Module 1: Duckworth Lewis Method

Assignment 1 Report

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In this assignment, we have implemented the Duckworth Lewis method for calculating runs scored using the run production function which can be formulated as: -

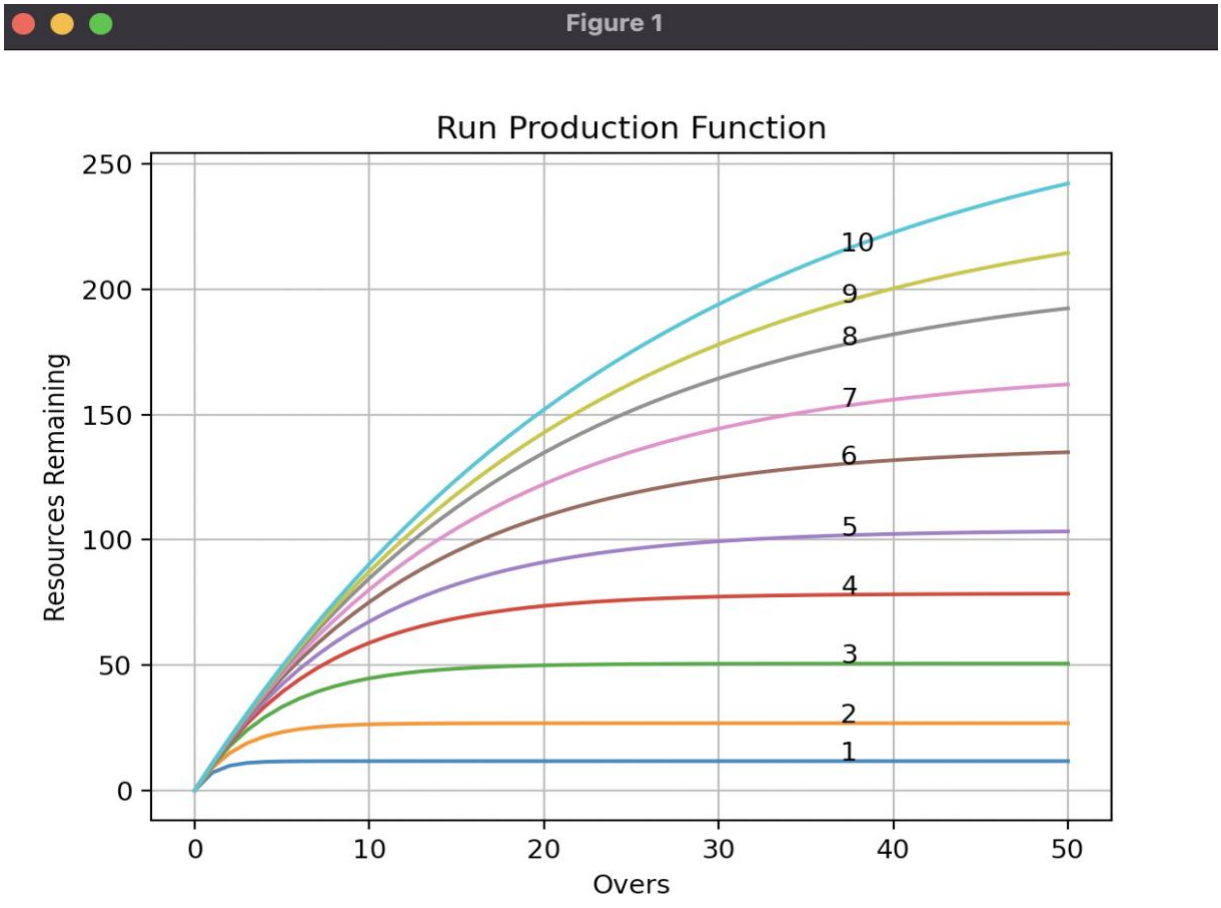
$$Z(u,w) = Z_0(w)(1 - e^{-\frac{Lu}{Z_0(w)}})$$

Data Cleaning: -

For data cleaning we can drop those matches for which the Error.in.Data column is 1.

Also, in some matches there is error in Total runs calculated and for that we can calculate the Total Runs by ourselves by cumulatively adding runs scored in each over.

Observation:-



The optimal parameters of Z0 are obtained as: -

Z0(1) = 11.665882012239775
Z0(2) = 26.80786645559919
Z0(3) = 50.61820992490644
Z0(4) = 78.57914140543386
Z0(5) = 103.94647645080038
Z0(6) = 137.65347865014584
Z0(7) = 168.84177244146377
Z0(8) = 207.57107933908588
Z0(9) = 239.13664363455266
Z0(10) = 284.2150398517707

We obtain the optimal value of **L = 10.882241678201947.**

Also, the **Mean Square Error (Normalized Error) = 1557.3432386686773.**

It is observed that the average runs are higher when we have higher wickets in hand which is obvious as having more wickets will definitely add to the value.

Also, the curve can be seen flattening after certain overs which indicates that of course with 10 wickets only a certain number of runs can only be made which is pretty much realistic.