**STEP ONE (DATABASE DESIGN)**

* **We will need to keep data for:**
  + Students
  + Courses
  + Departments
  + Instructors
  + Grades
* A student can enroll in multiple courses, and each course can be taught to many students.
* We may need to store data for students before they apply to any courses; some courses may have 0 enrollments.
* The student is assigned to exactly one department and the department can have 0 or more students.
* An instructor can teach many courses and many instructors can teach a course.
* We may need to store data for instructors before they teach any courses; some courses may have 0 instructors.
* An instructor can be hired in exactly one department, but he can teach courses in other departments.
* The department can have many instructors (0 or more), but only one works as its manager.
* A course can belong to any number of departments and the departments can have many courses.
* For us to store the data for a course, the course must belong to a specific department.
* Any course may have many prerequisites and a single course may be a prerequisite for many courses.
* Some courses don’t have any prerequisites and some courses are not a prerequisite for any course.

**DB Schema**

A diagram of a company

Description automatically generated

**STEP TWO (SQL IMPLEMENTATION)**

**Table Creation:**

* The code for creating the database schema is in a file named **Schema.SQL**.

**Data Population:**

* The code for generating the database data is in a file named **Populate.PY**.
* The insert statements are in a file named **Populate.SQL**.

**NOW:**

* The Students table has 1000 rows.
* The Courses table has 96 rows.
* The Departments table has 15 rows.
* The instructors table has 104 rows.
* The Instructor Courses table has 999 rows.
* The Department Courses table has 225 rows.
* The Prerequisites table has 100 rows.
* The Enrollments table has 190326 rows.
* The Student Mobiles table has 1712 rows.

**STEP THREE (PL/SQL IMPLEMENTATION)**

* The code for Procedures Creation and test is in a file named **PL.SQL**.

**STEP FOUR (AUTOMATION SCRIPT)**

- Bash script for database backup.

- Bash script for monitoring disk space and sending alerts.

First install SQL Plus on the linux device

Then Connect to Oracle DB

Run the Backup SQL Commands

**STEP FIVE (JAVA APPLICATION)**

Each student can enroll to a subject only twice

* Each student can enroll to:
  + Up to 14 hours => GPA -2
  + Up to 18 hours => GPA 2-3
  + Up to 22 hours => GPA 3-4
* Students have to finish the prerequisites for each course.

Automation Scripts (Day 4):

- Schedule a script to check for anomalies and send notifications.