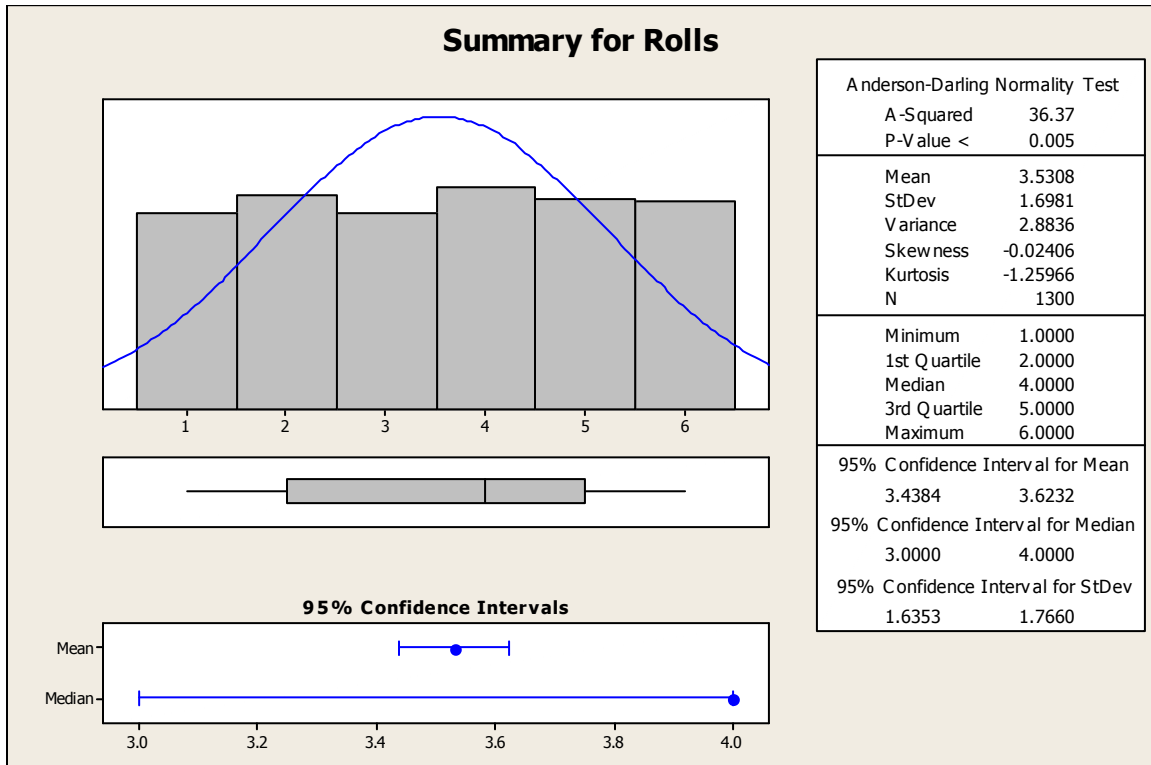


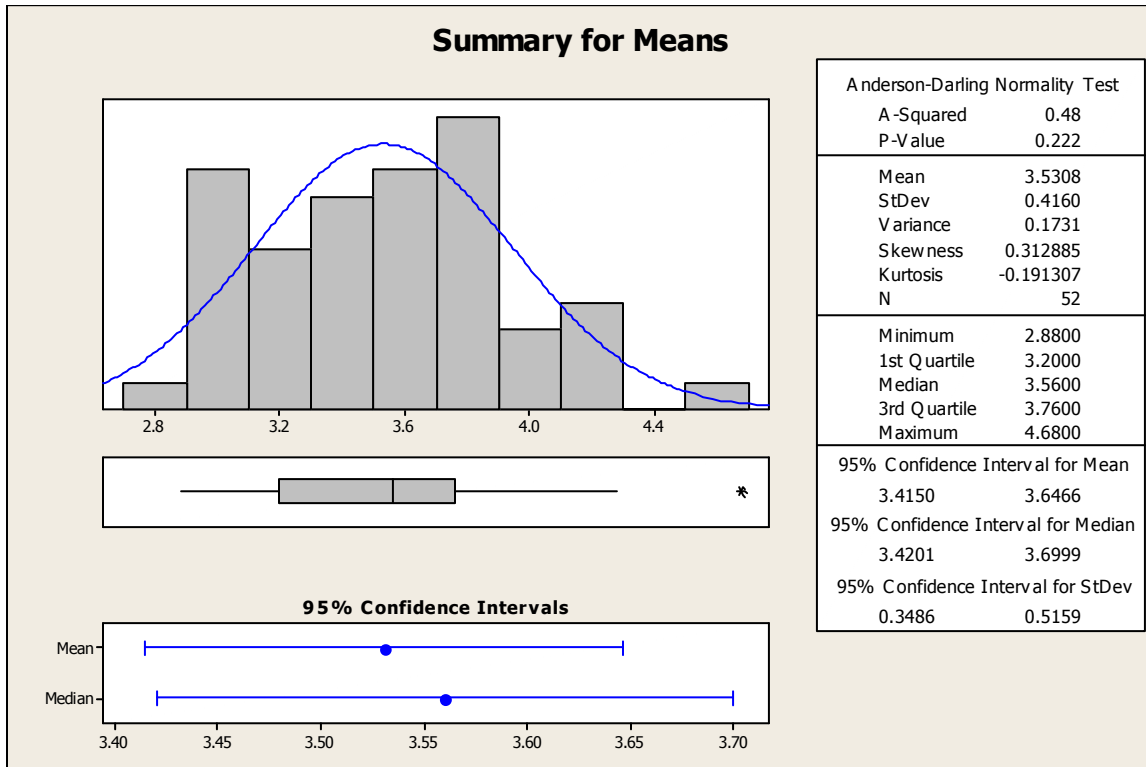
Handout 6 -- Results

Stat 345

Below is a summary of the 1300 contributed dice rolls. Notice that the mean of 3.5308 is close to the true mean of 3.5, and the standard deviation of 1.6981 is close to the true value of 1.7078. As expected, it is very close to uniformly distributed over the possible values of 1 through 6. The 95% confidence interval for the mean (3.4384, 3.6232) includes the true population mean of 3.5.



Below is a summary of the 52 means of 25 dice rolls each. This histogram is not far from normal. The curve overlaid is a normal density curve approximated from the data: it is $N(3.5308, 0.1731)$. The normal distribution of this data should be $N(3.5, 0.1167)$. The observed normal has a larger variance. The box plot does not indicate skewness, but an outlier to the right. The 95% confidence intervals for the mean and median are below. The interval for the mean contains the true mean, so it is correct this time; the endpoints are given in the table to the right: (3.4150, 3.6466). The Anderson-Darling normality test indicates that the data