

Моделирование простейших СМО с очередями

1. Модель1: изменить задание из практической работы №2 добавив очереди к устройствам K1-K5. С равномерным распределением между устройствами. И без удаления на 5 устройстве. Обработать 500 транзактов и в течении 8 часов.

500 транзактов:

K2 STORAGE 2

K4 STORAGE 3

K5 STORAGE 4

GENERATE 7,5

TRANSFER .5,METKA1,METKA2

METKA1 QUEUE SER

SEIZE K1

DEPART SER

ADVANCE 45,5

RELEASE K1

TRANSFER,OUTMETKA1

METKA2 QUEUE SER1

ENTER K2

DEPART SER1

ADVANCE 30,7

LEAVE K2

OUTMETKA1 TRANSFER .5,METKA3,METKA4

METKA3 QUEUE SER2

SEIZE K3

DEPART SER2

ADVANCE 30,7

RELEASE K3

TRANSFER,OUTMETKA3

METKA4 QUEUE SER3

ENTER K4

DEPART SER3

ADVANCE 20,3

LEAVE K4

OUTMETKA3 GATE SNF K5,VIXOD

QUEUE SER4

ENTER K5

DEPART SER4

ADVANCE 10,3

LEAVE K5

VIXOD TERMINATE 1

START 500

Результат работы программы:

START TIME	END TIME	BLOCKS	FACILITIES	STORAGES
0.000	6324.931	32	2	3

NAME	VALUE
K1	10005.000
K2	10000.000
K3	10009.000
K4	10001.000
K5	10002.000
METKA1	3.000
METKA2	9.000
METKA3	15.000
METKA4	21.000
OUTMETKA1	14.000
OUTMETKA3	26.000
SER	10004.000
SER1	10003.000
SER2	10008.000
SER3	10006.000
SER4	10007.000
VIXOD	32.000

LABEL	LOC	BLOCK TYPE	ENTRY COUNT	CURRENT COUNT	RETRY
	1	GENERATE	911	0	0
	2	TRANSFER	911	0	0
METKA1	3	QUEUE	478	339	0
	4	SEIZE	139	0	0
	5	DEPART	139	0	0
	6	ADVANCE	139	1	0
	7	RELEASE	138	0	0
	8	TRANSFER	138	0	0
METKA2	9	QUEUE	433	17	0
	10	ENTER	416	0	0
	11	DEPART	416	0	0
	12	ADVANCE	416	2	0
	13	LEAVE	414	0	0
OUTMETKA1	14	TRANSFER	552	0	0
METKA3	15	QUEUE	258	49	0
	16	SEIZE	209	0	0
	17	DEPART	209	0	0
	18	ADVANCE	209	1	0
	19	RELEASE	208	0	0
	20	TRANSFER	208	0	0
METKA4	21	QUEUE	294	0	0
	22	ENTER	294	0	0
	23	DEPART	294	0	0
	24	ADVANCE	294	2	0
	25	LEAVE	292	0	0
OUTMETKA3	26	GATE	500	0	0
	27	QUEUE	500	0	0
	28	ENTER	500	0	0
	29	DEPART	500	0	0
	30	ADVANCE	500	0	0
	31	LEAVE	500	0	0
VIXOD	32	TERMINATE	500	0	0

FACILITY	ENTRIES	UTIL.	AVE. TIME	AVAIL.	OWNER	PEND	INTER	RETRY	DELAY
K1	139	0.997	45.358	1	272	0	0	0	339
K3	209	0.984	29.770	1	696	0	0	0	49

QUEUE	MAX	CONT.	ENTRY	ENTRY(0)	AVE. CONT.	AVE. TIME	AVE. (-0)	RETRY
SER1	20	17	433	8	10.407	152.015	154.877	0
SER	339	339	478	1	173.863	2300.564	2305.387	0
SER3	1	0	294	294	0.000	0.000	0.000	0
SER4	1	0	500	500	0.000	0.000	0.000	0
SER2	50	49	258	4	29.085	713.023	724.252	0

STORAGE	CAP.	REM.	MIN.	MAX.	ENTRIES	AVL.	AVE.C.	UTIL.	RETRY	DELAY
K2	2	0	0	2	416	1	1.986	0.993	0	17
K4	3	1	0	3	294	1	0.926	0.309	0	0
K5	4	4	0	4	500	1	0.782	0.195	0	0

FEC XN	PRI	BDT	ASSEM	CURRENT	NEXT	PARAMETER	VALUE
873	0	6325.036	873	24	25		
875	0	6328.378	875	24	25		
912	0	6332.519	912	0	1		
876	0	6332.683	876	12	13		
878	0	6332.704	878	12	13		
272	0	6336.891	272	6	7		
696	0	6351.692	696	18	19		

За 8 часов:

