DBMS ASSIGNMENT: EMPLOYEE HEALTH AND WELLNESS PROGRAM

An employee health and wellness program database aim to efficiently manage various aspects of an organization's health and wellness initiatives for its employees.

REVELANCE:

Employee Health and Well-being
Office environments often involve sedentary work and high levels of stress, which can negatively impact employee health. Health and wellness programs provide resources and support to help employees maintain physical fitness, manage stress, and improve overall well-being.

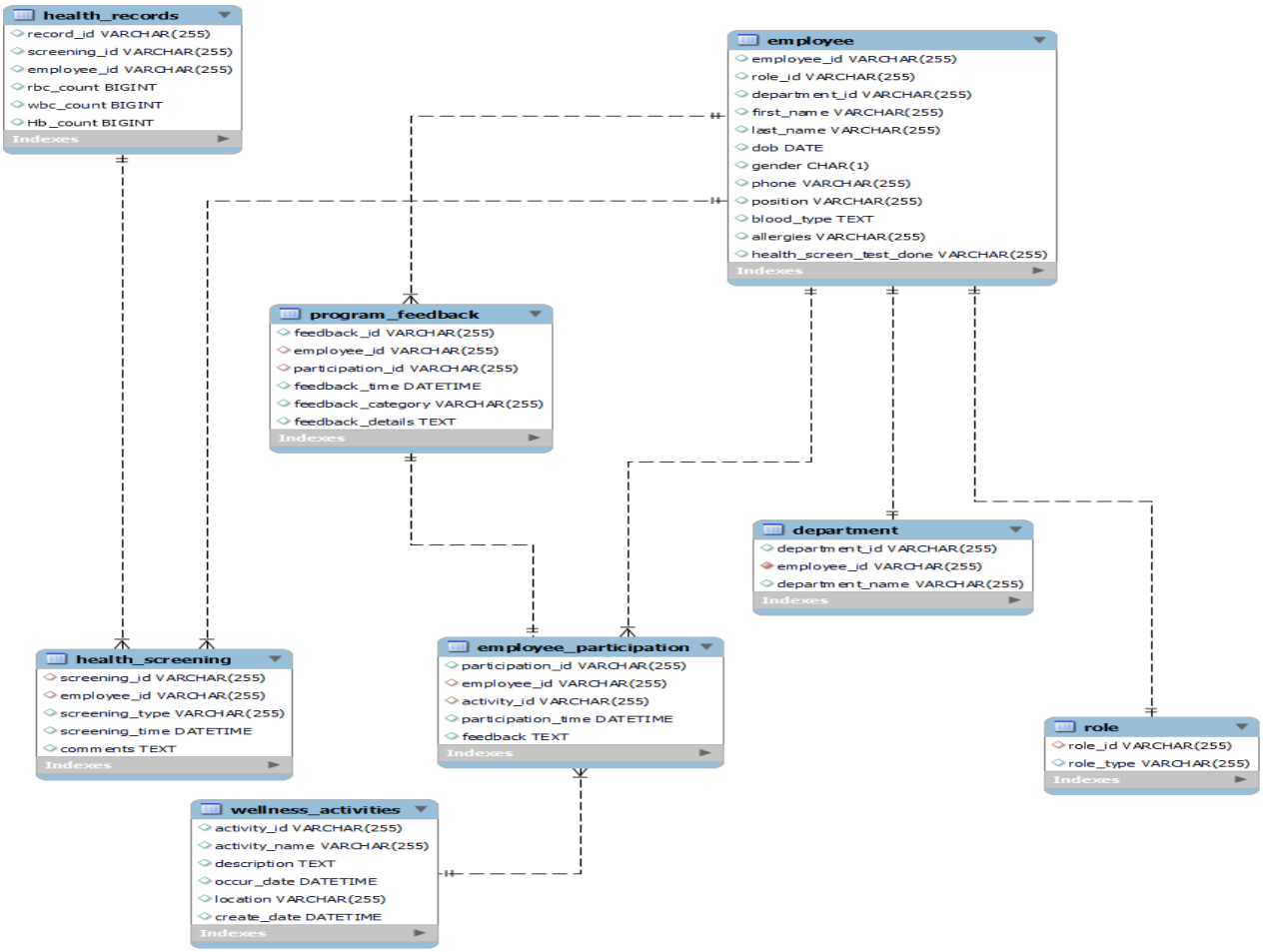
Reduced Healthcare Costs
By promoting preventive care and healthy lifestyles, health and wellness programs can help reduce healthcare costs for both employees and employers. Healthy employees are less likely to develop chronic conditions and require medical treatment, leading to lower healthcare expenses.

