

Client: Dr. Gabe Walton, Assistant Professor, Geology & Geological Engineering

Project Title: Developing a Web App for Automated Student Group Formation

Project Motivation: Group work is an important part of the educational process (and of life, more generally!). Many studies have found that groups that are diverse in multiple respects are ideal, both in terms of effectiveness as well as from a student learning perspective. For smaller classes, it is relatively easy for instructors to manually create well-balanced (e.g. in terms of historical academic performance) and diverse (e.g. in terms of gender) groups manually, but for larger classes, group assignment is often performed randomly. The development of an easy-to-use web app that can automatically group students together such that multiple input variables are balanced between groups would therefore would enable the formation of more effective groups in larger classes and, consequently, benefit student learning.

Project Details: Dr. Walton has developed a MATLAB code that he uses to generate student groups for his classes and has used to help other faculty with their classes, but his code is not user-friendly, slow, and requires customization for each particular application cases. The two main goals of this project would be to (1) expand the applicability of the existing tool such that it can handle a generalized number of variables and a generalized set of variable types (2) create a GUI that will allow faculty across campus to use this tool for their classes. As a potential additional scope item, the project team is encouraged to identify and implement a more efficient grouping algorithm than the one used by Dr. Walton. NOTE: Dr. Walton will provide his MATLAB code as a starting point, but the project does not need to be completed in MATLAB!

Recommended Team Size: 2-4

Work Location: Anywhere

Associated Internship Possibilities: N/A