**December 2013 - Golf Queuing**



Golfing can be an enjoyable and rewarding way to spend your time.  Despite the attraction and fun of the game there can be many challenges.  One of the more common challenges for experienced players is waiting for slower players to finish a hole before the experienced player can start.

As the owner of a 9 hole golf course, you currently have a First-In-First-Out policy.  In other words, faster players are not allowed to jump ahead of slower players.  You are considering changing this First-In-First-Out policy to a Priority queuing policy to allow faster players to jump ahead of slower players in between holes.

Players arrive at your golf course at an interarrival time of 10 minutes, exponentially distributed.  The players on your golf course have 3 different skill levels.  Fast players complete holes at an average of 5 minutes.  Medium players complete holes at an average of 7 minutes.  Slow players complete holes at an average of 10 minutes.  All distributions are normal and have a standard deviation of 1 minute.  Player skill level is randomly distributed (1/3 Fast, 1/3 Medium, 1/3 Slow).

Assume players start golfing as soon as they arrive on the course and that the system has achieved steady state.  Each player is golfing individually (not in a group) and players must go in sequential order from hole 1 to hole 9.  Players can only jump the queue if a slower player has not yet started the hole.

**Question:  How much time on average (in minutes) will a player save if you convert to the Priority queuing from First-In-First-Out queuing?**