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Sport Ligue Application Database

Comp 352

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# Chapter 1: Introduction

## Background

The Football League Seasonal Database project addresses the need for an organized and efficient system to manage data related to football league seasons. The database encompasses various aspects of league management, including player information, club details, match fixtures, match statistics, and managerial data. By centralizing this data, the project aims to streamline league operations, enhance decision-making, and provide valuable insights for stakeholders.

## Purpose of the system

The primary purpose of the system is to provide a comprehensive platform for managing and analyzing data associated with football league seasons.

This platform will offer users the ability to input, retrieve, and analyze data with ease.

It will serve as a reliable source of information for clubs, players, organizers, and fans, contributing to improved league management and enhanced engagement.

## Statements of the problem

The absence of a dedicated database leads to fragmented and error-prone data management, impeding accurate decision-making.

Manual processes for data entry, retrieval, and analysis are time-consuming and inefficient.

Without a centralized system, tracking player performance, team standings, and match outcomes becomes challenging.

## Scope of the project

It covers areas such as player profiles, club information, fixture scheduling, match statistics, and managerial details. The database will accommodate data manipulation, reporting, and analytics.

## Objectives of the project

### General objective

Develop a feature-rich and user-friendly football league seasonal database system.

### Specific objectives

* Create a structured database schema capable of accommodating diverse league data.
* Implement intuitive user interfaces for data input, retrieval, and reporting.
* Ensure data integrity and consistency through normalization and validation.
* Facilitate data analysis to gauge player and team performance.
* Empower league stakeholders with actionable insights for better decision-making.

## Database Development Methodology

The project adheres to a systematic approach, encompassing requirements gathering, conceptual and logical design, normalization, and physical design. Each stage is meticulously executed to ensure the resulting database aligns with user needs.

## Data Sources & Collection Methods

Data is sourced from various entities within the football league ecosystem. Inputs are collected through direct interactions with clubs, players, organizers, and officials. This data forms the foundation for the database's accuracy and relevance.

## DB Analysis and Design Methods

The project employs Entity-Relationship (ER) modeling to visualize and define the relationships among entities. ER diagrams aid in conceptualizing the database structure and relationships.

## Deliverables of the Project

* A fully functional football league seasonal database accessible through user interfaces.
* Comprehensive documentation detailing database design, methodologies, and implementation.
* SQL scripts for creating tables, views, indexes, and stored procedures.
* Detailed testing results and accompanying documentation.

## Development Tools, Platforms, and Technologies

The project leverages relational database management systems (RDBMS) such as Microsoft SQL Server. SQL scripting is used for database creation, manipulation, and control.

<https://tableconvert.com/excel-to-csv>

<https://www.convertcsv.com/csv-to-sql.htm>

<https://app.diagram.net/>

<https://dbdiagram.io/>

## Project Time Plan

The project follows a timeline comprising phases such as requirements analysis, design, implementation, testing, and deployment. A well-defined timeline ensures efficient progress and project completion.

# Chapter 2-Requirement Specification

## Data Requirements

* Comprehensive player profiles including personal details, position, and statistics.
* Detailed club information, including club name, location, and club officials.
* Fixture details encompassing fixture date, time, venue, and referees.
* Extensive match statistics covering player performance, goals, and disciplinary actions.
* Managerial data highlighting managers' details and contract information.

## Transaction Requirements

Smooth data entry processes for clubs, players, fixtures, and matches.

Seamless data retrieval for player statistics, club details, and match results.

Effortless data updating mechanisms for player performance and match outcomes.

User-friendly data removal processes for player transfers, club changes, and fixture cancellations.

## Data Entry Requirements

## Data Retrieval Requirements

## Data Updating Requirements

## Data Removal Requirements

# Chapter 3 Database Design

## Conceptual database design of the new system

### Entities with their description

### Attributes with their description

### Relation ships between the entities

### E-R diagram

## Logical Database Design

### ER-Relation Mapping

### Validating model with Normalization

#### First Normal Form (1NF)

#### Second Normal Form (2NF)

#### Third Normal Form (3NF)

### Relational Schema with referential Integrity after normalization

## Physical database design

### Physical design strategy

### Database Deployment details

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# Chapter 4 - Implementation and testing

## SQL script for creating the database

## SQL Scripts for creating the tables, view, and indexes.

## SQL Scripts for manipulating the database

## SQL Scripts for Database Control

## Testing

# References

# Appendix (Forms, Reports of the Organization etc.)

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