



University of North Texas Degree Planning Service

Cache Money – Sweta Gautam, Dalton Kerbow, Tate Moiser, Travis Nguyen, Nicole Tran
Nerd Herd – Ricardo Barroso, Stephen Ho, Aazrim Mirza, Kabonzo Ramanzani, Ngan Tran

Sponsor – Dr. Nandika D’Souza Faculty Coach – Dr. Stephanie Ludi

Purpose

The University of North Texas Degree Planning Service project aims to provide both incoming and current students with an easy-to-access and streamlined system that can create a custom degree plan that best suits their needs.

Objectives

- Allow transfer and current students to enter any courses they have already completed
- Allow students to generate a degree plan that takes their previous courses into consideration
- Design the system to be as intuitive as possible for both students and administrators
- Minimize the necessity of academic advising
- Minimize administrative input beyond the initial set-up

Design



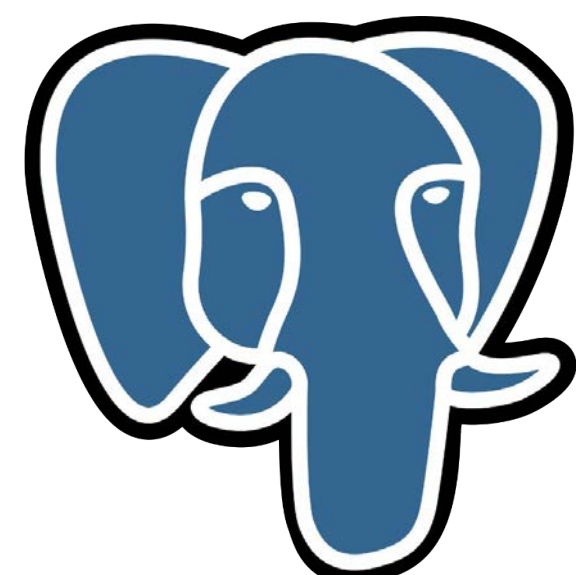
- *Django* functioned as the Python-based web framework
- Offered an improved MVC pattern via templates



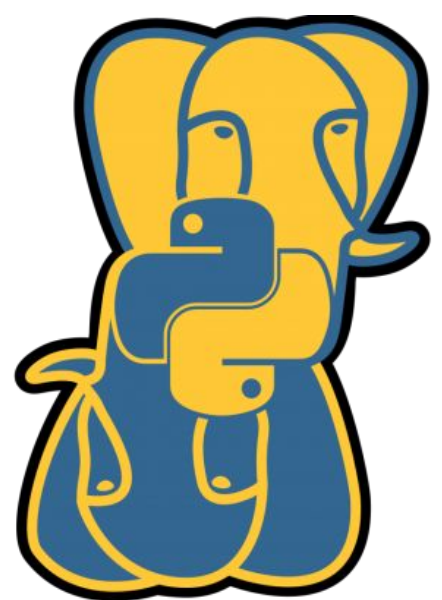
- *Jinja* replaced the default Django template engine with a more user friendly one



- *Bootstrap* served as the CSS framework
- Allowed responsive designs for both mobile and desktop browsers



- *PostgreSQL* functioned as the object-relational database
- Managing concurrency through MVCC allows real time changes without impacting other sessions



- *Psycopg2* served as the PostgreSQL database adapter for Python
- Allowed for large number of concurrent database updates without issue



- *Python* provided the virtual environment for the project
- Easy to learn and set-up

System Features

Course Customization Prerequisites and corequisites to a course can be customized and modified between degree plans

Degree Customization Administrators can create multiple different degree plans for the same degree name and year

Transcript Entry Students can enter any previous courses they have completed before generating their degree plan

Minimal Advising Students are provided with the information they would receive during academic advising meaning advisors only need to approve degree plans

Individual Sessions Students are able to create a custom session ID that they can use to save and return to their current session at any time

Auto-Generated Degree Plans The system will provide students with a custom degree path based on information they have provided such as their transcript

Resource Organization Students are provided with the resources they may need to complete their transcript such as different department numbers all on one page

Testing

- Our testing methods focus on testing as it was developed
- Once a new feature was implemented, it was tested on each developer’s local machine before it was migrated to the live server where it was tested again
- In the event of a bug or conflict, we would use our *GitHub* commit history to identify the problem and later issue a fix
- All tests were conducted manually to ensure we had full control over the input
- The majority of testing focused on ensuring that degree and course objects were being created, stored, and returned correctly between our various systems and that the design would translate well from desktops to mobile platforms

Deliverable: Add a Course

When creating a new course, administrators will have the ability to include everything normally provided in the UNT course catalog including the availability and hours associated with the course. This will also include general course corequisites and prerequisites. Additionally, our system allows the inclusion of any number of degree-specific course corequisites and prerequisites.

Deliverable: Add a Degree

Similar to the existing UNT degree plans, administrators can organize any existing course into different categories such as Core Requirements or Breadth Electives. While these categories can be any of the existing ones currently used by UNT, our system allows administrators to create categories as needed.

Deliverable: Generated Degree Plan

Semester 1			Semester 2				
#	Department ID	Course ID	Hours	#	Department ID	Course ID	Hours
1	Math	1710	4	1	Math	1720	3
2	CHEM	1410	3	2	CSCE	1040	3
2	CHEM	1415	1	2	TECM	4180	3
2	CSCE	1030	4	2	BIOL	1710	3
2	TECM	2700	3	2	BIOL	1760	2

After selecting a degree plan, students are given the option to enter their transcript information if they have already completed any course, or continue as a new student. After making a selection and filling in necessary information, the student is provided with a recommended degree path. The degree path they receive is based on the degree they have selected, any previous courses they have taken, and how many hours they wish to take a semester.

Deliverable: Individual Sessions

Students will be given the option to either continue an existing session or create a new one. Returning students will be prompted for their unique ID and PIN number. Successful login will allow the continuation of their session. First time users will have an ID auto-generate, alongside the ability to enter a custom PIN, degree, and completed courses.