Simulation and Modelling

Assignment 05

SE - A

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CHI SQUARE TEST

Values:

0.65, 0.47 0.13, 0.19 0.29, 0.68, 0.01, 0.46, 0.50, 0.98, 0.69, 0.87, 0.40, 0.60, 0.30, 0.37, 0.51, 0.21, 0.66,

0.75, 0.52, 0.91, 0.39, 0.87, 0.70, 0.49, 0.83, 0.72, 0.09, 0.09, 0.99, 0.83, 0.98, 0.08, 0.45, 0.37, 0.70, 0.23,

0.14, 0.88, 0.23, 0.03, 0.26, 0.70, 0.30, 0.04, 0.34, 0.47, 0.55, 0.14, 0.81, 0.71, 0.29, 0.31, 0.86, 0.59, 0.50,

0.60, 0.89, 0.01

$N = 60, \alpha = 0.05, Ei = \dfrac{60}{10} = 6, FreedomValue = 10 - 1 = 09$

Range	Oi	Ei	Oi - Ei	(Oi - Ei)^2 / Ei
0.0 - 0.1	7	6	1	0.17
0.1 - 0.2	4	6	-2	0.67
0.2 - 0.3	7	6	1	0.17
0.3 - 0.4	7	6	1	0.17
0.4 - 0.5	6	6	0	0.00
0.5 - 0.6	5	6	-1	0.17
0.6 - 0.7	7	6	1	0.17
0.7 - 0.8	5	6	-1	0.17
0.8 - 0.9	8	6	2	0.67
0.9 - 1.0	4	6	-2	0.67
Values:	60	60		3.00

$X^2 (0.05, 9): 16.92$

X = 3.00

Since,

$X < X^2$, Hypothesis is not rejected.

KS TEST

Values (Arranged): 0.99, 0.94, 0.90, 0.90, 0.75, 0.72, 0.71, 0.67, 0.51, 0.46, 0.23, 0.03

$n = 12, \alpha = 0.05$

i	R(i)	i/N	D+ = i/N - R(i)	D- = R(i) - ((i - 1)/N)
1	0.99	0.08	-	0.99
2	0.94	0.17	-	0.86
3	0.90	0.25	-	0.74
4	0.90	0.33	-	0.65
5	0.75	0.42	-	0.41
6	0.72	0.50	-	0.30
7	0.71	0.58	-	0.21
8	0.67	0.67	0.00	0.09
9	0.51	0.75	0.24	-
10	0.46	0.83	0.37	-
11	0.23	0.92	0.68	-
12	0.03	1.00	0.97	-
Max:			0.97	0.99

$D = Max \{D^+, D^-\}$

$D = 0.99$

$D_{\alpha=0.05, n=12} => 0.375$

Since,

0.375 < 0.99 Hypothesis is Rejected.

RANDOM NUMBER GENERATOR ALGORITHM

Rand() and Randn() functions are used to generate Uniform and Normally distributed numbers respectively in Matlab.

- These numbers are generated by deterministic algorithms.
- Rng parameters are used to set distribution of the randomly generated numbers.

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