Team#2300358

Problem C

620 8th Ave

New York

United States

18 February 2023

Dear **New York Times,**

It's nice to have the opportunity to solve your Times crossword question. The puzzle is so interesting and challenging that it has attracted so many people to solve it and has been translated into more than 20 languages. There has also been a certain amount of discussion on Chinese social media, with many people also keen on the puzzle and some making videos to discuss the issue. Because it is easy to understand and practice English level.

However, the rules of this popular game are not complicated, which is one of the reasons for its popularity. It includes both normal mode and hard mode. The hard mode is more than easy and cannot be tried for an infinite number of times, and players can share the results on Twitter, including the number of successful attempts, which also increases its social and attracts more players. The idea of the game is simple and not simple, and the fact that we can't draw conclusions about it easily is what makes this question so fascinating. After playing a game or two we began to have the fun in the game. We were happy to analyze the data and draw some meaningful conclusions. Modeling this topic was interesting for us. I also want to thank the New York Times for coming up with such interesting games. You have also improved our interest in English learning and deepened our understanding and mastery of English spelling.

Now I'd like to introduce our understanding and explanation of the problem. This is the part we particularly want to highlight. They give us four questions, each of which is very interesting and valuable. Each question is about the puzzles. The question gives us a known document and asks us to analyze and solve the problem. We need to solve all the little questions in all the questions and for each question we have thought deeply, we have used the right models, so that we can reasonably explain the questions and come up with a satisfactory answer, We use Polynomial Fitting, Exponential Function Fitting, Grey Prediction, Xgboost, and Lightgbm., We use polynomial fitting, exponential function fitting, grey prediction, xgboost, and lightgbm., We use LSTM to analyze the second problem. For the third problem, we used random forest classification and other methods. Problem 4 we use SPSS to describe some of the interesting features of the data set. Each model is the result of careful thinking, and we find that they fit so well with the problem, which is why these models are used. In addition, for each problem, we have made a variety of charts to facilitate understanding. They are the presentation of our thoughts and the intuitive presentation of our data. We believe that these charts are helpful to show our results and facilitate readers' understanding. As for the writing of the paper, we were careful in every part and divided the problem into different steps, from the surface to the inside and from the depth to the shallow. We also obtained a lot of surprises, which also helped us to solve the problem better. In the process of writing the paper, we kept generating interesting new ideas, which also helped us to understand the problem better. Some of the difficulties also made us think for a long time, but the good news is that we have solved these problems well. The whole article is the result of our careful thinking and we have well organized and presented our ideas in the article. This is the result of the division of labor and thinking of our whole team. We also owe the result to our instructor. We believe this is a completely neat answer.

We would be delighted if our results were valuable and appropriate to you. We would also appreciate hearing from you.