**DATABASE MANAGEMENT SYSTEMS ASSIGNMENT**

**WORKPLACE SAFETY AND ERGONOMICS IMPROVEMENT**

Workplace Safety and Ergonomics Improvement refers to the process of identifying, assessing, and implementing measures to enhance the safety of the work environment and optimize the ergonomic conditions for employees. The intention is to create a work environment that fosters comfort, productivity, and general well-being while preventing mishaps, injuries, and health problems.

Workplace Safety and Ergonomics Improvement is essential in a software development firm for many reasons, including the direct effects it has on employee health and organizational effectiveness. The following are some primary reasons demonstrating the importance of these factors:

* Employee Health and Well-being:
  + Prioritizing workplace safety and ergonomics helps prevent work-related injuries, musculoskeletal disorders, and other health issues.
  + Employees who are comfortable and in good health are more likely to be engaged, productive, and happy in their jobs.
* Productivity and Performance:
  + A safe and ergonomic work environment contributes to increased productivity.
  + Developers can concentrate on their job without interruptions or physical strain when their workspaces are designed with comfort and fatigue reduction in mind.
* Quality of Work:
  + A comfortable and safe work environment promotes better focus and attention to detail.
  + Employees are more likely to produce high-quality work when they are not distracted by discomfort or safety concerns.
* Team Collaboration:
  + Ergonomic workspaces are designed to facilitate collaboration and communication among team members.
  + A well-organized and safe workspace contributes to a positive team culture.
* Risk Mitigation:
  + Early detection and resolution of possible safety issues lowers the likelihood of mishaps and the resulting legal obligations.
  + Ergonomic upgrades lessen the possibility of long-term health problems brought on by unsuitable workplace layout.

**NORMALISATION**

Database normalization is the process of structuring a relational database in accordance with a series of so-called normal forms to reduce data redundancy and improve data integrity.

**TYPES OF NORMALISATIONS**

* First Normal Form (1NF)
* Second Normal Form (2NF)
* Third Normal Form (3NF)

Tables that will be used for performing Normalisation are as given below: -

* Employees
* SafetyEquipments
* EquipmentInfo
* SafetyTraining
* TrainingSessions
* AwarenessPrograms
* ProgramParticipation
* SessionAttendees
* Incidents

**TABLES**

**Table 1: Employees**

EmployeeID (Primary Key) - INT

FirstName - VARCHAR(100)

LastName - VARCHAR(100)

Position - VARCHAR(100)

Department - VARCHAR(100)

**Table 2: SafetyEquipments**

EquipmentID (Primary Key) - INT

EquipmentName - VARCHAR(100)

EquipmentDescription - VARCHAR(100)

ResponsiblePersonID (Foreign Key referencing Employees) - INT

PurchaseDate DATE

Manufacturer VARCHAR(100)

ExpiryDate DATE

**Table 3: SafetyTraining**

TrainingID (Primary Key) - INT

TrainingName - VARCHAR(100)

Description - VARCHAR(100)

ResponsiblePersonID (Foreign Key referencing Employees) - INT

**Table 4: TrainingSessions**

SessionID (Primary Key) - INT

TrainingID (Foreign Key referencing SafetyTraining) - INT

SessionDate - DATE

Location - VARCHAR(100)

**Table 5: AwarenessPrograms**

ProgramID (Primary Key) - INT

ProgramName - VARCHAR(100)

Description - VARCHAR(100)

ResponsiblePersonID (Foreign Key referencing Employees) - INT

**Table 6: ProgramParticipation**

ParticipationID (Primary Key) - INT

ProgramID (Foreign Key referencing AwarenessPrograms) - INT

EmployeeID (Foreign Key referencing Employees) - INT

ParticipationDate – DATE

**Table 7: SessionAttendees**

SessionID (Foreign Key referencing TrainingSessions) - INT

EmployeeID (Foreign Key referencing Employees) - INT

EnrollmentDate DATE

AvailabilityStatus VARCHAR (50),

**Table 8: Incidents**

IncidentID (Primary Key) - INT

IncidentDate - DATE

IncidentDescription - VARCHAR(100)

EquipmentInvolvedID (Foreign Key referencing SafetyEquipments) - INT

**FIRST NORMAL FORM (1NF)**

Statement – A relation is in first normal form if every attribute in that relation is single-valued attribute.

A table is in 1NF if:

* There are only Single Valued Attributes.
* Attribute Domain does not change.
* There is a unique name for every Attribute/Column.
* The order in which data is stored does not matter.

Here all the attributes are atomic (contains only single values). Hence, we can say that these tables satisfy First Normal Form.

**SECOND NORMAL FORM (2NF)**

Statement - A relation that is in First Normal Form and every non-primary-key attribute is fully functionally dependent on the primary key, then the relation is in Second Normal Form.

Here, all the tables are in 2NF because there are no partial dependencies on the primary key. Each non-key attribute is fully dependent on the entire primary key.

**THIRD NORMAL FORM (3NF)**

Statement: A relation is in the third normal form if there is no transitive dependency for non-prime attributes and in the second normal form.

Here, all the tables are in 3NF because there are no transitive dependencies, as each non-prime attribute is directly dependent on the primary key.

**ER DIAGRAM**

