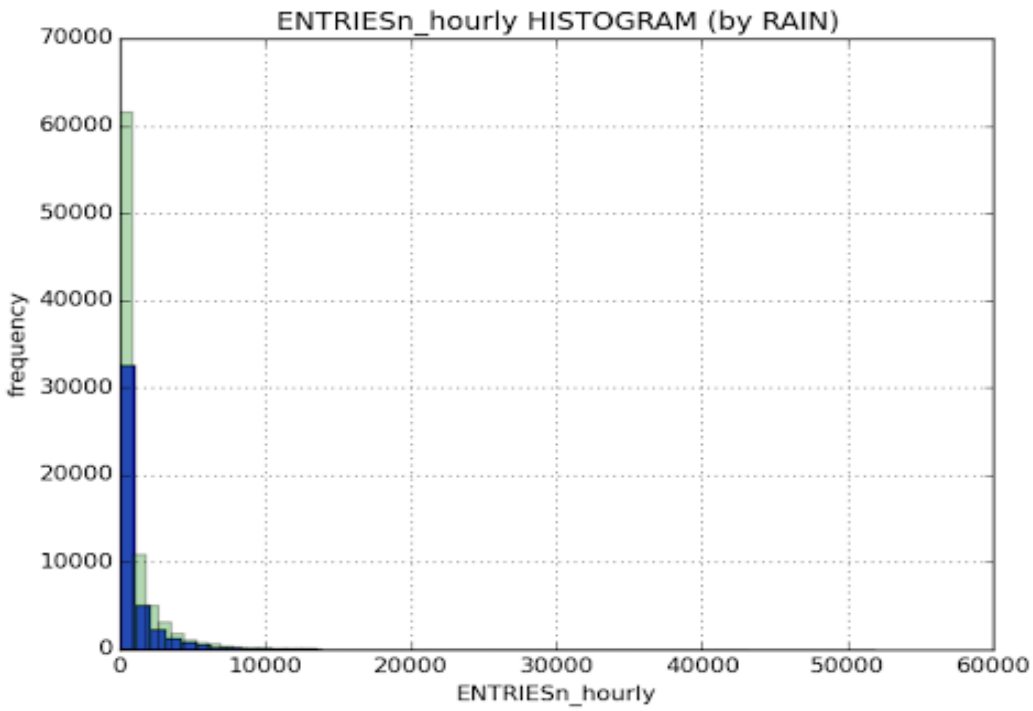
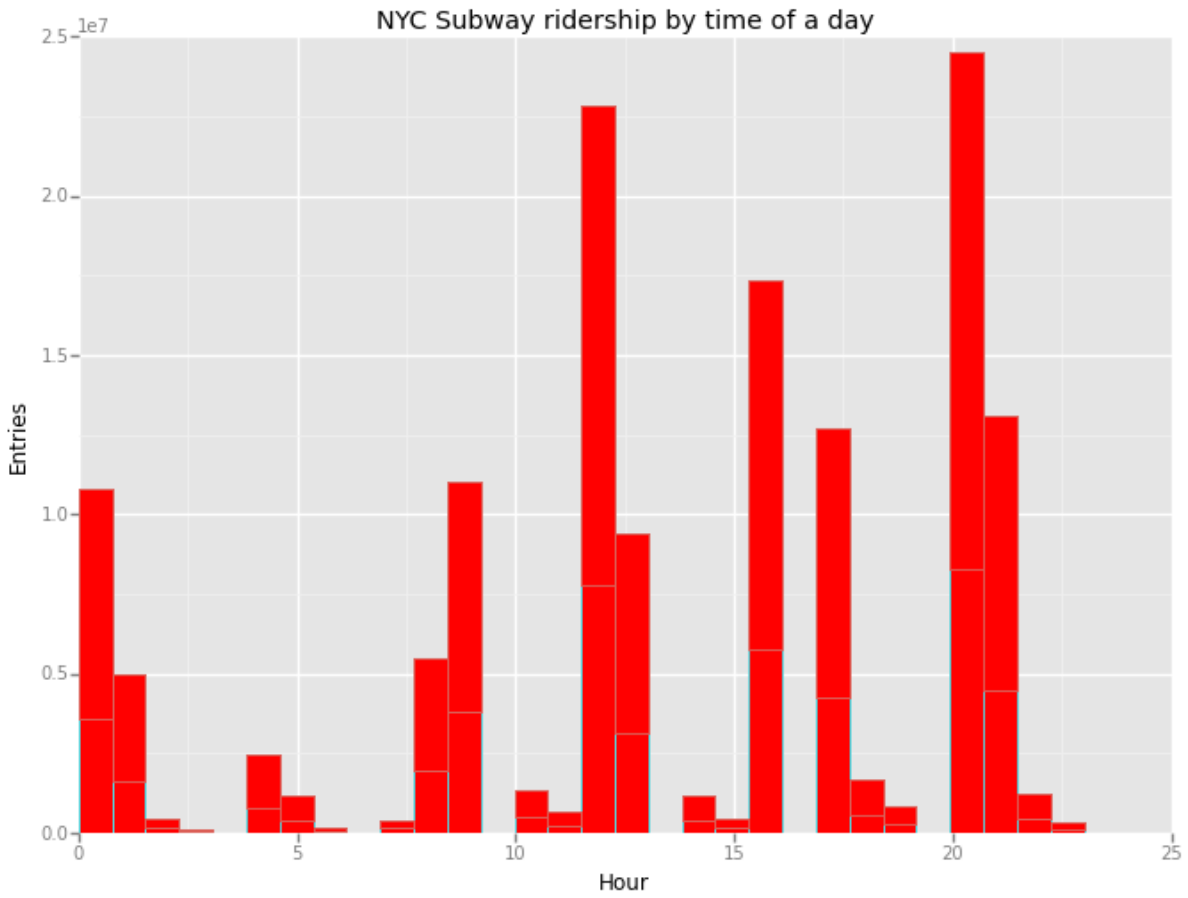
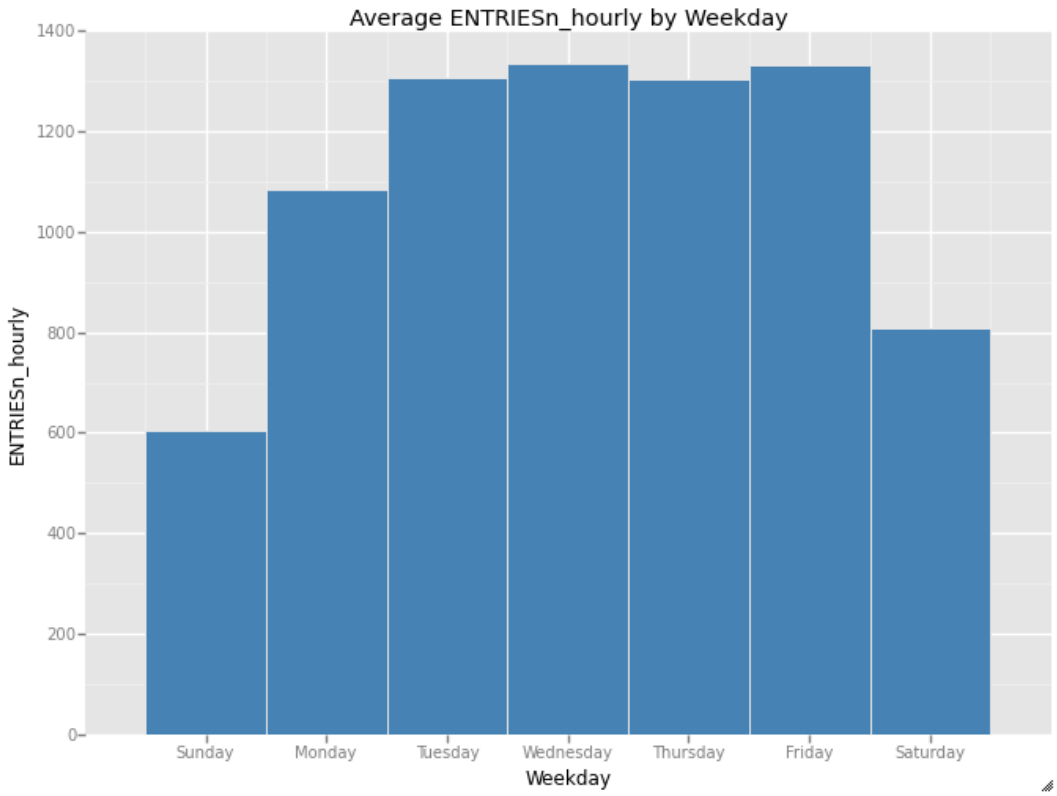
Visuals updated :

