

PEMODELAN TES KESEHATAN DAN TES FISIK BIDANG OLAHRAGA DENGAN PENDEKATAN *MULTIVARIATE ADAPTIVE REGRESSION SPLINE*

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HEALTH TEST

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SUMMARY

Modeling Health Test and Physical Test Sport Major by Multivariate Adaptive Regression Spline

MARS is a nonparametric regression model, the model does not assume the shape of the functional relationship between response and predictor variables, and have a flexible functional form. This method is the implementation of regression techniques to solve problems. Hastie and Tibshirani (2008) stated that the MARS model is useful to overcome the problems of high dimensional data, known as curse of dimensionality in the pattern of large amounts of data or database large and complicated data structures, yielding an accurate prediction of response variables, as well as to overcome the weaknesses of regression recursive partitioning (RPR). However, RPR has some disadvantages such as the RPR model produces a discontinuous subregion, not quite able to assume functions in the linear or additive, and having lots of trouble if the predictor variable. MARS is one method of analysis procedures that are widely used in data mining program package. Data mining is a set of processes to explore the added value of a data set which amounts to a large or complex that has not been known to exist in manual and potentially useful. By using a target variable and a set of candidate predictor variables, MARS can automatically create all aspects of model development and deployment model, MARS also quickly check thoroughly all the possible models and to accelerate the identification of the optimal solution. MARS specialty lies in the ability of a flexible modeling with linear regression fitting. Modeling with MARS is expected to guess / choose candidates who fit and healthy students majoring in physical education health and recreation in physical and health tests through the National Selection State University (SNMPTN), because subjects in the faculty of sports science more practice field with a variety of sports, which certainly require a student who physically fit and healthy.

Based on the results of the analysis has been done, then get the six predictor variables that influence the response variable and sorted starting from the predictor variable interest rate that is Pull Up (X5), Running 50m/60m (X4), Vertical Jump (X7), Run 1000m (X8), Weight (X2), Height (X1). Fitness Pull Up effect on prospective new students, because the purpose of this test to measure the strength and resilience of the arm and shoulder muscles. If there are potential new students do not meet the target in this test then it would be predicted she would not be maximal in the conduct of courses that require the arm strength and muscle endurance, such as for example in basketball, volleyball, shot-put, etc.. In the sport definitely needs kecepatan (Speed). Running 50m/60m is the basis to determine and measure how much the velocity (speed) prospective new students. If there are potential new students do not meet the target in this test then it would be predicted she would not be maximal in the

conduct of lectures that require velocity (speed), such as for example in athletics, basketball, volleyball, karate, martial arts, etc.. One of the factors that affect test results skill in the field of sport is Vertical Jump. This test aims to measure the explosive power / explosive power. And also ran the 1000m where the test aims to measure the durability of the heart, lungs, circulatory and respiratory. Which must have almost every sport needs it all. Body weight is closely related to height, is also an influential factor in college sports practice activity.

So it can be concluded that the variables - variables that affect the graduation of new students through the skills test tests include variables Pull Up (X5) is the most important variables in the MARS model, followed by a variable run 50/60m (X4), variable Vertical Jump (X7) , variable run 1000/1200m (X8), the variable weight (X2) and a variable height (X1). And the best MARS model are the interaction of two variables: Pull Up and Running 50/60m; Pull Up and Weight Loss; Running 50/60m and weight. Interaction consists of three variables Pull Up, Running and 50/60m Vertical Jump: Pull Up, Running 1000/1200m and Vertical Jump; Pull Up, Running 1000/1200m and height

ABSTRACT

Modeling Health Test and Physical Test Sport Major by Multivariate Adaptive Regression Spline

MARS is one method of analysis procedures that are widely used in data mining program package. Data mining is a set of processes to explore the added value of a data set which amounts to a large or complex that has not been known to exist in manual and potentially useful. Modeling with MARS is expected to guess / choose candidates who fit and healthy students majoring in physical education health and recreation in physical and health tests through the National Selection State University (SNMPTN), because subjects in the faculty of sports science more practice field with a variety of sports, which certainly require a student who physically fit and healthy. Based on the results of the analysis has been done, then get the six predictor variables that influence the response variable and sorted starting from the predictor variable interest rate that is Pull Up (X5), Running 50m/60m (X4), Vertical Jump (X7), Running 1000m (X8), Weight (X2), Height (X1). The six variables that contribute to graduate students include variables Pull Up (X5) is the most important variables in the MARS model with interest rate 100%, followed by a variable Lari 50/60m (X4) with a 55.051% interest rate, variable Vertical Jump (X7) with a 42.314% interest rate, variable Running 1000/1200m (X8) with a 26.626% interest rate, variable weight (X2) with a 20.253% interest rate and a variable height (X1) with a 15.258% interest rate.

Key words: Health test, Physical Test, Sport Major, Multivariate Adaptive Regression Splines (MARS)