



RAMA UNIVERSITY

www.ramauniversity.ac.in

FACULTY OF ENGINEERING & TECHNOLOGY

Dr. Vinod Kumar Yadav
Assistant Professor in Mathematics
Rama University Uttar Pradesh, Kanpur

LECTURE- 29

BSc (AG)
2nd Year , IIIrd Sem.
Statistical Methods
AES-213



Dr. Vinod Kumar Yadav
Assistant Professor in Mathematics
Rama University Uttar Pradesh, Kanpur

Outline of lecture

- Sampling Theory
- Random Sampling with replacement
- Example
- Random Sampling without replacement
- Example
- Random Number Table
- Suggested Readings & References

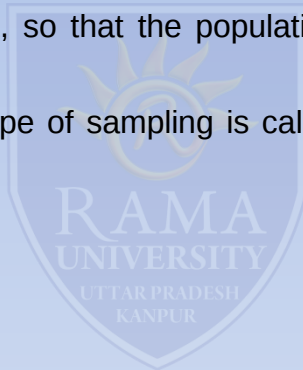


Random Sampling with replacement

When the sampling is done with replacement, so that the population is back to the original before the next sample is drawn. This type of sampling is called random sampling with replacement.

Example:

A pack of playing cards, one card is drawn at random and then replaced the card into the pack, then this type of sampling is called random sampling with replacement.

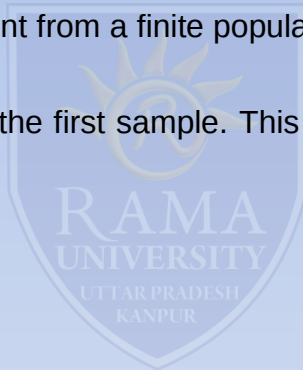


Random Sampling without replacement

When a sample is drawn up without replacement from a finite population then the probability of second sample depends on the result of the first sample. This type of sampling is called random sampling without replacement.

Example:

A pack of playing cards. There are 52 cards, one card is drawn at random and not been replaced to the pack, so next card is drawn from 51 cards. This type of sampling is called random sampling without replacement.



Random Number Table

When a sample is drawn up without replacement from a finite population then the probability of

Random number tables have been used in statistics for tasks such as selected random samples. This was much more effective than manually selecting the random samples (with dice, cards, etc.). Nowadays, tables of random numbers have been replaced by computational random number generators.

Random Number Table

Random Number Table

13062	70992	65172	28053	02190	83634	66012	70305	66761	88344
43905	46641	72300	11641	43548	30455	07698	31840	03261	89139
00504	48658	38051	59408	16508	82979	92002	63806	41078	86326
61274	57238	47267	35303	29066	02140	60867	39847	50968	96719
43753	21159	16239	50595	62509	61207	86816	29902	23395	72640
83503	51662	21636	66192	84294	38754	84755	34053	94682	29215
36807	71420	35804	44862	23577	79551	42003	58684	09271	68396
19110	55680	18792	41467	16614	83053	00812	16749	45347	88199
82615	86984	93290	87971	80022	35415	20852	02909	99476	45568
05621	26584	36493	63013	68181	57702	49510	75304	38724	15712
06936	37293	55875	71213	83025	48063	74665	12178	10741	58382
84981	60458	16194	92403	80951	80068	47076	23310	74999	87929
66354	89441	96191	04794	14714	64749	43097	83976	83281	72038
49602	94109	36460	62353	00721	66980	82554	90270	12312	56299
78430	72391	96973	70437	97803	78683	04670	70667	58912	21883
33331	51803	15934	75807	46561	80188	78984	29317	27971	16440
62843	84445	56652	91797	45284	25842	96246	73504	21631	81223
19528	15445	77764	33446	41204	70067	33354	70680	66664	75486
16737	01887	50934	43306	75190	86997	56561	79018	34273	25196
99389	06685	45945	62000	76228	60645	87750	46329	46544	95665
36160	38196	77705	28991	12106	56281	86222	66116	39626	06080
05505	45420	44016	79662	92069	27628	50002	32540	19848	27319
85962	19758	92795	00458	71289	05884	37963	23322	73243	98185
28763	04900	54460	22083	89279	43492	00066	40857	86568	40336
42222	40446	82240	79159	44168	38213	46839	26598	29983	67645
43626	40039	51492	36488	70280	24218	14596	04744	89336	35630
97761	43444	95895	24102	07006	71923	04800	32062	41425	66862
49275	44270	52512	03961	21651	53887	73531	70073	45542	22831
15797	75134	39856	73527	78417	36208	59510	76913	22499	68467
04497	24853	43879	07613	26400	17180	18880	66083	02196	10638
95468	87411	30647	88711	01765	57688	60665	57638	38070	37285
01420	74218	71047	14401	74537	14820	45248	78007	65911	38583
74633	40171	97092	79137	30698	97915	36305	42613	87251	75608
46662	99688	59576	04887	02310	35508	66481	30300	94047	57096
10853	10393	03013	90372	89639	65800	88532	71789	59964	50681

68583	01032	67938	29733	71176	35699	10551	15091	52947	20134
75818	78982	24258	93051	02081	83890	66944	99856	87950	13952
16395	18837	00538	57133	89398	78205	72122	99655	25294	20941
53892	15105	40963	69267	85534	00533	27130	90420	72584	84576
68009	26889	91829	65078	89616	49016	14200	97469	88307	92282
45282	93427	92326	70206	15847	14302	80043	30530	57149	08842
34033	45008	41621	79437	98745	84455	66769	94729	17975	50963
13364	09937	00535	88122	47278	90758	23542	35273	67912	97870
03343	62593	93332	09921	25306	57483	98115	33480	55304	43572
46145	24476	62507	19530	41257	97919	02290	40357	38408	50031
37703	51658	17420	30593	39837	64220	45496	03698	80220	12139
12622	98083	17889	59677	56803	93316	79858	52548	67367	72418
56043	00251	70085	28067	78135	53000	18138	40564	77086	49557
43401	35924	28308	55140	07515	53854	23023	70268	80435	24269
18053	53480	32125	81357	26935	67234	78460	47833	20496	35845

From The Rand Corporation, *A Million Random Digits with 100,000 Normal Deviates* (New York: The Free Press, 1955), by permission.

Suggested Readings & References

Suggested Readings & References

- 
- 1) Statistical Methods: P.N. Arora, Sumeet Arora & S. Arora; S. Chand & Company Ltd.
- 2) Fundamental of Mathematical Statistics: S.C. Gupta & V. Kapoor; Sultan Chand & Sons.
- 3) Statistics: M.R. Spiegel; Schaum's Outline Series, Mc-Graw Hill Publication.
- 4) Advanced Engineering Mathematics: Erwin Kreyszig; John Wiley & Sons Inc.
- 5) Elements of Statistics: J.P. Chauhan & S. Kumar; Krishna Publication.

The logo of Rama University is a shield-shaped emblem. It features a stylized sun with rays at the top, a large letter 'R' in the center, and the words 'RAMA UNIVERSITY' below it.

*** THANK YOU ***