January 29, 2019

Dr. Decision Maker C

From this year's competition C, we learned a hot spot: the United States is facing a serious crisis of Aka drugs. This situation has had a huge impact on the social and economic order of the United States. Therefore, based on the similarity of the characteristics of the spread of Aka drugs and the characteristics of the spread of infectious diseases, we have established a differential equation model based on the infectious disease model. We further conducted some analysis on the relationship between the spread of Aka drugs and the indicators of socioeconomic analysis in the United States. However, due to the large number of analytical indicators, there is a strong correlation between the indicators. We first perform R-type cluster analysis on all Ohia indicators, and divide all the analysis indicators into five categories, and select one representative analysis index from each of the five categories. Through the analysis of the transmission rate of Aka drugs and the five analytical indicators and correlation analysis, it is concluded that there is a strong correlation between the two. For further analysis, we improved the previously established differential equation and modified the daily infection rate based on the definition of the infectious disease model from a previously assumed constant to a variable with respect to time variation, thus establishing a more consistent Aka. An improved differential equation model for the actual propagation of drugs. In the third part, we try to simulate the interference of the national policy intervention on this model, but because of the given data, we have established a gray-RBF neural network prediction model to test the differential equation model.

Before the game, we prepared two sets of task assignments: Plan A data modeling class completed by A major modeling, I was responsible for writing and assisted programming, B was responsible for writing; Plan B mechanism modeling class was responsible for modeling assistance. Writing, Zhen A is writing assisted modeling. Why is this division of labor? In fact, due to the reason of A major and multiple competitions, it has rich experience in data mining and operations research. On the other hand, I have some achievements in the physics academic competition and the mechanics competition. The mechanism modeling ability is better. It is easier to deal with similar issues such as the national race, moon landing, shadow positioning, etc. The plan is preventive.

After four days of hard work, I completed 21 pages of text writing in 4 days, and the workload was huge. The establishment of the third-level model also allowed us to work without rest during the last 48 hours (T.T, please pay attention to your body while struggling with youth). Of course, the ability to complete a paper on time is largely due to multi-line writing.

Wish our proposal can inspire you in pursuit of a a society without drugs. We are looking forward to hearing from you. Yours sincerely, A team of modelers who are enthusiastic about environmental preservation

Yours Sincerely,

Team # 1911245