# CS215 Assignment-1

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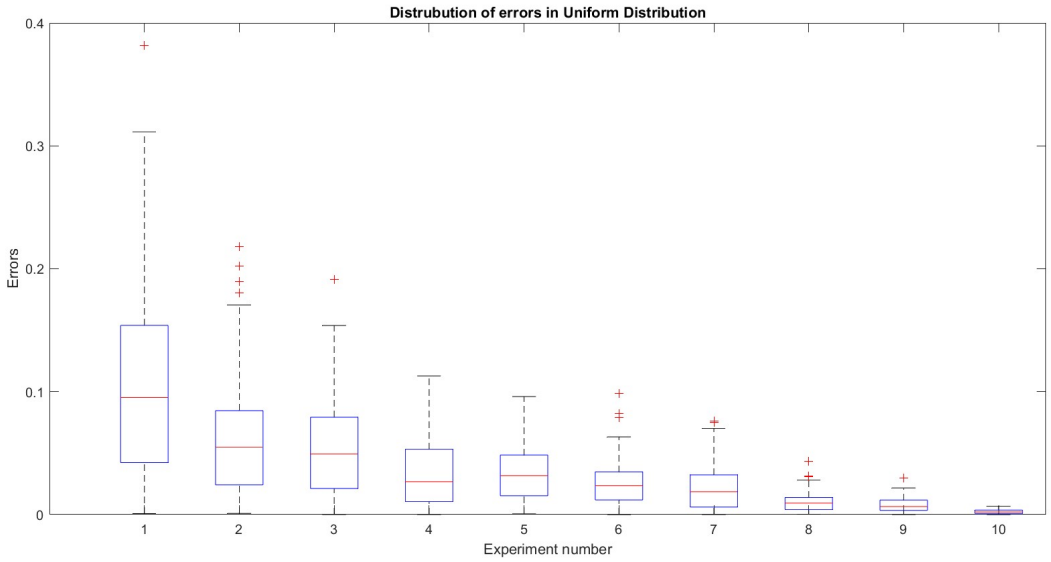
# 1 Question 5.a

### Uniform Distribution

- As mentioned in the question, we have to take elements in uniform distribution.
- Used rand(1,1) for getting random values with the above specification.
- Found all the errors by finding the sum and taking its average and subtracting the ideal mean(0.5).
- Repeated the above process for 100 times for each N.
- Stored errors for each N, in seperate arrays of length 100.
- Combined all the 10 arrays of 100 length into a Matrix.
- Used boxplot() for plotting the above matrix in boxplot



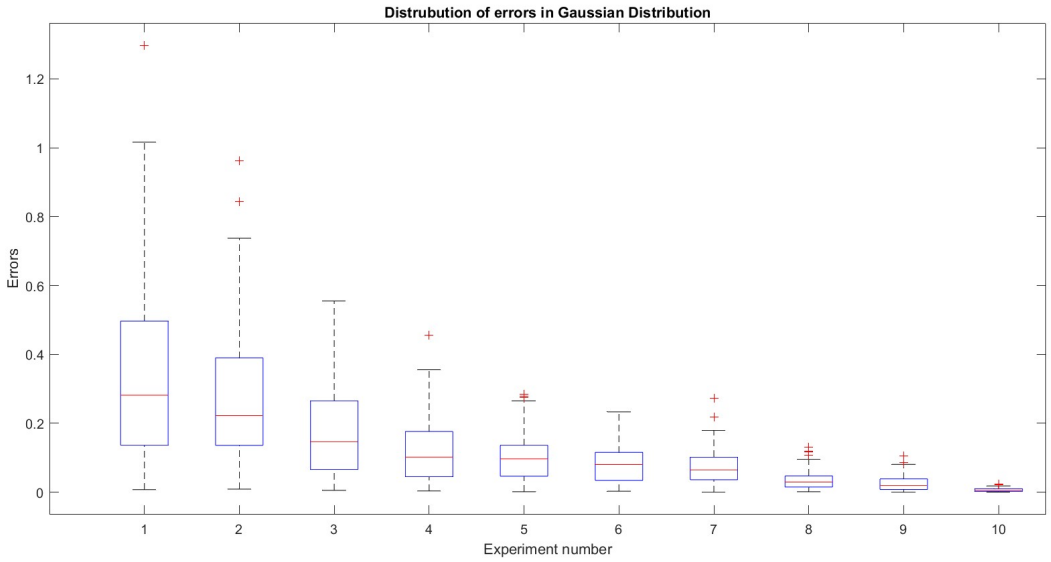

### Instructions to run the code

Run the WHISKERPLOT.m code in the codes section on MATLAB, to get the above boxplot.

# 2 Question 5.b

### Gaussian Distribution

- As mentioned in the question, we have to take elements in Gaussian distribution.
- Used normrnd(0,1) for getting random values with the above specification.
- Found all the errors by finding the sum and taking its average and subtracting the ideal mean(0).
- Repeated the above process for 100 times for each N.
- Stored errors for each N, in seperate arrays of length 100.
- Combined all the 10 arrays of 100 length into a Matrix.
- Used boxplot() for plotting the above matrix in boxplot




**Instructions to run the code**
Run the WHISKERPLOT2.m code in the codes section on MATLAB, to get the above boxplot.

# 3 Question 5.c

**Interpretation**

- From the graphs,
- When N is low, the error medians are high in both the graphs.
- When N=5 the median of errors is higher in Gaussian than those taken from Uniform Distribution.
- As N increases, this trend continued.
- As N increases the median of errors has gone down in both Uniform and Gaussian Distrubution.
- As N increased the errors bar has grown narrower and at N=$10^4$ it is almost a single value.