

# Injury Time in Soccer Game

Sponsor: FIFA

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# Outline

Background

Problem Statement

Approach

Milestones

Deliverable

# Background

Our project is based on the following background:

1. Rule of Soccer
2. Injury time and soccer rule
3. Fairness
4. FIFA

# Problem Statement



The extra minutes may change the score

# Problem Statement

1. Two teams, A: disadvantage in 90 mins, B: advantage in 90 mins.
2. The referee has the right decide how many minutes to add in injury time. If the injury time is long enough, A have the chance to catch up and make a tie.
3. Our problem is to explore the relationship between the length of injury time and the chance of the loser in 90 mins win the game in the end.
4. Significance of the project

# Approach

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2. Find a distribution for the length between two goals in football game
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4. Derive a stochastic process for football match, and simulate the results
5. Backtesting the simulation results with historical data

# Milestones

1. Work Statement due date, Oct 1, 2012,
2. Midterm Presentation due date, Oct 12, 2012,
3. Progress Report due date, Oct 26, 2012,
4. Final Presentation due date, Nov 6, 2012,
5. Final Report due date, Nov 30, 2012.

## From Team to Sponsor

1. Established model for injury time and game result,
2. Algorithms for simulating a football game,
3. Numerical experiment results reporting the effect of injury time to game result,
4. R package with a complete set of documentations along with some test codes that can be used to reproduce our numerical and simulation test results,
5. Technical report and presentations summarizing the work.
6. The due date for the project will be Dec.15th

## From Sponsor to Team

1. The videos for the matches of major leagues in the world before Oct. 16 2012,
2. Historical data for each games in five premier leagues and A-level international games,
3. Symposium attendance travel expenses.
4. We need them before Oct.25th



E. Bender.

*An Introduction to Mathematical Modeling.*

Dover Publications, 1978.