Group Project #1: Soccer Team
GAM 376, Prof. Robin Burke
Winter 2006
Due: 2/15

Objective:
Combine steering behaviors and state machines to create an improved soccer team.

What to do:
This is a group project. There will be four groups of three, assigned by the instructor. The goal will be to produce a winning soccer team for a tournament to be held in class on 2/15.

- Your entry will consist of source code that implements your new team on top of the SimpleSoccerLab implementation provided. You may not modify any of the SimpleSoccerLab source code, as this will be used as the platform on which all teams run. If you need new steering behaviors, you will have to implement them yourself using a subclass or an entirely new class.
- The tournament will be a round-robin style with each team playing the other three. The two teams with the best win-loss record will then compete for the championship title. Buckland's default team will be included as a baseline. Each match will consist of 3 five-minute games.
- In this competition, efficiency of operation will be combined with scoring effectiveness. The score for the losing team will be adjusted up if it uses less CPU time than its opponent. The formula allocates one point for each 20% of the winner's CPU time that the loser conserves. For example, suppose Team A scores 4 points and Team B 3, but Team B uses 9109 cycles and Team A 12053. Team B's score would be \(3 + \frac{5 \times (12053-9109)}{12053} = 4.2\), so Team B would be the winner. In case of a tie, the winner will be whichever team uses the least CPU time.

In addition to whatever source code is necessary to participate in the tournament, each team must turn in (to COL) a short 2-page write-up describing what features they added to their team.

What to turn in:
- Make a zip file containing your project folder and upload to Course On-Line under Group Project #1.

Hints and notes:
- It would be embarrassing to lose the tournament to Buckland's team. Make sure you can beat it easily.
- The book contains a number of suggestions for how to improve team play. Consult the "Practice Makes Perfect" section on page 190 for his ideas. Of course, you can come up with your own.
- The instructor will disqualify teams that abuse the spirit of the rules: for example, attempting a low-CPU-cycle defense-only strategy to win 0-0 games by efficiency adjustments.
- The CPU time rule means that there will be no tie games (no penalty kicks, either.)
- Games that reach an impasse (ball out of play, ball stuck, etc.) will be restarted with no penalty.