K2 STORAGE 2

K4 STORAGE 3

K5 STORAGE 4

GENERATE 7,5

TRANSFER .5,METKA1,METKA2

METKA1 QUEUE SER

SEIZE K1

DEPART SER

ADVANCE 45,5

RELEASE K1

TRANSFER,OUTMETKA1

METKA2 QUEUE SER1

ENTER K2

DEPART SER1

ADVANCE 30,7

LEAVE K2

OUTMETKA1 TRANSFER .5,METKA3,METKA4

METKA3 QUEUE SER2

SEIZE K3

DEPART SER2

ADVANCE 30,7

RELEASE K3

TRANSFER,OUTMETKA3

METKA4 QUEUE SER3

ENTER K4

DEPART SER3

ADVANCE 20,3

LEAVE K4

OUTMETKA3 GATE SNF K5,VIXOD

QUEUE SER4

ENTER K5

DEPART SER4

ADVANCE 10,3

LEAVE K5

VIXOD TERMINATE

GENERATE 480

TERMINATE 1

START 1

Результат работы программы:

START TIME	END TIME	BLOCKS	FACILITIES	STORAGES
0.000	480.000	34	2	3

NAME	VALUE
K1	10005.000
K2	10000.000
K3	10009.000
K4	10001.000
K5	10002.000
METKA1	3.000
METKA2	9.000
METKA3	15.000
METKA4	21.000
OUTMETKA1	14.000
OUTMETKA3	26.000
SER	10004.000
SER1	10003.000
SER2	10008.000
SER3	10006.000
SER4	10007.000
VIXOD	32.000

LABEL	LOC	BLOCK TYPE	ENTRY COUNT	CURRENT COUNT	RETRY
	1	GENERATE	71	0	0
	2	TRANSFER	71	0	0
METKA1	3	QUEUE	40	29	0
	4	SEIZE	11	0	0
	5	DEPART	11	0	0
	6	ADVANCE	11	1	0
	7	RELEASE	10	0	0
	8	TRANSFER	10	0	0
METKA2	9	QUEUE	31	0	0
	10	ENTER	31	0	0
	11	DEPART	31	0	0
	12	ADVANCE	31	2	0
	13	LEAVE	29	0	0
OUTMETKA1	14	TRANSFER	39	0	0
METKA3	15	QUEUE	16	3	0
	16	SEIZE	13	0	0
	17	DEPART	13	0	0
	18	ADVANCE	13	1	0
	19	RELEASE	12	0	0
	20	TRANSFER	12	0	0
METKA4	21	QUEUE	23	0	0
	22	ENTER	23	0	0
	23	DEPART	23	0	0
	24	ADVANCE	23	1	0
	25	LEAVE	22	0	0
OUTMETKA3	26	GATE	34	0	0
	27	QUEUE	34	0	0
	28	ENTER	34	0	0
	29	DEPART	34	0	0
	30	ADVANCE	34	2	0
	31	LEAVE	32	0	0
VIXOD	32	TERMINATE	32	0	0
	33	GENERATE	1	0	0
	34	TERMINATE	1	0	0

FACILITY	ENTRIES	UTIL.	AVE. TIME	AVAIL.	OWNER	PEND	INTER	RETRY	DELAY
K1	11	0.958	41.800	1	18	0	0	0	29
K3	13	0.786	29.007	1	49	0	0	0	3

QUEUE	MAX	CONT.	ENTRY	ENTRY (0)	AVE. CONT.	AVE. TIME	AVE. (-0)	RETRY
SER1	5	0	31	6	1.577	24.422	30.283	0
SER	29	29	40	1	14.184	170.203	174.567	0
SER3	1	0	23	23	0.000	0.000	0.000	0
SER4	1	0	34	34	0.000	0.000	0.000	0
SER2	3	3	16	4	0.760	22.812	30.416	0

STORAGE	CAP.	REM.	MIN.	MAX.	ENTRIES	AVL.	AVE. C.	UTIL.	RETRY	DELAY
K2	2	0	0	2	31	1	1.844	0.922	0	0
K4	3	2	0	3	23	1	0.921	0.307	0	0
K5	4	2	0	3	34	1	0.683	0.171	0	0

FEC	XN	PRI	BDT	ASSEM	CURRENT	NEXT	PARAMETER	VALUE
63	0		480.388	63	30	31		
73	0		482.836	73	0	1		
64	0		484.920	64	12	13		
59	0		485.093	59	30	31		
49	0		487.567	49	18	19		
17	0		494.179	17	24	25		
67	0		503.740	67	12	13		
18	0		516.945	18	6	7		
74	0		960.000	74	0	33		

2. Модель 2: количество генераций транзактов равно 3, ограничить очереди 5 местами с помощью TEST, организовать подсчет покинувших систему с каждой очереди. Моделировать в течении 12 часов.

