Abstract: W Video games are one of the most popular forms of entertainment in modern-day America, but board games have recently entered a renaissance thanks to the huge success of games like Settlers of Catan, Ticket to Ride, Pandemic, and Carcassone. These two forms of entertainment have intertwined as board game creators quickly realized the huge potential for electronic versions of their games. Due to the fact most board games require multiple players, developers have been forced to include computer-controlled “players” in their games. This project focuses on the development of an electronic version of the modern-day board game, Carcassonne, and an artificial intelligence (AI) that is capable of playing Carcassonne at a competitive level. The rules of Carcassonne are detailed, and a variety of gameplay strategies are discussed. The basics of the mathematical field of game theory are also investigated. The implementation of the game, and its two bots, “beginner” and “advanced,” are also discussed. Finally, the statistics from hundreds of bot vs. bot game simulations, and a moderate amount of human vs. bot games, are analyzed. By the end of this paper, the reader should have a fundamental understanding of the gameplay mechanics and common strategies of Carcassonne, the basics of game theory, and the thought process that went into developing two different bots that can play Carcassonne at a competitive level.

Abstract: Currently, Wooster City Schools (WCS) uses several applications to track and analyze data for about 10,000 students. They have a need for a single piece of software that will support longitudinal collection of a range of student academic and behavioral data. A previous computer science student at The College of Wooster provided a specification for a web-based system, DataLongLegs, which addresses WCS’s needs. This project continues that work in three areas. First, portions of the interface will be redesigned based on new requirements from the client. Second, a more robust design for the database must be completed. Third, this project will provide an implementation of a subset of the complete specification as a proof-of-concept.
Abstract: Advising students on curricular, co-curricular and extra-curricular activities can be challenging, in large part because it is difficult to locate information about offerings. This is especially true for prospective students, first year students, and new faculty who are not yet familiar with the College’s offerings or where to find them. The purpose of this project is to develop an intelligent web application that will 1) allow exploration of curricular, co-curricular and extra-curricular opportunities available at The College of Wooster; and, 2) simplify the construction of a 4-year plan based on a student’s personal and academic interest.