Chemical Research Database

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Databases

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System Description

A chemical research company carries out research projects for third-party clients.

A client may or may not have a project contracted with the company at any given time; every project has an associated client. Clients are identified by their company name and have an address recorded. Each client also has a contact acting as a point of contact, who will have a name, phone and email address.

Projects can be one of two different kinds of chemical screens, a Basic Screen or Comprehensive screen. All projects have a unique name, a deadline and one member of staff – a work lead – overseeing them.

Each experiment has a unique name, and may employ glassware and consumables. Another member of staff – an analyst – will carry out experiments. The company wants to track the total hours spent on experiments for each project.

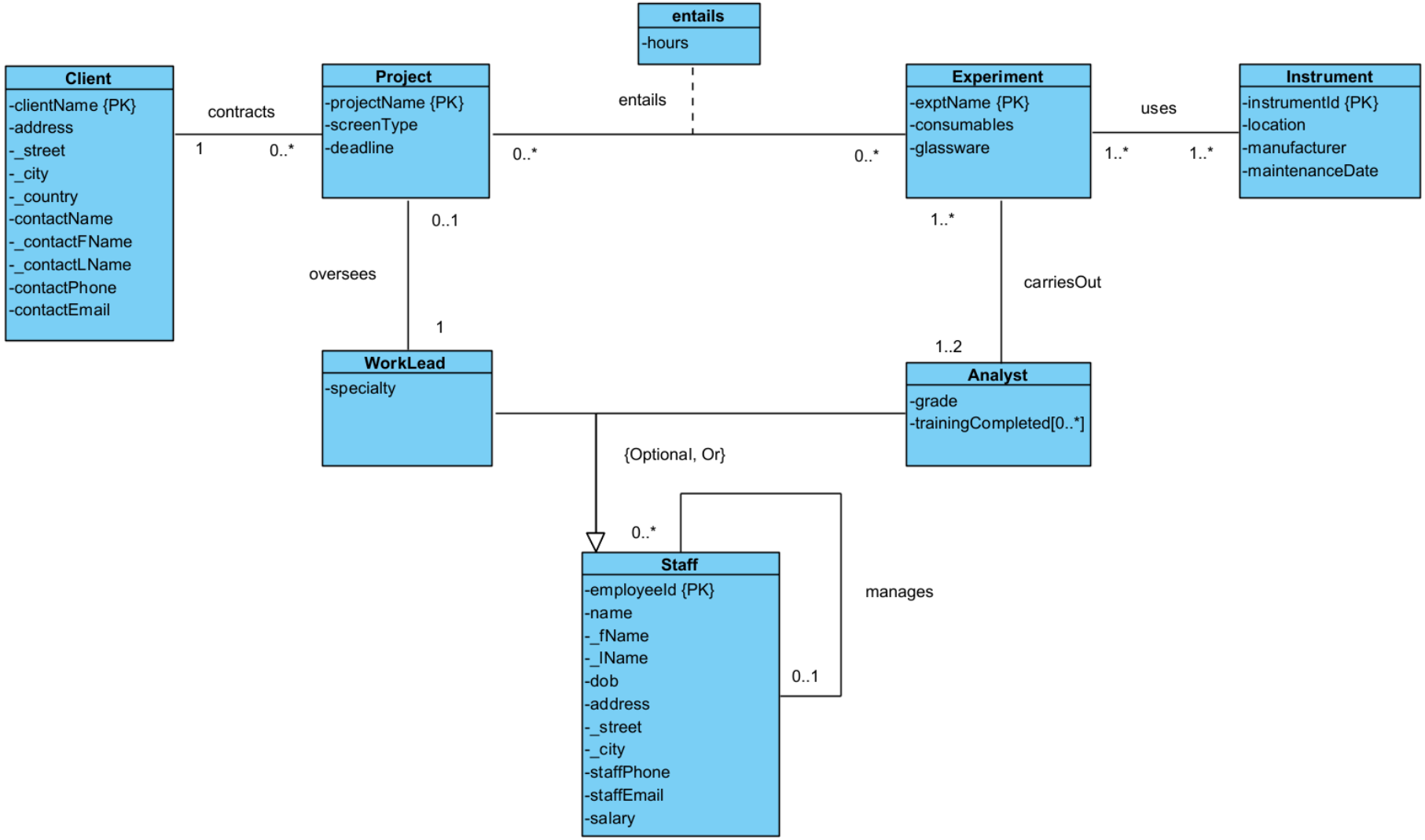
Each experiment uses at least one instrument, and each instrument can be used in numerous experiments. Each instrument has a unique ID, an associated manufacturer, and a designated location. To adhere to pharmaceutical *Good Manufacturing Practices*, the maintenance date of each instrument must be recorded.

The company has numerous staff that are identified by a unique ID, all of which have identity and contact information recorded. Staff can subdivide into work leads and analysts; not all staff are work leads or analysts, but only basic information is required for other employees. Staff may be managed by one other staff member, and that manager may manage numerous other staff members.

A work lead oversees every project; at any given time, a work lead will be overseeing either one project or none. Each work lead has a speciality within the company which must be recorded.

Analysts have numerous grades, and will carry out experiments provided they've completed requisite training. An analyst may work on any number of experiments at any time. An experiment will be carried out by at least one, but no more than two, analysts.

Conceptual Data Model



Logical Design

Client(clientName, street, city, country, contactFName, contactLName, contactPhone, contactEmail)

Primary key clientName

Project(projectName, screenType, deadline, clientName, overseer)

Primary key projectName

Foreign key clientName references Client(clientName)

Foreign key overseer references Staff(employeeId)

Experiment(exptName, consumables, glassware, analyst)

Primary key exptName

Foreign key analyst references Staff(employeeId)

Instrument(instrumentId, location, manufacturer, maintenanceDate)

Primary key instrumentId

Staff(employeeId, fName, lName, dob, street, city, staffPhone, staffEmail, salary, workLead, specialty, analyst, grade, managerId)

Primary key employeeId

Foreign key managerId references Staff(employeeId)

trainingCompleted(training, analyst)

Primary key training

Foreign key analyst references Staff(employeeId)

entails(projectName, exptName, hours)

Primary key projectName, exptName

Foreign key projectName references Project(projectName)

Foreign key exptName references Experiment(exptName)

uses(instrumentId, exptName)

Primary key instrumentId, exptName

Foreign key instrumentId references Instrument(instrumentId)

Foreign key exptName references Experiment(exptName)