Entity Relationship Diagrams and Normalisation

Question 1: Project Management System

Create an Entity relationship diagram to describe the following case:

An employee can work on several projects at the same time. Each employee belongs to one department. Each department has one manager and a manager is in charge of one department only. Each project has a start date and a finish date and a number of employees assigned to it. Some employees are assigned to the project for its complete duration, others are assigned for different time intervals. One employee is assigned as project manager. Projects are identified by a project code. Most projects are carried out for a single customer, although there are some internal projects for which there is no client. At any one time a client may have several projects underway.

Question 2: College System

Create an Entity relationship diagram to describe the following case:

The North Eastern College of Further Education runs courses for students- Each course consists of various subjects and all students enrolled on a particular course must attend all subjects associated with that course - there are no electives. The same subject may be taught on several courses. Each course has a lecturer assigned as course coordinator. A lecturer will be in charge of one course at most. Many lecturers can teach a subject but only one lecturer will teach the subject for a particular course. A lecturer will teach many subjects. The college is divided into several departments, each of which has a department head and office. Each lecturer is assigned to one department. Each subject on each course has exams scheduled three times each year. The college stores the date, start time, duration and venue for each of these exams. The result that each student achieved in each of these exams is also stored. All students who take a particular subject sit the same exam in that subject.

Question 3

The table below is a record of patient's visits to a hospital. Normalise the data to 3NF to identify the tables and attributes required. Show your working through each step of normalisation.

Visit No	Visit Date	Patient No	Patient Age	Patient Town	Dept Number	Dept Speciality	Diagnosis
V10020	12/01/2022	P1	35	Dundalk	D1	ENT	Ear Infection
V10020	12/01/2022	P1	35	Dundalk	D2	A&E	Influenza
V93030	20/01/2022	P3	17	Drogheda	D2	A&E	Fracture
V82110	18/02/2022	P2	60	Ardee	D3	Cardiologist	Murmur