

Simulation Lab(MC503)

Assignment 8

Try to solve all the problems

1. Consider a real dataset with observation listed as below. Try to fit this data set using **Burr X distribution** and **Burr XII distribution** by applying the K-S test when it is known that $c=5.0000$ and $k= 8.2680$.

.70	.84	.58	.50	.55	.82	.59	.71	.72	.61	.62	.49	.54
.36	.36	.71	.35	.64	.85	.55	.59	.29	.75	.46	.46	.60
.60	.36	.52	.68	.80	.55	.84	.34	.34	.70	.49	.56	.71
.61	.57	.73	.75	.44	.44	.81	.80	.87	.29	.50		

Burr X : $CDF : F(x; c, k) = (1 - e^{-(cx)^2})^k; x > 0, c > 0, k > 0.$

Burr XII : $CDF : F(x; c, k) = 1 - (1 + x^c)^{-k}; x > 0, c > 0, k > 0.$

2. Fitt the following dataset to the **New Pareto type distribution** by using KS test. Take the values of parameter as $\alpha = 2.093$ and $\sigma = 1.013$.

1.013	1.034	1.109	1.169	1.266	1.509	1.533	1.563	1.716	1.929
1.965	2.061	2.344	2.546	2.626	2.778	2.951	3.413	4.118	5.136.

CDF of New Pareto type distribution is given by

$$F(x; \alpha, \sigma) = 1 - \frac{2\sigma^\alpha}{\sigma^\alpha + x^\alpha}; x \geq \sigma, \alpha > 0, \sigma > 0.$$

... .. end