Computer Science Department

Database Systems 333

Software Requirements for [**Engineers association**]

[Group 9]

Monya Assi 1213503

Toqa Abdeen 1220549

Nahed Najjar 1220704

Summary

Our database project is for the Engineers Union in Ramallah, according to the client, he needs certain information in his work system. For example, when joining a union, the member must provide his university information, gender, address, and other information. The client also indicated his need for the union's engineering offices, retired information, project information in terms of location, investor, start date, and other matters, also our client the information about his client and investor, and finally the most important one is the financial section responsible for all the financial transactions of the union.

Introduction

Our database system for Engineers association has many Several sections such as the administrative, financial, and data departments, etc. The data section includes employee data, whether they are engineers or HR employees. This data includes the employee's personal information and academic information. The administrative section supervision of people interested in joining the union, and the procedures that must be followed and others. The financial section includes data on imports, exports, profits, losses, salaries, whether the employee is retired or not, amounts related to investment projects, and insurance. Our system will help facilitate and speed up the search process for the union. For example, if the client wants to search for the number of computer engineers in Nablus, or for example to search for projects in which the union has invested, also the number of engineers who joined the union in a certain year, etc. The most important advantage of our system is to facilitate the organization and input of data into the system.

Data Requirements

Each engineer that records at Engineers association has a engID, full name, gender, marital status, place of birth, date of birth, identification information such as ID number, place of issuance and date of issuance, address information, address information: building number, neighborhood, street, city/village, mailbox, email, landline telephone, phone number which can be more than one, information about the certificate of general secondary education which is the branch, average , year, and country/agency that issued it, the union also needs the member's university information such as the name of the university, date of graduation, location of the university, university degree, portfolio, general specialization, specific

specialization, university ID, start year, end year, total credits hours, the total engineering hours and the name of graduation project.

Each engineering office has officeID, name, specialization, governorate.

Each retired has engID, name, retirement year, reason, number of family member, bank account number.

Each client has ID, name, phone, email.

Each project has a prjID, name, client name, start date, end date, project description, governorate, address, number of implementing participants, project type (lands, housing), implementation phase.

The financial section has transactionID, membership fee, payment date, financial statements, budget allocations.

Engineers work in an engineering office, and each engineering office has several engineers.

Each engineer subscribes in the financial section and the financial section subscribes to several engineers.

Every engineer is retired from union, such that the retired record without a corresponding engineer record the assignment details lose meaning.

Each project is worked on by one or more engineers.

Each project is managed by one engineer.

Engineers can manage and/or work on more than one project.

Each project is invested in by one or more clients, and each client is invested in one or more projects.

Each engineering office is responsible for more than one project and each project is responsible for one engineering office.

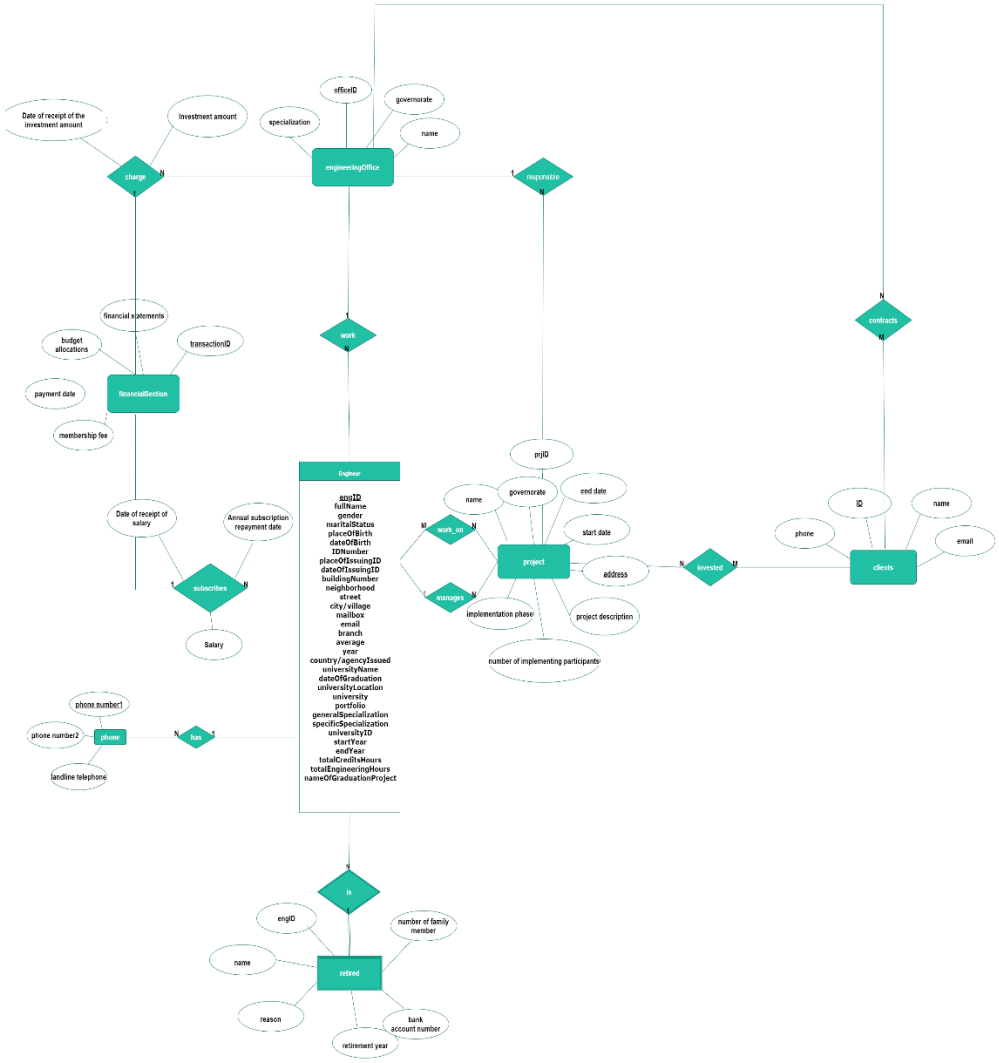
Engineering office Charge with financial section for various projects, and the financial section charge with more than one engineering office.

Client contracts with many engineering offices and the engineering office contracts with several clients.

Entity	Primary Key	Foreign Key
Engineer	engID	transactionID
Phone	phone1 engID	engID
engineering office	officeID	prjID transactionID
Retired	engID	engID
Client	ID	
Project	prjID	engID
financialSection	transactionID	officeID
Engineer_ Engineering office	engID	engID
Engineer_Project_ Work	engID prjID	engID prjID
Client_Project	ID prjID	ID prjID
Client_Engineering office	officeID ID	officeID ID

Entities	Relationship
Engineer VS Engineering office	Many to many (new table)
Engineer VS Phone	One to many (merged)
Engineer VS Retired	One to one (weak entity)
Engineer VS Project (Work)	Many to many (new table)
Engineer VS Project (Managed)	One to many (merged)
Client VS Project	Many to many (new table)
Engineering office VS Project	One to many (merged)
Engineer VS financialSection	One to many (merged)
Engineering office VS financialSection	One to many (merged)
Client VS Engineering office	Many to many (new table)

ER Diagram



I will send it alone as a .png.

Technology

Windows, MySQL, java.