are reasonably normal, having a p-value of 0.222 (we'll talk about p-values when we cover hypothesis tests). So both our visual inspection and numerical test of normality are consistent with our expectation of normality.



Variable	N	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Rolls	1300	3.5308	1.6981	1.0000	2.0000	4.0000	5.0000	6.0000
Means	52	3.5308	0.4160	2.8800	3.2000	3.5600	3.7600	4.6800
StdDevs	52	1.6729	0.1632	1.3229	1.5362	1.7015	1.7795	2.0429

Means	StdDevs	2.92	1.52534	3.76	1.56205	3.76	1.78606	3.48	1.71075
3.00	1.82574	3.76	1.61452	2.96	1.85921	3.56	2.04287	2.88	1.69115
3.84	1.62481	3.00	1.70783	4.20	1.35401	3.72	1.81475	3.24	1.47986
3.60	1.73205	3.72	1.56844	4.04	1.74356	3.04	1.64520	3.20	1.77951
3.24	2.00582	4.20	1.35401	3.76	1.85472	3.48	1.75879	4.28	1.79165
4.08	1.77764	3.72	1.64621	2.92	1.77764	3.68	1.67631	3.48	1.71075
2.96	1.48549	3.40	1.52753	3.64	1.89033	3.44	1.85023	3.80	1.77951
3.68	1.77294	3.44	1.58325	3.56	1.44568	2.96	1.69509	3.56	1.75784
3.52	1.63605	3.80	1.32288	4.00	1.38444	3.12	1.64114	4.68	1.51987
2.92	1.73013	3.84	1.67531	4.12	1.48099	3.32	1.46401		
3.12	1.83303	3.32	1.77294	3.68	1.81934	3.20	1.50000		