked by employees on different projects. Each timesheet has a unique Timesheet ID and links to employees and projects using foreign keys for Project ID, Employee SSN, and Skill Code. It details the Regular Hours and Overtime Hours worked, as well as the total Hours Billed to the project. The Employee ID foreign key also associates the timesheet with a specific employee.

Contractor:

In the CONTRACTOR entity, each contractor is uniquely identified by a Contractor ID and is detailed with personal information including their name, address, and contact details. This entity also includes information on the contractor's EEO Compliance status and the Expiry Date of their contract or compliance certification.

PayScale:

The PAYSCALE entity outlines the compensation structure for different skills within the organization. Each skill level is uniquely identified by a Skill Code and has associated financial attributes, such as the Basic Hourly Rate, Fringe Benefits Payments, and the overall Total Compensation for that skill level.

Project:

The PROJECTS entity captures information about the various projects undertaken by the organization. Each project has a unique Project ID, along with a description, location details, and a foreign key reference to the Contractor ID responsible for the project. The required skill level for the project is indicated by a Skill code foreign key, and the EEOC_Code foreign key links the project to its Equal Employment Opportunity classification.

EEOC Code:

EEOC_CODES is a straightforward entity that categorizes equal employment opportunity classifications. Each classification has a unique EEOC Code and a descriptive text explaining the classification.

Employee:

The EMPLOYEE entity is a comprehensive record of each employee within the organization. It includes multiple unique identifiers such as Employee ID and Employee SSN, personal details like name and address, contact information, and demographic details such as DOB, Gender, and Marital Status. Employees are linked to their job classification, project, contractor, and position through various foreign keys. Additionally, the entity captures multiple codes that might be used for internal classification or governmental reporting purposes, such as EEO Code, Federal Code, State Code, and SSCode.

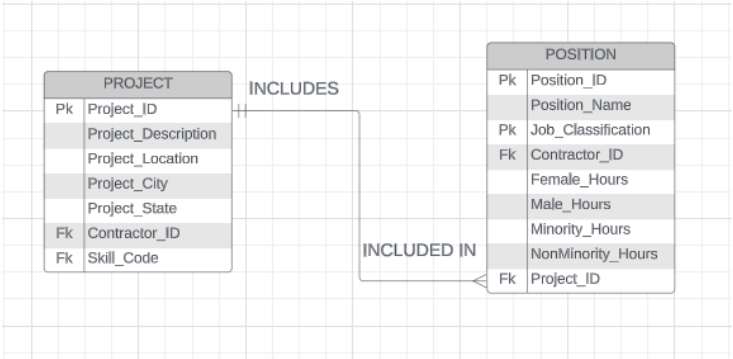
Payslip:

PAYSLIP entity provides a record of payment to employees. It is uniquely linked to employees by their Employee ID and SSN. Each payslip records the name of the employee, the date of payment, the pay period covered, the tax year, the gross pay, deductions made, net pay, and cheque number. It also details how many hours were paid at the regular rate (Regular Pay Hours) and how many were paid at the overtime rate (Overtime Pay Hours), along with the corresponding amounts for each.

RELATIONSHIPS:

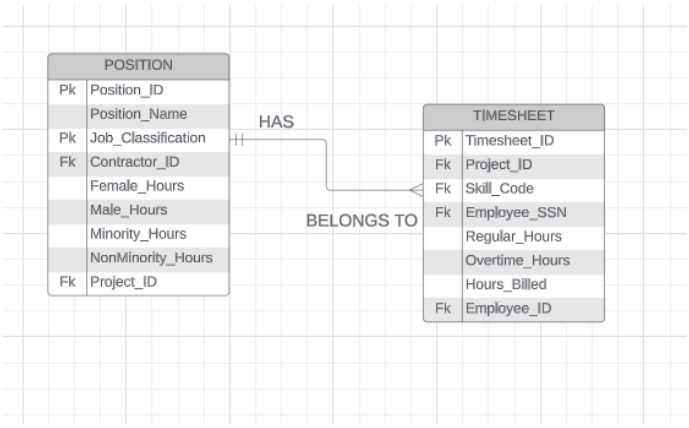
Business Rule 1:

