

Introduction to Database Systems

Scouts Group Management System

ER-Diagram Report

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(Scouts Group Management System)

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Project Description:

The Scouts Group Absence Management System is a comprehensive web application designed to address the current challenges faced by the Scouts organization in managing attendance, subscriptions, budgets, and generating accurate reports. The existing paper-based system has proven to be inefficient, leading to delayed and inaccurate reporting, and over-dependence on a single individual for data management.

This web application aims to transform the management of the scouts' group by providing a user-friendly platform accessible to various user types, including General Captains, Unit Captains, and Regular Captains. The application allows users to register accounts, log in, and perform a range of functions based on their authority level.

This project is a real-world application, driven by the practical needs of the scouts group. We are proud to highlight that we engaged in consultation sessions with the groups' captains to gather their specific requirements, ensuring that the system aligns with their operational realities. The requirements collected during these collaborative sessions have been documented in detail and will be attached as a supplementary file with the project proposal submission.

List of systems users:

- **General Captains (قائد عام):** These are the highest authority figures in the scouts group.
- **Unit Captains (قائد وحدة):** Unit Captains have authority within specific units or sectors of the scouts group.
- **Regular Captains (قائد):** Regular Captains are responsible for managing their respective classes or sectors.

User Functionalities:

General Captains (قائد عام):

1. Change the account type of other captains/users.
2. Create new captains with different levels of authority.
3. Create new terms (sessions) for the organization.
4. Create new sectors (classes) and define their details.
5. Create new scout Member profiles, including personal information.
6. Edit, move, and delete terms, captains, and scout records.
7. View comprehensive absence statistics for students and captains across all classes.
8. Receive notifications for students or captains with attendance below 50%.
9. Access and manage the current budget, including viewing income and expenses.
10. Add, delete, or modify expenses and income items related to the organization.
11. Configure real weeks to allow for accurate statistics.

Unit Captains (قائد وحدة):

1. Record the absence of captains within their unit.
2. Move students between sectors within their unit
3. Access absence statistics
4. receive unit-specific notifications for low attendance.
5. Generate and export detailed attendance reports for their unit.
6. File a report for a scout.

Regular Captains (قائد):

1. Record student absences, indicating whether a student is absent, attended, excused, or term-excused.
2. Record weekly subscriptions for scout members within their sector.
3. View their sector's attendance statistics, helping them monitor and improve attendance rates.
4. File a report for a scout.

Entities:

1. Scout

They are the same as students in a school, they're the ones we are going to track in this system. We are mainly tracking their names, absence, which sector they belong to, and doing reports on their performance if needed.

2. ScoutProfile

It possesses some extra information about scout members such as member photo, birthdate certificate, enroll date, and school grade. It is not necessary for all scout members to have this entity. It's a weak entity type as it cannot exist without the existence of the scout.

Assumptions:

- It's not merged with student because the business logic here rarely requires this feature and it's used in few cases in the system.

3. Term

The year in the scout system consists of terms. We record the start & end dates of the term, the term name, and the term number. Each term in the system consists of weeks.

4. Week

In this entity, we track the start date of each week, cancelled weeks, and the week number in the current term. In each week, we need to track the attendance of both scouts & captains and record all subscriptions formed on this week.

5. Sector

Sectors are classes that categorize scouts according to their age and gender. Each sector has a group of regular captains who lead this sector and a group of scout members who benefit from the sector's activities.

6. Captain

They are the leaders and real-world end users in our system. Each captain has a unique ID, an Email, and a password to be able to login into the system. There are 3 types of captains that differ according to their role. However, they all do common functionalities such as reporting scout members. Types of captains:

(1) Regular Captain

Regular Captains are responsible for leading sectors. Each group of regular captains lead a specific sector. They record the absence of scout members.

(2) Unit Captain

He is the one who manages the sector. He is responsible for regular captains in the sector which he manages. Unit Captains take absence for regular captains.

(3) General Captain

He is the top manager in the system. He manages the budget of the whole scout. He is the only captain who has the authority to edit financial items in the system.

7. Financeltem

They represent incomes & expenses of the system where it records the value of each transaction, the date & time when this transaction occurred, and type of transaction either income or expense. Transactions are categorized into two disjoint groups as follows:

(1) Subscription

It's important to know the sector each Subscription belongs to and in which week this subscription was collected.

(2) OtherItem

These are both the incomes and expenses created by the general captain.

Assumptions

"Type" attribute is added in the Financeltem not in the otherItems although its functionality is to distinguish between incomes and expenses, this is to make queries much easier. This means that all subscriptions will be recorded as income.

