1 - I calculated the confidence score in the confidence\_score.py script using the actual and predicted RR values obtained from the St. Louis study. There is a threshold in the data. That is, the ref\_rr value is less than 40.

2 - First, I calculated the differences between real and predicted RR values. Then, I mapped these differences to a range of 0 to 100 using logarithmic mapping. Initially, I attempted linear mapping, but when I plotted the resulting confidence score values, a logarithmic plot emerged. Therefore, I switched to logarithmic mapping and applied a threshold to remove high values that were causing disruptions. As a result, I achieved a smoother plot. I calculated the confidence score by subtracting the scaled logarithmic differences from 100, as these differences represent the error rate. As a result, I calculated the confidence score using real and estimated rr values and saved it to Excel.

3 – In the data\_separation.py script, I divided the file containing the confidence score into two and saved it in Excel files. I used one part of it to train and test the model and used the other part for the coverage calculation. Thus, the data used to create the model and the data used for coverage calculation were different.

4 - Then I developed the model to create an estimated confidence score value using Random Forest Regressor in confidence\_model.py script and saved it to my computer (confidence\_score\_model.pkl). I also tried to develop the model using LinearRegression and Gradient Boosting Regressor, but Random Forest Regressor gave the best RMSE and R-squared values.

5 - In the coverage\_and\_predictedConfidenceScore.py script, I gave the data I allocated for the coverage calculation as input to the model and the estimated confidence score values were created.

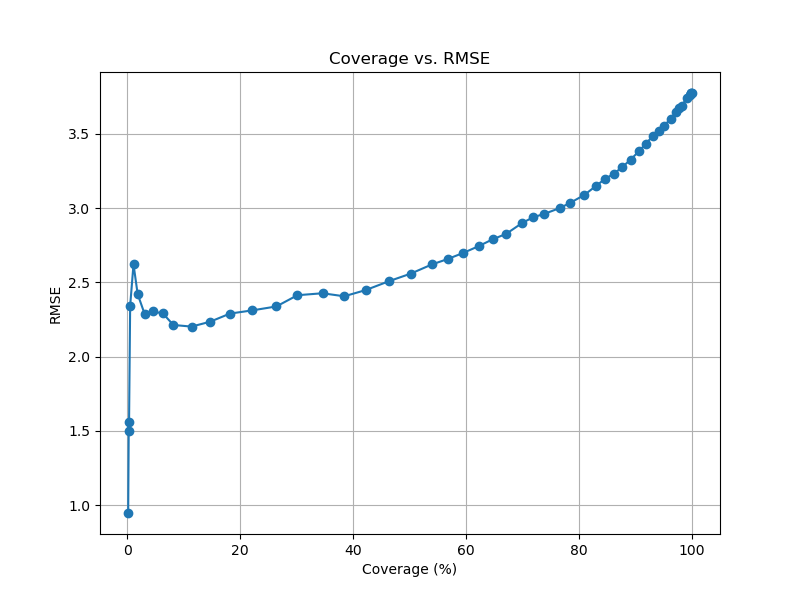
I set thresholds for the estimated confidence scores, spanning from the minimum to the maximum values, and filtered out any values exceeding the thresholds. Then, I computed the root mean square error (RMSE) for the real and predicted RR values of the remaining data, and also calculated the coverage as a percentage. I created a plot to illustrate the relationship between RMSE and coverage.

**Result:**

Mean Squared Error: 175.93006202687303

Root Mean Squared Error: 13.263863012971486

R-squared (R^2) Score: 0.44199551090251976

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