- When a project can include many positions, each position is associated with only one project.
- It is a one-to-many relationship between PROJECT and POSITIONS



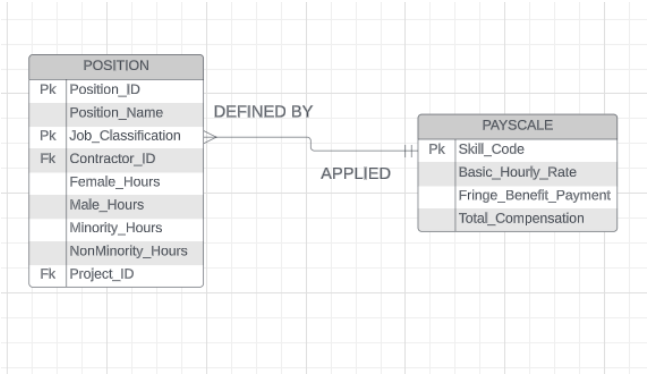
Business Rule 2:

- Each position can have multiple Timesheets (because there can be multiple timesheets for different dates or weeks for the same position), but each timesheet is associated with only one position.
- It is a one-to-many relationship between POSITIONS and TIMESHEET.
- The EEO Compliance Statement Form is to be turned in by contractors for each job following each pay month.



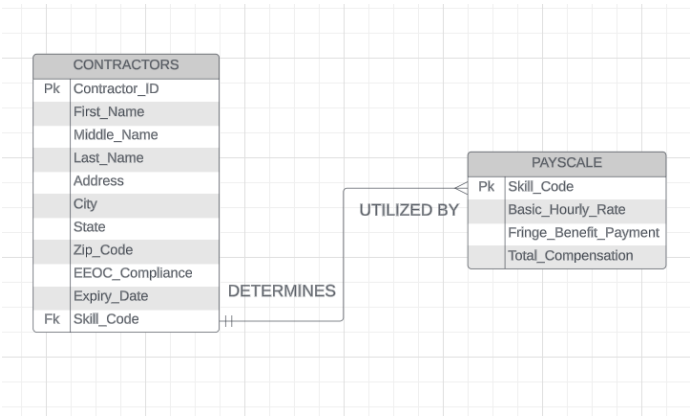
Business Rule 3:

- Each Position is linked to one and only one PayScale, but each PayScale can be linked to many Positions.
- It is a Many-to-one relationship between PAYSCLAE and POSITIONS.
- The wage rates for each job skill classification are predetermined by the Secretary of Labor and must be approved for each project.



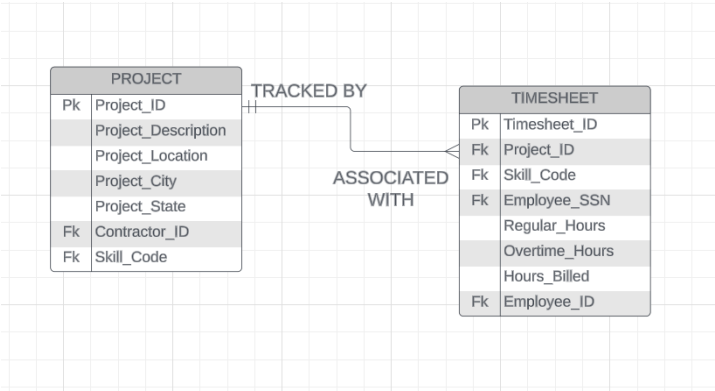
Business Rule 4:

- Each CONTRACTOR uses a PAYSCALE to determine the wages for all associated POSITIONS in their projects.
- It has a one-to-many relationship between CONTRACTOR and PAYSCALE.
- Contractors must complete and submit the Compensation & Hours Worked Form after each pay period.
- The EEO Compliance Statement Form is to be turned in by contractors for each job during a pay period.



