**Paper Airplanes**

1. I conducted my own data by random sampling of different combinations of paper texture type (printer paper and lined paper) and airplane design (Dart, Hammer, Nakamura, Professional). Sample size of 25 paper airplane trials per combination and measured the flying distance for each trial. Controlled and blocked other non-factors (outside variables) that may affect the experiment such as environment and weight of each person throwing airplane (as well as their bias by blinding).
2. Hypothesis was: does airplane design has difference effect on flying distance along with paper texture?
3. Analysis was done using statistical linear regression model and ANOVA (Analysis of Variance) for each combination of paper texture and airplane design. The summary was to estimate the mean and variance (also standard deviation) of each combination. Also plotted fitted regression line for the data for each combination.
4. Results were that:

* Dart with both types of paper texture had the highest mean (average)
* Hammer with both types of paper texture had the lowest mean (average)
* Nakamura and Professional are 2nd and 3rd respectively in mean (average) with only printing paper but vice versa with lined paper

1. This concludes that the dart is the best airplane design with farthest flying distance while the hammer is the worst airplane design with the shortest distance.

It is implied that paper airplane flying distance can be affected the aerodynamics and its shape (centre of gravity differs) and the weight of the airplane can affect its distance (along with paper texture).

1. Limitations could be that other factors such as environment and weight transfer (along with their release) can differ by person’s weight (also person can get tired from throwing many trials). This can increase bias and variance. We try to control or block those outside variables (as well as size of paper that may affect it) by keeping a consistent environment and use randomization of different people and different orders of paper design combinations to accurately measure our results.