Increased Productivity
Healthy employees are more productive. Health and wellness programs can improve employee energy levels, concentration, and cognitive function, leading to higher levels of productivity and performance in the workplace.

Enhanced Employee Engagement
Offering health and wellness programs demonstrates an organization's commitment to employee welfare. Employees who feel supported and valued by their employer are more engaged, motivated, and loyal to the company.

Improved Employee Morale
Health and wellness programs can boost employee morale by providing opportunities for personal development, social interaction, and stress relief. When employees feel physically and mentally well, they are happier and more satisfied with their jobs.

ENTITY-RELATIONSHIP DIAGRAM



TABLES USED AND THEIR ATTRIBUTES

- **Table: role**
  - Columns:
    - **role_id** (varchar(255)): This column stores the unique identifier for each role.
    - **role_type** (varchar(255)): Represents the type or name of the role.
  - Relevance: Stores information about different roles within your organization. This table can be used to define various roles that employees can have.
- **Table: employee**
  - Columns:

        - **employee_id** (varchar(255)): Unique identifier for each employee.
        - **role_id** (varchar(255)): Foreign key referencing the **role_id** in the **role** table, indicating the role of the employee.
        - **department_id** (varchar(255)): Unique identifier for the department to which the employee belongs.
        - **first_name** (varchar(255)): First name of the employee.
        - **last_name** (varchar(255)): Last name of the employee.
        - **dob** (date): Date of birth of the employee.
        - **gender** (char): Gender of the employee.
        - **phone** (varchar(255)): Phone number of the employee.
        - **position** (varchar(255)): Position or job title of the employee.
        - **blood_type** (text): Blood type of the employee.
        - **allergies** (varchar(255)): Any allergies the employee may have.
        - **health_screen_test_done** (varchar(255)): Indicates whether health screening tests have been conducted for the employee.
    - Relevance: Stores detailed information about each employee, including personal details, contact information, role, department, and health-related data.
- **Table: health_screening**
    - Columns:
        - **screening_id** (varchar(255)): Unique identifier for each health screening.
        - **employee_id** (varchar(255)): Foreign key referencing the **employee_id** in the **employee** table, indicating the employee associated with the screening.
        - **screening_type** (varchar(255)): Type or category of health screening.
        - **screening_time** (datetime): Date and time when the screening took place.
        - **comments** (text): Additional comments or notes related to the screening.
    - Relevance: Records information about health screenings conducted for employees, including the type of screening, time, and any comments.
- **Table: health_records**
    - Columns:

        - **record_id** (varchar(255)): Unique identifier for each health record.
        - **screening_id** (varchar(255)): Foreign key referencing the **screening_id** in the **health_screening** table, linking the health record to a specific screening.
        - **employee_id** (varchar(255)): Foreign key referencing the **employee_id** in the **employee** table, indicating the employee associated with the health record.
        - **rbc_count** (bigint): Red blood cell count.
        - **wbc_count** (bigint): White blood cell count.
        - **Hb_count** (bigint): Hemoglobin count.
    - Relevance: Stores detailed health-related data obtained from health screenings for each employee.
- **Table: wellness_activities**
    - Columns:
        - **activity_id** (varchar(255)): Unique identifier for each wellness activity.
        - **activity_name** (varchar(255)): Name or title of the wellness activity.
        - **description** (text): Description of the wellness activity.
        - **occur_date** (datetime): Date and time when the activity occurred.
        - **location** (varchar(255)): Location where the activity took place.
        - **create_date** (datetime): Date and time when the activity record was created.
    - Relevance: Stores information about wellness activities organized within your organization, including details about the activity, location, and occurrence.
- **Table: employee_participation**
    - Columns:
        - **participation_id** (varchar(255)): Unique identifier for each participation record.
        - **employee_id** (varchar(255)): Foreign key referencing the **employee_id** in the **employee** table, indicating the employee who participated.
        - **activity_id** (varchar(255)): Foreign key referencing the **activity_id** in the **wellness_activities** table, indicating the activity in which the employee participated.