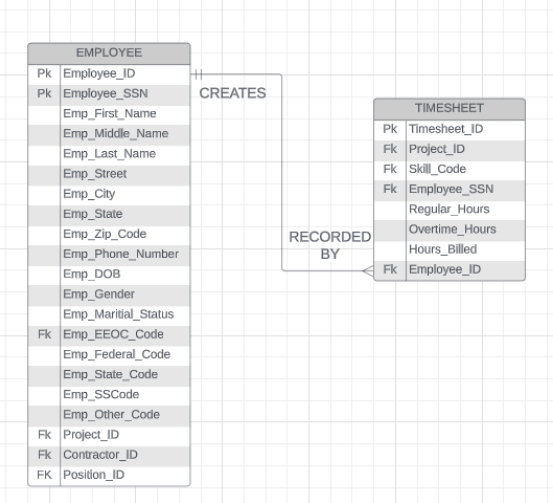
Business Rule 5:

- Each project has multiple timesheets (because there can be multiple reporting periods or work entries for the same project), and each timesheet is associated with only one project.
- It is a one-to-many relationship between PROJECT and TIMESHEET.
- The Secretary of Labor sets the pay rates for each job skill type, and each project must have its compensation rates approved.



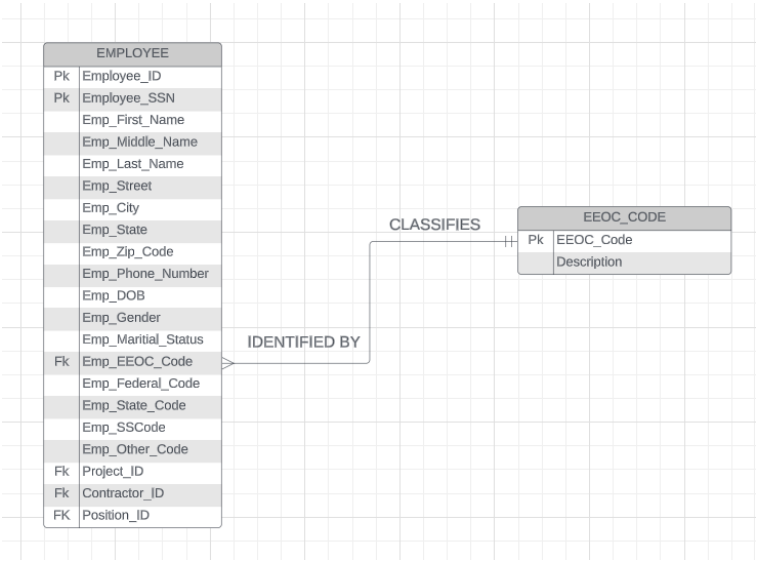
Business Rule 6:

- Each employee can have multiple timesheets (because employees can work across multiple days, projects, or pay periods), and each timesheet is associated with only one employee.
- It is a one-to-many relationship between EMPLOYEES and TIMESHEET.



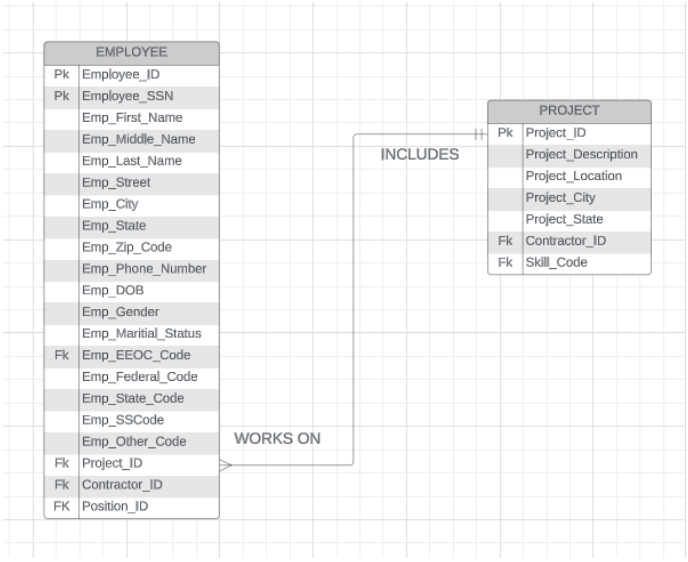
Business Rule 7:

- Each employee is designated with one EEOC code, while each EEOC code can apply to multiple employees.
- It has a Many-to-one relationship between EEOC_CODES and EMPLOYEE.
- Contractors must complete and submit the Compensation & Hours Worked Form after each pay period.



