

UNIVERSITY OF ILLINOIS
DIGITAL COMPUTER

AUX.

LIBRARY ROUTINE V 7 - 206

TITLE Provide Sets of Random Numbers From 1 to N.
TYPE Complete Program
DURATION $(620 + 302N + .5N^2)J$ Milliseconds
DESCRIPTION This routine uses Library Routine V-3 to provide sets of random digits. By storing the sequence of numbers wanted and selecting individual numbers in a random order prescribed by V-3 a random set can be generated.

If the program is started by reading in the program tape, the same sequence will be generated each time the number N is the same unless the number at S3 is changed. This is now 00F 00900F and can be changed by hand punching. After the program has started no two sequences will be alike.

The data tape consists of

QL	Q being an identification number of 4 digits or less.
nN	n is the upper limit of the sequence wanted. n can be no larger than 900.
jJ	j is number of sets wanted of random permutations of numbers from 1-n.

The program has a sum check on it and if punching occurs after read in before the data tape is inserted, the program tape should be read in again.

The program tape stops in 24 009. Insert data tape and black switch to start. After completing one problem a second one may be done by simply inserting the new data tape in the reader and raising the black switch.

DATE	June 29, 1956
PROGRAMMED BY	<i>M. J. ...</i>
APPROVED BY	<i>R. E. Meagher</i>

LOCATION	ORDER		NOTES
	00 3K		
0	00 F		
	00 900F	S3	Constant for V-3
1	00 F		
	00 125F	S4	Begin storage
2	00 F		
	00 98F	S5	Library P-4
3	00 F		
	00 85F	S6	Library V-3
4	00 F		
	00 75F	S7	Constants storage
	00 9K		
0	L5 8S7		
	42 1L		
1	41 4F		
	41 ()F	by 0,2	Clear storage
2	F5 1L		
	40 1L		
3	L0 9S7		
	32 1L		
4	41 1F		
	81 4F		
5	L0 S7		-10
	32 9L		Read in
6	L4 S7		+10 parameters and
	50 1F		convert.
7	74 S7		x10
	S5 F		
8	40 1F		
	22 4L		
9	00 F		
	42 10L		
10	L5 1F		
	40 ()F	by 9	
11	F5 1S7		
	40 1S7		Have all parameters

LOCATION	ORDER		NOTES Page 2
12	L0 2S7 36 4L		been read in?
13	41 1S7 L5 2F		
14	40 4S7 40 6S7		
15	L5 3F 40 5S7		
16	L5 5F 40 3S7		
17	F5 4F 40 4F		Generate and store Sequence 1-N.
18	L4 8S7 42 19L		
19	L5 4F 40 ()F	by 18	
20	L0 4S7 32 21L		
21	26 17L 92 135F		
22	92 259F 92 258F		
23	92 387F 92 770F		
24	92 67F 92 578F		
25	92 643F 92 963F		
26	92 706F 92 194F		
27	92 66F 92 450F		
28	92 194F 92 770F		
29	92 835F 92 194F		

LOCATION	ORDER	NOTES
30	92 707F	
	L5 3S7	
31	J0 5F	
	50 31L	
32	26 S5	To P 4
	92 131F	
33	92 975F	
	92 259F	
34	92 706F	
	92 194F	
35	92 322F	
	92 963F	
36	92 707F	
	F5 1S7	
37	J0 4F	
	50 37L	
38	26 S5	To P 4
	92 135F	
39	92 519F	
	41 3F	
40	92 963F	
	50 40L	
41	26 S6	To V 3
	67 6S7	
42	10 1F	
	40 F	Random number
43	L3 F	Is it zero?
	36 45L	
44	L5 F	
	22 45L	
45	L5 6S7	
	L4 8S7	

LOCATION	ORDER		NOTES Page 4
46	42 48L		Location of number wanted.
	42 53L		
47	L4 7S7		
	00 20F		
48	46 53L		
	L5 ()F	by 46	
49	J0 4F		
	50 49L		
50	26 S5		To P 4
	L5 6S7		
51	L0 7S7		
	42 6S7		
52	L3 6S7		. Are we done?
	36 61L		
53	L5 ()F	by 48	Close gap in sequence.
	40 ()F	by 46	
54	L5 53L		
	42 5F		
55	L4 7S7		
	40 53L		
56	L5 5F		
	L0 8S7		
57	L0 6S7		
	32 58L		
58	26 53L		
	L5 3F		
59	40 3F		
	L0 S7		
60	32 38L		
	26 40L		
61	F5 1S7		
	40 1S7		
62	L0 5S7		Is this the last sequence wanted?
	36 65L		

LOCATION	ORDER		NOTES
63	41 4F		
	L5 4S7		
64	40 6S7		
	26 17L		
65	41 1S7		
	24 L		Wait for new data.
	00 75K		
0	00 F		
	00 10F		
1	00 F		
	00 F		Counter
2	80 F		
	00 3F		Number of Parameters
3	00 F		
	00 F		Problem Number (Q)
4	00 F		
	00 F		Number of entries (n)
5	00 F		
	00 F		Number of sequences (j)
6	00 F		
	00 F		entries left.
7	00 1F		
	00 1F		
8	00 F		
	00 S4		begin storage
9	N1 4F		
	41 1024F		end clearing memory
	00 85K		
	Library Routine V-3		
	00 98K		
	Library Routine P-4		
	Sum Check		
	24 9N		