Predict 2017 NBA Team Winning Percent

Mason Chen
Milpitas Christian School
San Jose, CA, USA
mason.chen.training@gmail.com

Maggie Lau
Challenger School
San Jose, CA, USA
gie1313@yahoo.com

Abstract

This STEM poster is to build a statistical model to predict the team winning percent based on their offensive, defensive, and differential statistics during 2015-2016 NBA regular seasons. The team statistics have been standardized to Z score in each category to remove any mean and standard deviation effect. We used a multiple linear regression model to predict the team winning record. After trimmed the insignificant input variables based on the significance P-Values, the predictive model can predict team winning percent with R-Square > 0.95. The regression model has indicated that the importance of 3-point Percentage, Turn Over, and Point Per Game are critical to the offensive efficiency.   In defense, how to defend the rebound and opponent's field goal percentage are most critical. Warriors' team record has been identified as an outlier since their winning percent and team statistics are separated from the other teams. We have also considered the 2nd-order Interaction Term. Defense Field Gold% * Defense Point Per Game is the most significant interaction term. This model can predict whether Warriors can break their 73-win record. This model may also provide NBA coaches how to build a better team to win more games.

Keywords
Sports Analytics, Predictive Model, Z Score, Statistics, Regression

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Biography

Mason Chen is currently a student in the Milpitas Christian Middle School. Mason has certified IASSC (International Associate of Six Sigma Certificate) Lean Six Sigma Yellow Belt, Green Belt, and Black Belt Certificates. He has also certified IBM SPSS Statistics Certificate. He also won the 1st Place Award on the Mental Math and Abacus Math contests in the North California Region. Mason Chen is familiar with Six Sigma DMAIC, DMADOV, Lean Production, Minitab, SPSS Statistics, SPSS Modeler CRISP Data Mining, AP Statistics, and JAVA tools. Mason got invited to present his five ASA team statistics projects for 90mins in the local ASQ Statistics and Reliability Group.

Maggie Lau is a 7th Grade student from California, the United States. She currently lives with her family in San Jose, a city at the heart of Silicon Valley in Northern California. Maggie has strong interests in math and science at a young age. She was active participant in various math contests including mental math calculation contests and the American Mathematics Competition (AMC 8). Maggie also enjoys sharing her creativity with others in writing. She won the Gold Award in the "Young Author Book Project" contest at school at age 10. Maggie is a well-rounded student, and she has received many awards for her exceptional and distinguished academic performance.