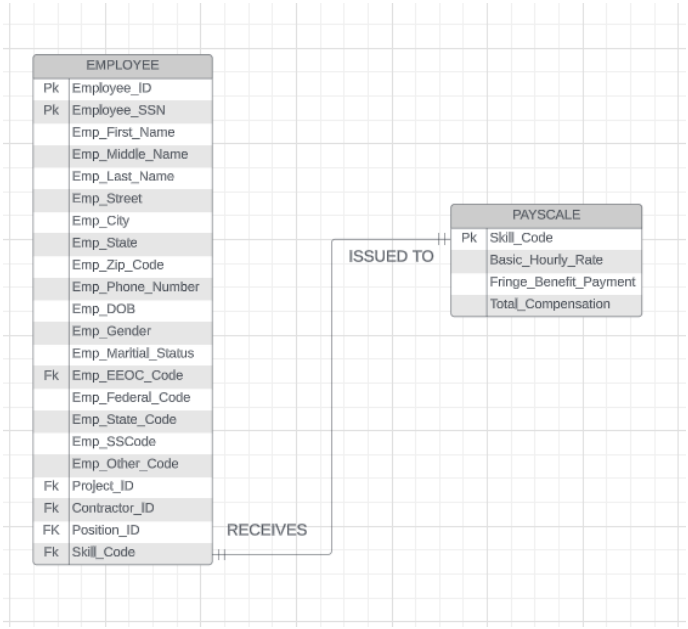
Business Rule 8:

- Each employee works on exactly one project, and a project can have multiple employees.
- It has many-to-one relationships between EMPLOYEE and PROJECTS.



Business Rule 9:

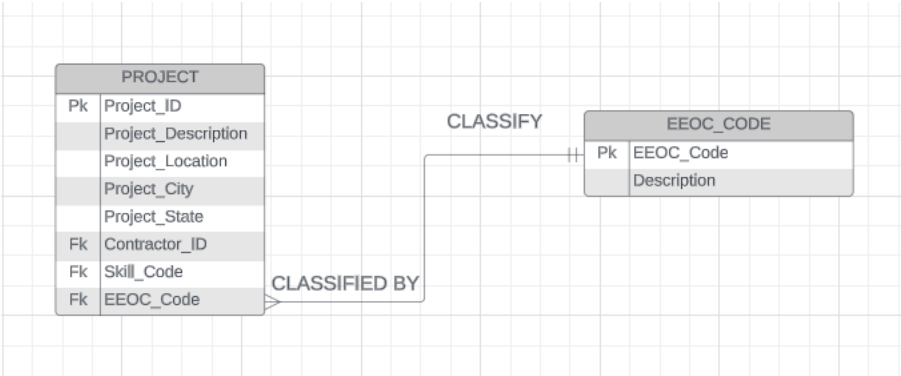
- Each employee receives a unique pay slip for each pay period, and each pays lip is associated with only one employee.
- It has a one-to-one relationship between EMPLOYEE and PAYSLIP.



