

User Manual and Design Manual for University Database Application

CS 460 Final Project

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User Manual

Introduction

This application allows users to access information in a university database. Administrator, professor, and student users have different permission levels that allow them to access relevant information.

Starting the Server

To start the server, navigate to the project directory and run

```
python3 Univ_application/manage.py runserver
```

Logging In

When the application starts, fields will appear for entering a username and password. Enter your username and password and click “Log In”. If you entered the login information correctly, you will be directed to the appropriate page for your user type. Click “Log Out” at any time to return to the login screen.

Features By Group

University Administrator

- Instructor Index: View a list of professors sorted by name, by department, or by salary.
- Department Index: View a list of departments. Click on a department for more information.
- Course Index: View the list of all courses.
- Professor Performance search: Given a professor's name, an academic year, and a semester, view the following for the professor: the list of sections taught during the semester and the number of students taught in each section, the all-time total dollar amount of funding through grants, and the all-time list of publications for which the professor is an author.

USERNAME: ADMINISTRATION

Instructor Index	
Department Index	
Course Index	
Professor Performance search	

Professor

- View the list of course sections and the number of students enrolled in each section that the professor taught in a given semester
- View the list of students enrolled in a course section taught by the professor in a given semester.

USERNAME: TEST_INSTRUCTOR

Professor Name:

Semester:

Course Name:

Section:

Semester:

Year:

Student

- View the list of sections offered by a department in a given year and semester.

USERNAME: TEST_STUDENT

Department:

Semester:

Year:

Administration

Users can be added and removed using the Django administration system by going to /admin and logging in as an IT administrator.

Design Manual

Overview

The database stores data that might be of interest to administrators, instructors, and students at a university. The entities are **department**, **instructor**, **student**, **course**, **section**, **paper**, and **fund_grants**. Many-to-many relationships between entities are implemented with the tables **takes** and **teaches**, and **pre_req**.

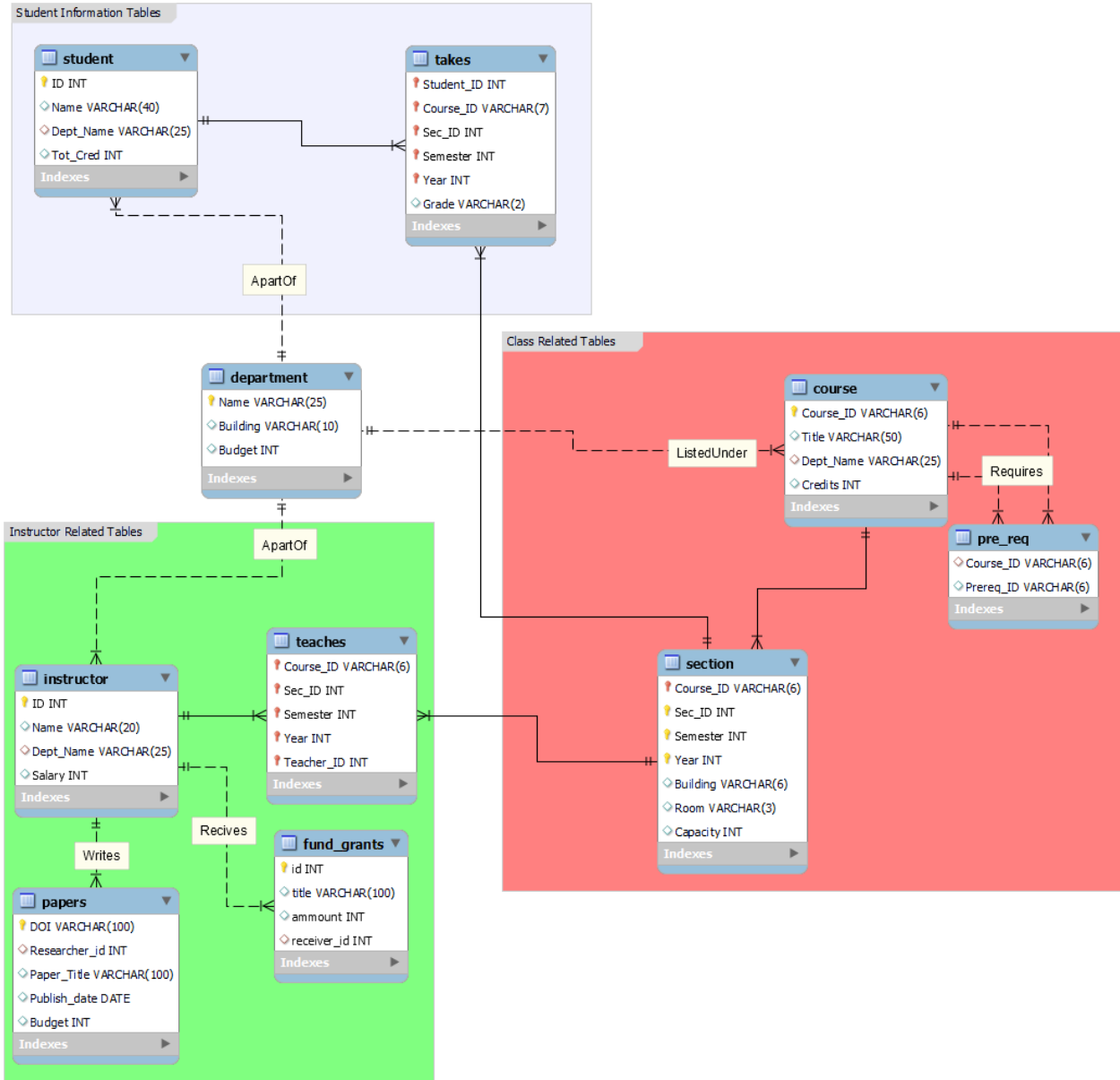
Instructor information is stored in the **instructor** table. The table **teaches** records which instructors taught which sections during each year and semester. The table **fund_grant** records the grants given to each instructor. **fund_grant** was chosen as the name for this table since “grant” is a keyword in MySQL. The table **papers** records information about publications.

The table **course** records information shared between all instances of a course at the university. The table **pre_req** records the prerequisites of courses that have them. The table **section** records the section number of the class along with the year and semester of the course.

The Table **student** records the information for each individual student. The table **takes** records the section and grade of the class a student has taken.

Tables that are used by Django to validate users and their information should be accessed through Django's administration system.

Schema / ER Diagram



Security Measures

If a user is not logged in or attempts to access a page they are not authorized to access, the server will redirect the user to the login screen or the user's home screen.

Only the IT administrator can modify users and groups by logging into the Django administration page. Most queries are made using Django's query system.

User input for queried data is either done through drop down select boxes and user text input boxes. The drop down inputs are constrained for pre selected values and should not be a security concern. Text inputs for professor performance and other pages are designed to only query specific tables and specific columns. Additionally, views that display and query the database are designed to display an error message when an unexpected input is received.