ABSTRAK

Ricad,NIM 4193230027 (2024),Pengoptimalan Seleksi Tim PON Esports Mobile Legends Perwakilan Sumatera Utara Menggunakan Metode Algoritma Genetika dan Regresi Linear Berganda

ESports, atau olahraga elektronik, telah berkembang pesat dalam beberapa tahun terakhir dan menjadi salah satu industri yang paling dinamis di dunia hiburan. eSports melibatkan kompetisi video game yang terorganisir, dimana para pemain dan tim profesional bertanding dalam berbagai judul game yang populer seperti Mobile Legends, Dota 2, League of Legends, dan banyak lagi. Kompetisi eSports diselenggarakan secara global dan menarik jutaan penonton baik melalui platform streaming online maupun di arena-arena besar.Penelitian ini bertujuan untuk mengembangkan metode yang efektif untuk seleksi tim eSports Mobile Legends, khususnya dalam konteks tim PON Sumatera Utara, dengan menggabungkan regresi linear berganda dan algoritma genetika. Pendekatan ini diharapkan mampu menghasilkan seleksi pemain yang lebih objektif dan akurat berdasarkan performa individu dalam berbagai aspek permainan.Data performa pemain dikumpulkan dari hasil pertandingan yang mencakup variabel-variabel seperti Kill/Death/Assist (KDA), Gold per Menit, Turret Damage, Damage Diberikan, Damage Diterima, dan Kill Partisipasi. Variabel-variabel ini digunakan sebagai input dalam model regresi linear berganda untuk memprediksi hasil pertandingan. Model regresi yang dibangun menunjukkan hubungan signifikan antara variabel-variabel performa dan hasil perta ndingan.Algoritma genetika kemudian diterapkan untuk mengoptimalkan seleksi tim berdasarkan koefisien regresi yang diperoleh. Parameter algoritma genetika yang digunakan meliputi ukuran populasi sebesar 500, jumlah generasi sebanyak 1500, crossover rate sebesar 0.4, dan mutation rate sebesar 0.6. Dua metode crossover, yaitu Extended Intermediate Crossover dan One-cut-point Crossover, digunakan secara acak, sementara metode mutasi yang digunakan adalah Reciprocal Exchange Mutation.Penelitian ini memberikan kontribusi yang signifikan dalam bidang seleksi tim eSports dan diharapkan dapat menjadi referensi bagi peneliti dan praktisi di bidang eSports serta analisis data olahraga.

Kata Kunci : Seleksi Tim Esports,Algoritma Genetika,Regresi Linear Berganda

ABSRACT

Ricad, NIM 4193230027 (2024), Optimization of the North Sumatra PON Esports Mobile Legends Team Selection Using Genetic Algorithm and Multiple Linear Regression Methods

eSports, or electronic sports, have rapidly developed in recent years and have become one of the most dynamic industries in the entertainment world. eSports involve organized video game competitions where professional players and teams compete in various popular game titles such as Mobile Legends, Dota 2, League of Legends, and many more. eSports competitions are held globally and attract millions of viewers through online streaming platforms and large arenas.This research aims to develop an effective method for selecting eSports Mobile Legends teams, specifically for the North Sumatra PON team, by combining multiple linear regression and genetic algorithms. This approach is expected to produce a more objective and accurate player selection based on individual performance in various aspects of the game.Player performance data was collected from match results, including variables such as Kill/Death/Assist (KDA), Gold per Minute, Turret Damage, Damage Dealt, Damage Taken, and Kill Participation. These variables were used as inputs in a multiple linear regression model to predict match outcomes. The regression model built showed a significant relationship between performance variables and match outcomes.The genetic algorithm was then applied to optimize team selection based on the regression coefficients obtained. The genetic algorithm parameters used included a population size of 500, 1500 generations, a crossover rate of 0.4, and a mutation rate of 0.6. Two crossover methods, Extended Intermediate Crossover and One-cut-point Crossover, were used randomly, while the mutation method used was Reciprocal Exchange Mutation.This research provides a significant contribution to the field of eSports team selection and is expected to serve as a reference for researchers and practitioners in the field of eSports and sports data analysis.

Keywords: eSports Team Selection, Genetic Algorithm, Multiple Linear Regression