        - **participation_time** (datetime): Date and time when the participation occurred.
        - **feedback** (text): Feedback provided by the employee regarding their participation.
    - Relevance: Tracks employee participation in wellness activities, including the activity they participated in, the time of participation, and any feedback provided.
- **Table: program_feedback**
    - Columns:
        - **feedback_id** (varchar(255)): Unique identifier for each feedback record.
        - **employee_id** (varchar(255)): Foreign key referencing the **employee_id** in the **employee** table, indicating the employee who provided feedback.
        - **participation_id** (varchar(255)): Foreign key referencing the **participation_id** in the **employee_participation** table, indicating the participation associated with the feedback.
        - **feedback_time** (datetime): Date and time when the feedback was provided.
        - **feedback_category** (varchar(255)): Category or type of feedback.
        - **feedback_details** (text): Detailed feedback provided by the employee.
    - Relevance: Stores feedback provided by employees regarding their participation in wellness activities.
- **Table: department**
    - Columns:
        - **department_id** (varchar(255)): Unique identifier for each department.
        - **employee_id** (varchar(255)): Foreign key referencing the **employee_id** in the **employee** table, indicating the employee associated with the department.
        - **department_name** (varchar(255)): Name or title of the department.
    - Relevance: Defines departments within your organization and associates employees with their respective departments.

NORMALIZATION PROCESS

1NF: The above-mentioned tables adhere to 1NF

- **Table: role**
  - Each column contains atomic values. The **role_id** and **role_type** columns store single values for each row, fulfilling the requirement of atomicity.
- **Table: employee**
  - Each column contains atomic values. Columns such as **employee_id**, **role_id**, **department_id**, **first_name**, **last_name**, **dob**, **gender**, **phone**, **position**, **blood_type**, **allergies**, and **health_screen_test_done** store single values for each row.
  - There are no repeating groups. Each column represents a distinct attribute of an employee, and there are no multi-valued fields.
- **Table: health_screening**
  - Each column contains atomic values. Columns such as **screening_id**, **employee_id**, **screening_type**, **screening_time**, and **comments** store single values for each row.
  - There are no repeating groups. Each column represents a distinct attribute of a health screening, and there are no multi-valued fields.
- **Table: health_records**
  - Each column contains atomic values. Columns such as **record_id**, **screening_id**, **employee_id**, **rbc_count**, **wbc_count**, and **Hb_count** store single values for each row.
  - There are no repeating groups. Each column represents a distinct attribute of a health record, and there are no multi-valued fields.
- **Table: wellness_activities**
  - Each column contains atomic values. Columns such as **activity_id**, **activity_name**, **description**, **occur_date**, **location** and **create_date** store single values for each row.
  - There are no repeating groups. Each column represents a distinct attribute of a wellness activity, and there are no multi-valued fields.
- **Table: employee_participation**
  - Each column contains atomic values. Columns such as **participation_id**, **employee_id**, **activity_id**, **participation_time**, and **feedback** store single values for each row.
  - There are no repeating groups. Each column represents a distinct attribute of employee participation, and there are no multi-valued fields.
- **Table: program_feedback**

    - Each column contains atomic values. Columns such as **feedback_id**, **employee_id**, **participation_id**, **feedback_time**, **feedback_category**, and **feedback_details** store single values for each row.
    - There are no repeating groups. Each column represents a distinct attribute of program feedback, and there are no multi-valued fields.
- **Table: department**
    - Each column contains atomic values. Columns such as **department_id**, **employee_id**, and **department_name** store single values for each row.
    - There are no repeating groups. Each column represents a distinct attribute of a department, and there are no multi-valued fields.