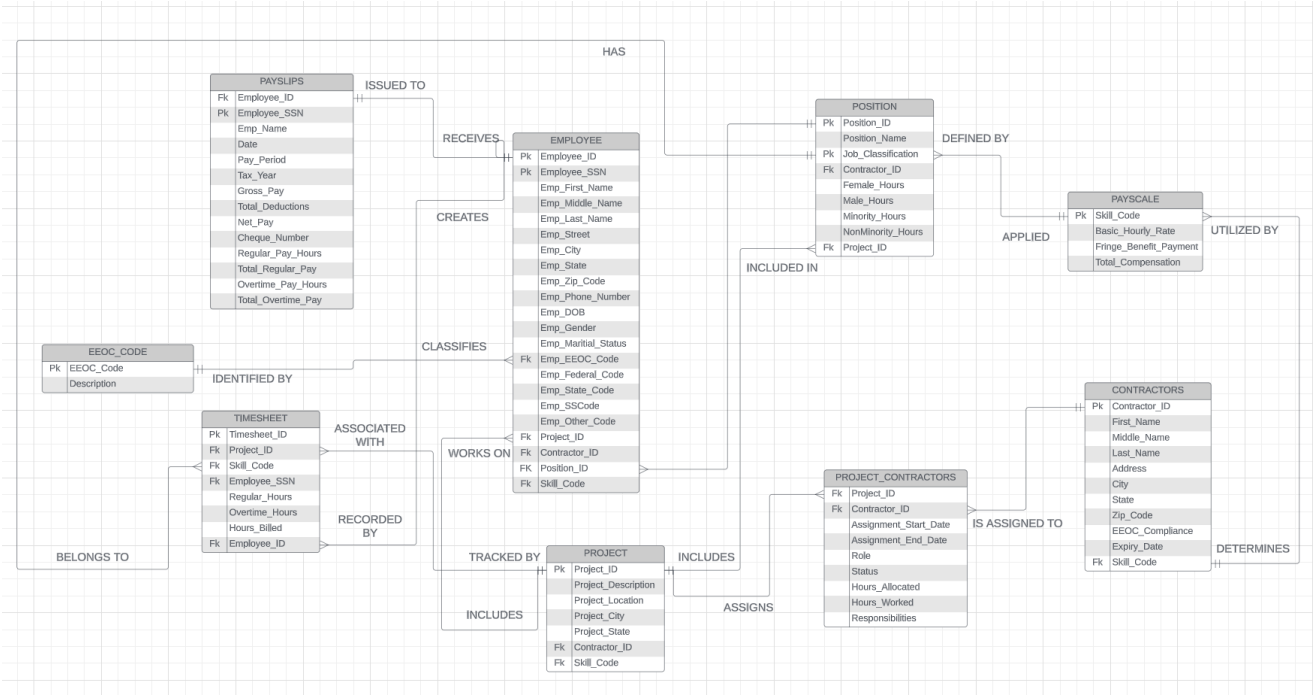
Business Rule 10:

- Each project must be classified by exactly one EEOC code, indicating the equal employment opportunity classification of the project. Conversely, a single EEOC code can apply to multiple projects, reflecting that various projects may fall under the same EEOC classification.

- It is a Many-to-one relationship between PROJECT and EEOC Compliance.



Entity Relationship Diagram:



Recommendations:

Horizontal & Vertical scalability - Implementation of horizontal and vertical scalability will be helpful in increasing the availability of the software, thereby catering to the timely needs of users and traffic management.

User feedback Cell - A dedicated cell to continuously improve the product by taking end-user experience and feedback. Debugging the flaws in existing flow and inclusion of new flows to meet the dynamic demands of the workers and the economic conditions.

Data Analytics Wing - A dedicated cell to inspect the trends every quarter with the help of a visual representation of the data will bring all the stakeholders onto a single page and help them determine the next move in terms of decision-making.

Cloud Computing - implementing cloud computing practices will enhance the reliability of the product. Wilco company software's robustness will help it thrive in the market and can help it enter other dimensions of business such as the Construction of housing communities, commercial spaces, etc.

Conclusion:

Overall, the Entity-Relationship Diagrams (ERDs) will solve the existing shortcomings in the Wilco company's paperwork and switch to a more sustainable information management system. Along with adhering to EEOC rules, the incorporation of the ERDs diagram will pave the way for enhancements in the System in the best interests of both the organization and employees.