Q1.	What is our independent variable? What is our dependent variable?
Ans:-	The independent variable is the **color and text of the word.** The color of the text can be same as of its name or the two can be different also.
	The dependent variable is the **time taken** by the participants to identify the correct color.

Q2 a.	What is an appropriate set of hypotheses for this task? What kind of statistical test do you expect to perform? Justify your choices.
Ans:-	Null Hypothesis:- The Population mean time to recognise the color does not depend on the two different cases i.e. Congruent or Incongruent. Alternate Hypothesis:- The Population Mean time in incongruent task is more as compare to the Congruent case. To Express this in mathematical form we first discribe some symbols and there meanin μC ----------> Congurent Population Mean Time μI ----------> Inconguent Population Mean Tim Ho ----------> Null Hypothesis Ha ----------> Alternate Hypothesis **Ho : μC = μI** **Ha : μC < μI**
	I expect to perform 2 smapled T Test for Dependent Samples. Because this is a Two condition Dependent sample. In Stroop Test first we take data when both the color and text are congruent and second when the two are diffrent or we can say do not match. And I choose **T Test over Z test** because of the following reasons:- **1. The sample size is less than 30. our sample size is 24 and 24<30.** **2. We don't know the population's standard deviation.** These two are the reasons due to which i choosed 2 sample T-test over Z-Test The following Assumptions are considered for this test:- **The distribution of the differences in the dependent variable between the two related groups should beapproximately normally distributed.**

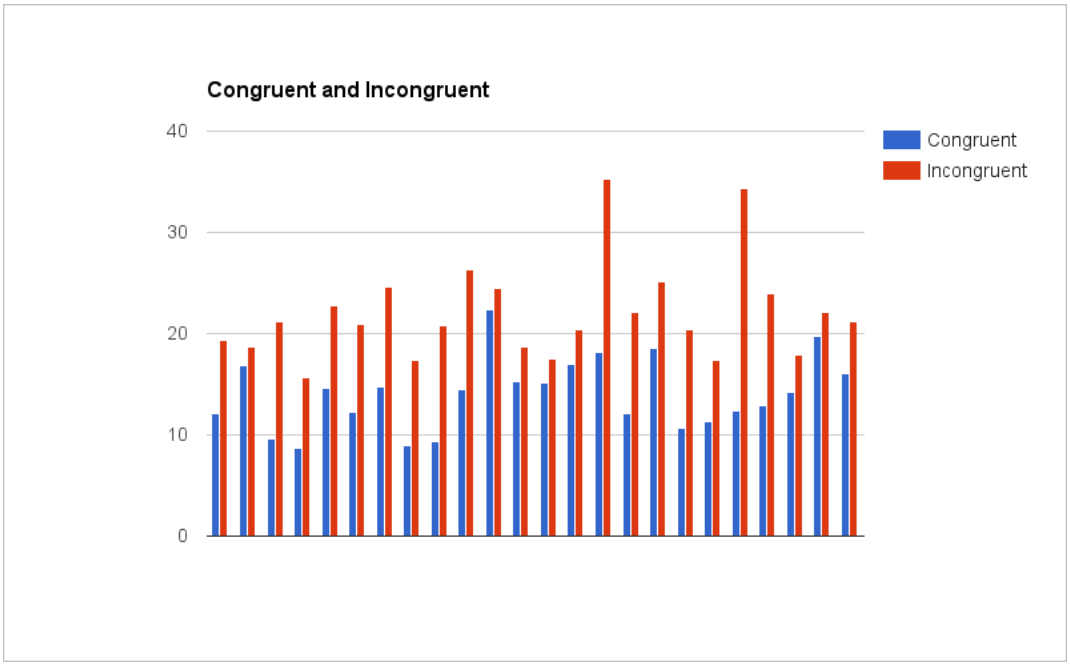
Q3.	Report some descriptive statistics regarding this dataset. Include at least one measure of central tendency and at least one measure of variability.

Ans:-

Descriptive Statistics	Central Tendency		Variability	
	MEAN	MEDIAN	VARIANCE	STANDARD DEVIATION
CONGRUENT TASK	14.051125	14.3565	291.3876686	3.559357958
INCONGRUENT TASK	22.01591667	21.0175	529.2704118	4.797057122

Q4.	Provide one or two visualizations that show the distribution of the sample data. Write one or two sentences noting what you observe about the plot or plots.

Ans:-



From the above plot it is clear that the time required for the Incongruent task is more on every point as compare to the time taken in the Congruent task.

Q5. **Now, perform the statistical test and report your results. What is your confidence level and your critical statistic value? Do you reject the null hypothesis or fail to reject it? Come to a conclusion in terms of the experiment task. Did the results match up with your expectations?**

Ans:-

After Calculation on the Data Set

Mean Difference (MD)	-7.964791667
Standard Deviation Diffrence (SD)	4.86482691
Standard Error Mean (SEM)	0.9930286348
T Statistic	-8.020706944
T Critical Value (Alpha=.05)	1.714 <---- One Tailed
DF (Degree of Freedom)	23

As the t statistic value is less than the t critical value so it means that it lies **inside the critical region**.

so **p<0.05**

And this implies that we can **reject our null hypothesis** and **accept the alternate hypothesis**.

Confidence Interval on mean differece

95% CI = (-9.6648,-6.2648)

Effect Size Measure

Cohen's d = -8.0207

R^2 (R squared) = .7366

The above test reveals that that there is significant diffrence between the two tasks
And also proves that Incongruent task takes more time to identify the color as compare to the Congruent task in which the color of text matches with the text written.

Q6. **What do you think is responsible for the effects observed? Can you think of an alternative or similar task that would result in a similar effect? Some research about the problem will be helpful for thinking about these two questions!**

Ans:-

This is due to the interference between the different information as the true color and its name in the text form.
At the first time our brains thinks that the written text is correct because it has became our habbit but on stressing the brain it try to think in a diffrent way and ignore the text.thats why some says that if we train our brain in such a way that it ignore the written text then the time to react can be decreased.

I think there is one similiar effect also. When we read a worng spelling in wich some of the alphabets are in diffrent order then also we can understand what i written.
for example:-

I cnduo't bvleiee taht I culod aulaclty uesdtannrd waht I was rdnaieg. Unisg the icndeblire pweor of the hmuan mnid, aocdcrnig to rseecrah at Cmabrigde Uinervtisy, it dseno't mttaer in waht oderr the lterets in a wrod are, the olny irpoamtnt tihng is taht the frsit and lsat ltteer be in the rhgit pclae. The rset can be a taotl mses and you can sitll raed it whoutit a pboerlm. Tihs is bucseae the huamn mnid deos not raed ervey ltteer by istlef, but the wrod as a wlohe. Aaznmig, huh? Yaeh and I awlyas tghhuot slelinpg was ipmorantt! See if yuor fdreins can raed tihs too.