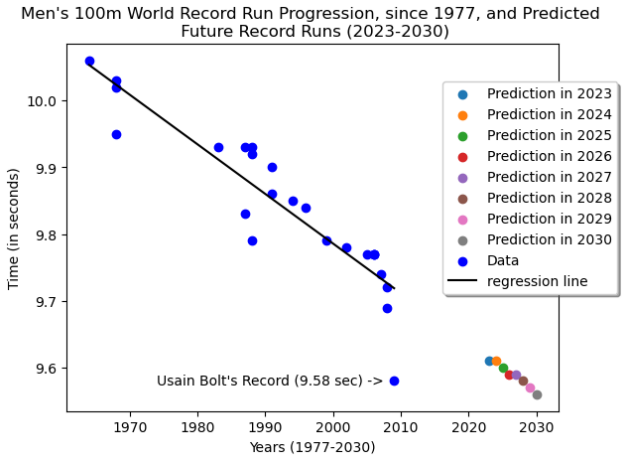
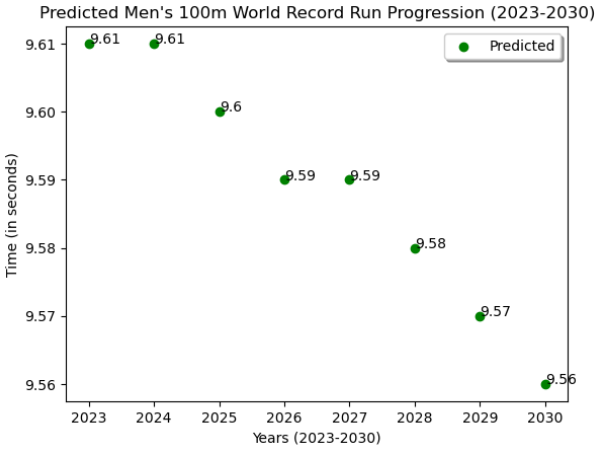
October 14th, 2022

Taniel Migdesyan, ST#40060644

Men's 100m World Record Run Progression Assignment 4

Running has always been a global sport, because it's considered a low-cost sport. You don't need a ball to play with, it doesn't require an expensive gymnasium and the only necessary equipment are shoes. That's why many nations all over the globe compete in it. We all know about the famous stories of Jesse Owens breaking records, at his Olympic runs, and most notably, Usain Bolt's breaking the world record for fastest human of all time. History has shown that there have been multiple record-breaking runs, at the Men's 100m runs. I have conducted a study to show the timeline progression of the records and predicted when the next record breaker could be, using linear regression.





I plotted the dates (in years), at the x-axis, and the record-breaking time (in seconds), at the y-axis. I counted ratified and rescinded records, by the IAAF, since 1977. I calculated the linear regression equation of my data points and I used it to predict the world record runs from 2023 to 2030. I created a scatter plot to show the past records with the regression line and the predicted runs. I created another scatter plot to show a closer look at the predicted the world record runs, from 2023 to 2030. Looking at the plots, we can see that Usain Bolt's record is predicted to be broken in 2029, exactly 20 years later. Unfortunately, because it's based on linear regression, one major drawback from it is that outliers are taken into account. One obvious outlier that we can see is Usain Bolt's 9.58 second record, from 2009. It's much further away from the regression line, compared to all the other. Using linear regression and accounting Usain's record predicts the next record much sooner. I created another model, this time without Usain's record, and when comparing with the original model, there are new prediction points, happening much later than anticipated, and Usain's record would be broken in 2033, 4 years later than the original model.