3.1



3.2 :


NYC Subway ridership by time of a day
1e7
2.5
2.0
1.5
1.0
0.5
0.0
Entries
0
5
10
15
20
25
Hour



Mann-whitney U test :

In statistics, the Mann–Whitney U test (also called the Mann–Whitney–Wilcoxon (MWW), Wilcoxon rank-sum test (WRS), or Wilcoxon–Mann–Whitney test) is a nonparametric test of the null hypothesis that two samples come from the same population against an alternative hypothesis, especially that a particular population tends to have larger values than the other.

It has greater efficiency than the t-test on non-normal distributions, such as a mixture of normal distributions, and it is nearly as efficient as the t-test on normal distributions. The Wilcoxon rank-sum test is not the same as the Wilcoxon signed-rank test, although both are nonparametric and involve summation of ranks.

In mathematical terms : given random draws x from population X and y from population Y, the standard two tailed hypotheses are as follows:

H0(null hypo thesis) : P(x > y) = 0.5

H1 : P(x > y) not equal 0.5

Note: This is not a hypothesis test of whether or not two distributions are the same, nor is it a test of whether or not the median of two distributions are equal. While the most common assumption under the null hypothesis is that the distributions being compared are identical, This need not be the case for the null hypothesis to be true. It is for this reason that it is recommended to report additional descriptive statistics, such as median and interquartile range, to supplement the statistics generated from the MannWhitney U test.

Null hypothesis :

NULL hypothesis is a commonly known statistical method used to disprove any hypothesis we have on the test data set. Say if we choose 10 students from a 50 students class, we might want to test if all of the selected students are of high performers.

Null hypothesis is A type of hypothesis used in statistics that proposes that no statistical significance exists in a set of given observations. The null hypothesis attempts to show that no variation exists between variables, or that a single variable is no different than zero.

Hypothesis : A test used either to accept or reject the null hypothesis is commonly called as hypothesis test. A hypothesis test such as the t-test is usually used in terms of a test statistic. The test statistic reduces your data set to one number that helps to take decision on null hypothesis. When we do the t-test, we calculate the value T. depends on its value we can decide whether or not null hypothesis is true.

Sample T test :

H0(null hypothesis) : m(mu)=m0(mu not).

The null hypothesis would be about our population means, m0 and m1 are equal.

A non-parametric test is a statistical test that does not assume our data is drawn from any particular underlying probability distribution. One such test is the Mann-Whitney U Test which is also sometimes referred to as the Mann-Whitney Wilcoxon Test. This is a test of the null hypothesis that two populations are the same.

U value = 1924409167

p=0.34