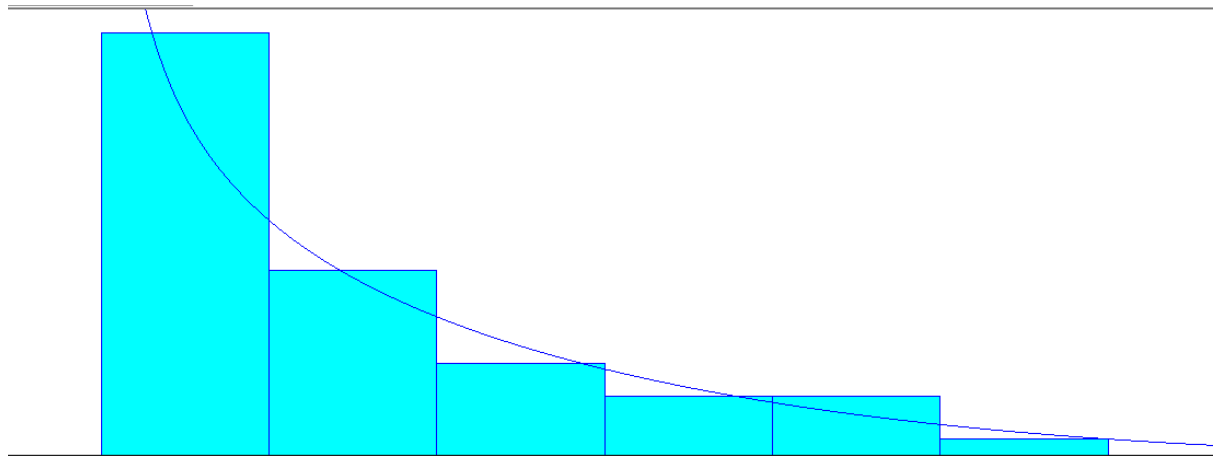


IE306 - Assignment 3

Question 1:

Distribution Histogram:



Distribution Summary:

Distribution Summary	
Distribution:	Beta
Expression:	$4 * \text{BETA}(0.669, 3.53)$
Square Error:	0.001583
Chi Square Test	
Number of intervals	= 4
Degrees of freedom	= 1
Test Statistic	= 0.504
Corresponding p-value	= 0.486
Kolmogorov-Smirnov Test	
Test Statistic	= 0.096
Corresponding p-value	> 0.15
Data Summary	
Number of Data Points	= 100
Min Data Value	= 0.002
Max Data Value	= 3.87
Sample Mean	= 0.638
Sample Std Dev	= 0.643
Histogram Summary	
Histogram Range	= 0 to 4
Number of Intervals	= 10

After trying all of the distribution kinds (ie. uniform, normal, expo...) The biggest p-value for the chi-square test came out to be with the beta distribution. Thus, the input fits best into the beta distribution.

Question 2:

Check the file named “q2.doe” and this convention is used for the rest of the questions.

Question 3:

	Movie1SoldOutTime	Movie2SoldOutTime	Movie3SoldOutTime	Renegade Movie 1	Renegade Movie 2	Renegade Movie 3
Mean	64.24742667	69.24602	67.77556667	18.33333333	10.8	17.13333333
STDDEV	15.85351901	14.84319274	15.06632246	12.7639939	9.451874472	15.37066919
Lower Limit	58.32762538	63.70348074	62.1497094	13.56717968	7.270612068	11.39383113
Upper Limit	70.16722795	74.78855926	73.40142393	23.09948698	14.32938793	22.87283553

Question 4:

	Movie1SoldOutTime	Movie2SoldOutTime	Movie3SoldOutTime	Renegade Movie 1	Renegade Movie 2	Renegade Movie 3
Mean	43.54856667	48.22306667	44.89746	1.133333333	0.733333333	0.933333333
STDDEV	10.23046103	15.59655193	10.60314661	1.105888107	0.907187139	1.080655399
Lower Limit	39.72844973	42.39921846	40.93817999	0.720387928	0.394584088	0.529809976
Upper Limit	47.3686836	54.04691487	48.85674001	1.546278739	1.072082578	1.336856691

Question 5:

One Counter

	Movie1SoldOutTime	Movie2SoldOutTime	Movie3SoldOutTime	Renegade Movie 1	Renegade Movie 2	Renegade Movie 3
Mean	59.21737333	71.6721	64.86902	2.7	3.866666667	3.3
STDDEV	19.07508364	21.94879267	21.7556351	3.806980884	3.549971669	4.009901538
Lower Limit	52.09462004	63.47628612	56.74533234	1.278449976	2.54108546	1.802678158
Upper Limit	66.34012662	79.86791388	72.99270766	4.121550024	5.192247873	4.797321842

Three Counters

With this configuration, there will no renege since we will never be sold out as simulations show.

Question 6:

If we make the counters open for 60 minutes, we are able to sell all the tickets before we close the counters. After running for 30 replications, we have seen that the worst sold out happens in the last minute - e.g minute 59.42. Since we are able to sell all the tickets we have, 60 minutes counter time works perfectly for us.