2NF: The above-mentioned tables adhere to 2NF because:-

- They are already in 1NF.
- All non-prime attributes (attributes not part of any candidate key) are fully functionally dependent on the primary key.
- **Table: role**
    - This table contains only two attributes: **role_id** and **role_type**. Since **role_id** is the primary key, and **role_type** is fully functionally dependent on **role_id**, the table is in 2NF. There are no non-prime attributes.
- **Table: employee**
    - The primary key of this table is **employee_id**. Other attributes like **role_id**, **department_id**, **first_name**, **last_name**, **dob**, **gender**, **phone**, **position**, **blood_type**, **allergies**, and **health_screen_test_done** are all functionally dependent on **employee_id**.
    - However, there might be a partial dependency between **role_id** and **employee_id** if an employee's role is dependent on something other than the **employee_id**. If that's the case, to fully adhere to 2NF, **role_id** should be moved to a separate table with **employee_id** and any other attributes it depends on.
    - Similarly, **department_id** might have a partial dependency on **employee_id** if an employee's department is dependent on something other than the **employee_id**.
- **Table: health_screening**

    - The primary key of this table is **screening_id**, and all other attributes (**employee_id**, **screening_type**, **screening_time**, **comments**) are fully functionally dependent on it. Therefore, this table is in 2NF.
- **Table: health_records**
    - All attributes (**record_id**, **screening_id**, **employee_id**, **rbc_count**, **wbc_count**, **Hb_count**) are fully functionally dependent on the primary key (**record_id**). Thus, this table is in 2NF.
- **Table: wellness_activities**
    - All attributes (**activity_id**, **activity_name**, **description**, **occur_date**, **location**,**create_date**) are fully functionally dependent on the primary key (**activity_id**). Therefore, this table is in 2NF.
- **Table: employee_participation**
    - The primary key of this table is **participation_id**, and all other attributes (**employee_id**, **activity_id**, **participation_time**, **feedback**) are fully functionally dependent on it. Hence, this table is in 2NF.
- **Table: program_feedback**
    - All attributes (**feedback_id**, **employee_id**, **participation_id**, **feedback_time**, **feedback_category**, **feedback_details**) are fully functionally dependent on the primary key (**feedback_id**). Therefore, this table is in 2NF.
- **Table: department**
    - The primary key of this table is **department_id**, and both other attributes (**employee_id**, **department_name**) are fully functionally dependent on it. Hence, this table is in 2NF.

3NF: The above-mentioned tables also adhere to 3NF if they satisfy the following criteria:-

- They are already in 2NF.
- There are no transitive dependencies, i.e., no non-prime attributes depend on other non-prime attributes.
- **Table: role**
    - Adheres to 3NF: This table contains only two attributes: **role_id** and **role_type**. There are no dependencies between attributes other than the primary key (**role_id**). Therefore, there are no transitive dependencies, and the table satisfies 3NF.

- **Table: employee**
  - Adheres to 3NF.All parameters primarily depend on primary key(employee_id).There are no other transitive dependencies. Hence table adheres to 3NF.
- **Table: health_screening**
  - Adheres to 3NF: All attributes are directly dependent on the primary key (**screening_id**). There are no transitive dependencies, so this table is in 3NF.
- **Table: health_records**
  - Adheres to 3NF: All attributes are directly dependent on the primary key (**record_id**). There are no transitive dependencies, so this table is in 3NF.
- **Table: wellness_activities**
  - Adheres to 3NF: All attributes are directly dependent on the primary key (**activity_id**). There are no transitive dependencies, so this table is in 3NF.
- **Table: employee_participation**
  - Adheres to 3NF: All attributes are directly dependent on the primary key (**participation_id**). There are no transitive dependencies, so this table is in 3NF.
- **Table: program_feedback**
  - Adheres to 3NF: All attributes are directly dependent on the primary key (**feedback_id**). There are no transitive dependencies, so this table is in 3NF.
- **Table: department**
  - Adheres to 3NF: All attributes are directly dependent on the primary key (**department_id**). There are no transitive dependencies, so this table is in 3NF.