A Study on Selecting the Best Batsmen for the Next One-Day International Cricket Match: In Sri Lankan Context

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Abstract

In Sri Lanka, cricket is the most popular game and has become an integral part of the culture. Various factors come into play while selecting a team. A human selection committee invariably suffers from the shortcomings of unfair or biased judgment and human errors. A system is thus required which can effectively take into account all factors involved and give the optimal team, without human interference. This study is to develop a scientific method for selecting the best batsmen for a particular 50 over match. The study was carried out under the Sri Lankan context. Critical factor of this study does not use traditional batting measurements, instead focus on a measurement, which reflects the performance of a 50 over cricket match. Moreover measurements were developed to assess players' performance against different oppositions, grounds and recent foam. The graphical analysis showed that Sri Lanka as a team and individual players had not performed consistently against different oppositions or at different grounds. One major finding is that not every player's performance is low or high at a given ground or opposition. This revealed that player performance depends on the opposition and ground. The performance of cricketers depends on their talent and their experience, which in turn results in an obvious hierarchical structure, where the performances are clustered within the cricketer. This prompted in adopting Generalized Estimating Equations (GEE) as it is one of the methods based on the model performance measurement was calculated and then ranked the players to pick the best set of players for the match. Genetic Algorithm, inspired by biological evolution, was used to perform a user-defined task with no assumptions to be satisfied. This machine learning technique used to optimize the set of batsmen using a defined objective function. Opposition, ground and recent performance are taken as input variables in optimising the fitness value to arrive at an optimal set of batsman. Both the methods demonstrate valid results in achieving the desired objective when compared with the original match results. Therefore, these methods will provide a basis for selectors to overcome many issues.

Keywords: Generalized Estimating Equations (GEE), Genetic Algorithm, Hierarchical Structure, Machine Learning