# Normalization Process

I began the process of creating and normalizing this database by identifying key data elements and grouping them in a way I thought was logical. Student ID, Student name (first and last), their addresses, and email addresses, would go into a table for the students’ info. Classes, as they were in the table, would not work, so I started mocking up the database with a unique row for each student and their associated class, which led me to create a table for each course, giving it its own unique ID.

Each student would (or could) have a major, but its description didn’t need to be part of their info table, so I created a majors table with a major ID and associated description that could be assigned the students. Now with a list of classes, students, and majors, I needed a linking table to bring the students’ info together with their enrollment. I originally had a table planned that would exist for each semester, with a row for each student ID and columns for each class - up to a maximum number – that they might take in that period, where a class code would be entered for each enrollment record and a null value for empty slots. It didn’t look right – I had multiple associations/foreign keys going to the classes table – so I got some help. The solution I settled on was an ‘enrollment’ table, which uses the student ID and course ID as a primary key, and for now just uses an integer value – either semester 1 or 2 – to indicate during which semester the student is enrolled in the class. This could be replaced with a generated code or some other structure, depending on the enrollment table’s lifespan (i.e. whether a separate table exists for each year, etc.)