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Exploring Graph Theory and the Shortest Route Problem in Java

Major: Computer Engineering
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A Java application was created to use Dijkstra's shortest path algorithm to determine the best route between any two locations in the Science and Engineering Complex. Output resembles online driving direction services like MapQuest. A user selects start and destination rooms, and is provided with a map outlining the best walking path. Text-based turn-by-turn directions are additionally provided, and include estimated distance and travel time. The program works both stand-alone and as a web browser applet, and can accommodate other buildings and outdoor locations on campus. To allow for ease of expansion, a built-in graphical interface is included to provide new maps and label significant points. Distances are calculated automatically based on map scale size, but manual distance specification is also possible for special cases like stairwells and elevators. Maps for this project were provided by Loren Rucinski and Fred Puliafico.