K2 STORAGE 2

K4 STORAGE 3

K5 STORAGE 4

GENERATE 7,5

METKA TRANSFER .5,METKA1,METKA2

METKA1 TEST L Q\$SER1,5,POTER1

QUEUE SER1

SEIZE K1

DEPART SER1

ADVANCE 45,5

RELEASE K1

TRANSFER,OUTMETKA1

METKA2 TEST L Q\$SER2,5,POTER1

QUEUE SER2

ENTER K2

DEPART SER2

ADVANCE 30,7

LEAVE K2

OUTMETKA1 TRANSFER .5,METKA3,METKA4

METKA3 TEST L Q\$SER3,5,POTER1

QUEUE SER3

SEIZE K3
DEPART SER3
ADVANCE 30,7
RELEASE K3
TRANSFER,OUTMETKA3

METKA4 TEST L Q\$SER4,5,POTERI
QUEUE SER4
ENTER K4
DEPART SER4
ADVANCE 20,3
LEAVE K4

OUTMETKA3 GATE SNF K5,POTERI
QUEUE SER5
ENTER K5
DEPART SER5
ADVANCE 10,3
LEAVE K5
TRANSFER,VIXOD
POTERI TERMINATE
VIXOD TERMINATE
GENERATE 480
TERMINATE 1
START 1

Результат работы программы:

START TIME	END TIME	BLOCKS	FACILITIES	STORAGES
0.000	480.000	40	2	3

NAME	VALUE
K1	10005.000
K2	10000.000
K3	10009.000
K4	10001.000
K5	10002.000
METKA	2.000
METKA1	3.000
METKA2	10.000
METKA3	17.000
METKA4	24.000
OUTMETKA1	16.000
OUTMETKA3	30.000
POTERI	37.000
SER1	10004.000
SER2	10003.000
SER3	10008.000
SER4	10006.000
SER5	10007.000
VIXOD	38.000

LABEL	LOC	BLOCK TYPE	ENTRY COUNT	CURRENT	COUNT	RETRY
	1	GENERATE	71		0	0
METKA	2	TRANSFER	71		0	0
METKA1	3	TEST	40		0	0
	4	QUEUE	16		5	0
	5	SEIZE	11		0	0
	6	DEPART	11		0	0
	7	ADVANCE	11		1	0
	8	RELEASE	10		0	0
	9	TRANSFER	10		0	0
METKA2	10	TEST	31		0	0
	11	QUEUE	31		0	0
	12	ENTER	31		0	0
	13	DEPART	31		0	0
	14	ADVANCE	31		2	0
	15	LEAVE	29		0	0
OUTMETKA1	16	TRANSFER	39		0	0
METKA3	17	TEST	16		0	0
	18	QUEUE	16		3	0
	19	SEIZE	13		0	0
	20	DEPART	13		0	0
	21	ADVANCE	13		1	0
	22	RELEASE	12		0	0
	23	TRANSFER	12		0	0
METKA4	24	TEST	23		0	0
	25	QUEUE	23		0	0
	26	ENTER	23		0	0
	27	DEPART	23		0	0

	27	DEPART	23	0	0
	28	ADVANCE	23	1	0
	29	LEAVE	22	0	0
OUTMETKA3	30	GATE	34	0	0
	31	QUEUE	34	0	0
	32	ENTER	34	0	0
	33	DEPART	34	0	0
	34	ADVANCE	34	2	0
	35	LEAVE	32	0	0
	36	TRANSFER	32	0	0
POTERI	37	TERMINATE	24	0	0
VIXOD	38	TERMINATE	32	0	0
	39	GENERATE	1	0	0
	40	TERMINATE	1	0	0

FACILITY	ENTRIES	UTIL.	AVE. TIME	AVAIL.	OWNER	PEND	INTER	RETRY	DELAY
K1	11	0.958	41.800	1	43	0	0	0	5
K3	13	0.786	29.007	1	49	0	0	0	3

QUEUE	MAX	CONT.	ENTRY	ENTRY(0)	AVE.CONT.	AVE.TIME	AVE.(-0)	RETRY
SER2	5	0	31	6	1.577	24.422	30.283	0
SER1	5	5	16	1	4.431	132.923	141.785	0
SER4	1	0	23	23	0.000	0.000	0.000	0
SER5	1	0	34	34	0.000	0.000	0.000	0
SER3	3	3	16	4	0.760	22.812	30.416	0

STORAGE	CAP.	REM.	MIN.	MAX.	ENTRIES	AVL.	AVE.C.	UTIL.	RETRY	DELAY
K2	2	0	0	2	31	1	1.844	0.922	0	0
K4	3	2	0	3	23	1	0.921	0.307	0	0
K5	4	2	0	3	34	1	0.683	0.171	0	0

FEC	XN	PRI	BDT	ASSEM	CURRENT	NEXT	PARAMETER	VALUE
63	0		480.388	63	34	35		
73	0		482.836	73	0	1		
64	0		484.920	64	14	15		
59	0		485.093	59	34	35		
49	0		487.567	49	21	22		
36	0		494.179	36	28	29		
67	0		503.740	67	14	15		
43	0		516.945	43	7	8		
74	0		960.000	74	0	39		