8. Notifications

It's used to alert general captains about scout members whose absence exceeds a certain percentage. Theoretically, all captains can receive notifications to make the system generic, while actually, only general captains can receive notifications.

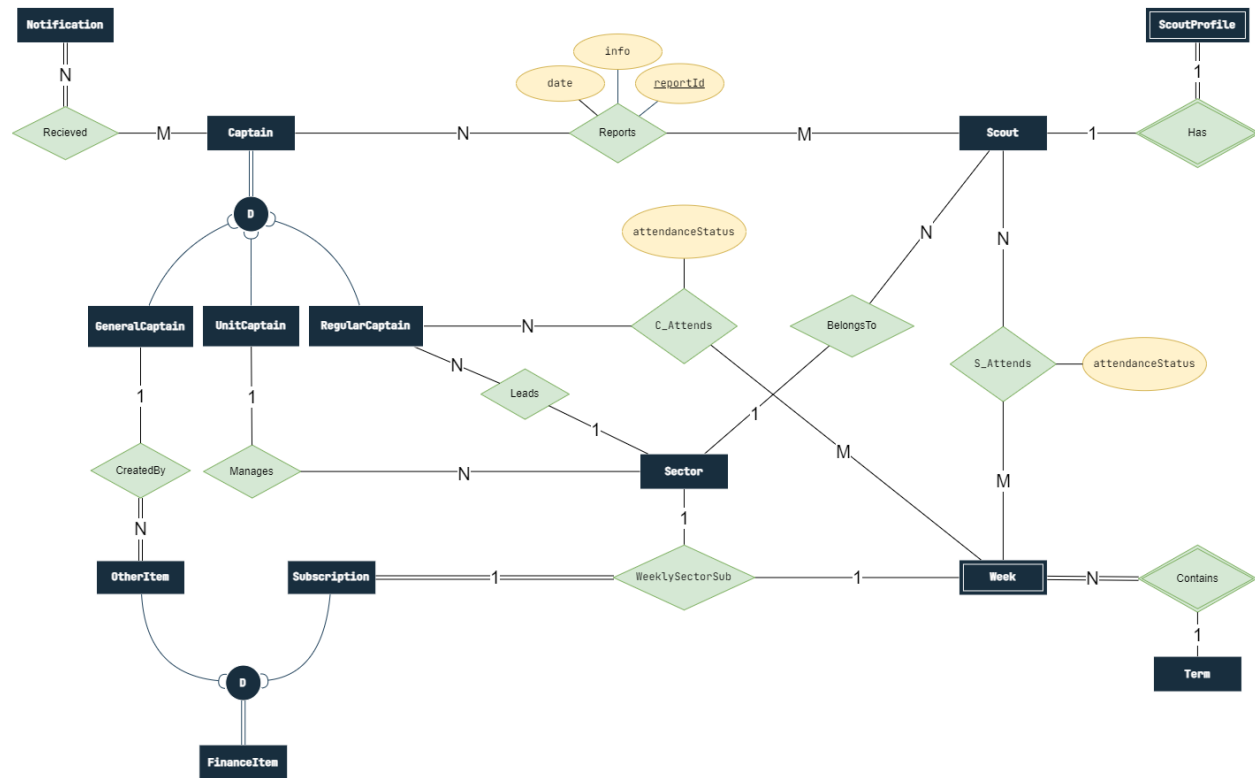
Assumptions on relationships:

- Sectors have partial participation as in the beginning of the system it is not assigned a general captain.
- Weeks have partial participation in the subscription relationship in case of cancelled week.

Relationships: (11 Relationships)

Relationship Name	Between	Description
Leads	RegularCaptain->Sector	Each Regular Captain is assigned to 1 sector.
Manages	UnitCaptain->Sector	A unit captain is responsible of some sectors.
C_Attributes	RegularCaptain->Week	A captain attributes is recorded for a certain week.
Reports	Captain->Scout	A captain can write a report for a scout.
CreatedBy	GeneralCaptain->OtherItem	General captains add finance items, and the item is attached to the creator
Received	Notification->Captain	A notification is sent to a certain Captain.
WeeklySectorSub	Subscription<->Sector<->Week	For each week sectors give their weekly subscription.
Belongs-to	Scout->Sector	A Scout Member must belong to Sector.
S_Attributes	Scout->Week	Scout Members Attend weeks and their attendance status is stored.
Has	Scout->ScoutProfile	A Scout Member can have an optional detailed profile associated with him.
Contains	Term->Week	Every week belongs to a certain Term.

Entities and relationships without attributes



entities with their attributes only

