



МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО
ОБРАЗОВАНИЯ РФ
ФГБОУ ВО
Воронежский государственный
университет инженерных технологий

Специальность 09.03.02 «Информационные системы и технологии»

Кафедра Информационных технологий моделирования и управления

Отчет по практической работе

по дисциплине «Имитационное моделирование систем»
(наименование учебной дисциплины)

Студент

(Подпись, дата)

(Фамилия, инициалы)

(Группа)

Волкова А.С.

У-203

Преподаватель

(Подпись)

(Дата)

(Фамилия, инициалы)

Денисенко В.В.

Работа защищена

(Дата)

(Оценка)

МОДЕЛИРОВАНИЕ ВЫЧИСЛИТЕЛЬНЫХ СИСТЕМ С ПОМОЩЬЮ СИСТЕМЫ GPSS/PC

Цель работы: исследование характеристик простейших вычислительных систем при вариации параметров моделируемых процессов и режимов работы отдельных устройств.

ВЫПОЛНЕНИЕ РАБОТЫ

Текст программы

```
ZEXP FUNCTION RN1,C12  
0,0/.2,.22/.4,.51/.5,.69/.6,.92/.7,1.2/.8,1.61  
.9,2.3/.95,3/.99,4.6/.999,6.9/1,500  
GENERATE 2,FN$ZEXP  
TRANSFER .2,MET2,MET1
```

```
MET2 TRANSFER .25,MET4,MET3  
MET4 TRANSFER .333,MET6,MET5  
MET6 TRANSFER .5,MET8,MET7
```

```
MET1 TEST L Q$OCH1,5,OUT  
QUEUE OCH1  
SEIZE DISK1  
DEPART OCH1  
ASSIGN 1,DISK1  
ADVANCE 25,25  
RELEASE DISK1  
TRANSFER ,MET9
```

```
MET3 TEST L Q$OCH2,5,OUT  
QUEUE OCH2  
SEIZE DISK2  
DEPART OCH2  
ASSIGN 1,DISK2  
ADVANCE 25,25  
RELEASE DISK2  
TRANSFER ,MET9
```

```
MET5 TEST L Q$OCH3,5,OUT  
QUEUE OCH3  
SEIZE DISK3  
DEPART OCH3  
ASSIGN 1,DISK3  
ADVANCE 25,25  
RELEASE DISK3  
TRANSFER ,MET9
```

MET7 TEST L Q\$OCH4,5,OUT
QUEUE OCH4
SEIZE DISK4
DEPART OCH4
ASSIGN 1,DISK4
ADVANCE 25,25
RELEASE DISK4
TRANSFER ,MET9

MET8 TEST L Q\$OCH5,5,OUT
QUEUE OCH5
SEIZE DISK5
DEPART OCH5
ASSIGN 1,DISK5
ADVANCE 25,25
RELEASE DISK5
TRANSFER ,MET9

MET9 TEST L Q\$OCH6,5,OUT
QUEUE OCH6
SEIZE CAN
DEPART OCH6
ADVANCE 1
RELEASE CAN
RELEASE P1
TERMINATE
OUT TERMINATE

GENERATE 150000
TERMINATE 1
START 1

Работа программы:

GPWSS.gps		GPWSS.8.1 - REPORT																																																																																																																																																																											
ZEXP FUNCTION RN1,C12 0,0/.2,.22/.4,.51/.5,.69/.6,.92/.7,1.2/.8,1.61 .9,2.3/.95,3/.99,4.6/.999,6.9/1,500 GENERATE 6,FN\$ZEXP TRANSFER .2,MET2,MET1 MET2 TRANSFER .25,MET4,MET3 MET4 TRANSFER .333,MET6,MET5 MET6 TRANSFER .5,MET8,MET7 MET1 TEST L Q\$0CH1,5,OUT QUEUE OCH1 SEIZE DISK1 DEPART OCH1 ASSIGN 1,DISK1 ADVANCE 25,25 TRANSFER ,MET9 MET3 TEST L Q\$0CH2,5,OUT QUEUE OCH2 SEIZE DISK2 DEPART OCH2 ASSIGN 1,DISK2 ADVANCE 25,25 TRANSFER ,MET9 MET5 TEST L Q\$0CH3,5,OUT QUEUE OCH3 SEIZE DISK3 DEPART OCH3 ASSIGN 1,DISK3 ADVANCE 25,25 TRANSFER ,MET9 MET7 TEST L Q\$0CH4,5,OUT QUEUE OCH4 SEIZE DISK4 DEPART OCH4 ASSIGN 1,DISK4 ADVANCE 25,25 TRANSFER ,MET9 MET8 TEST L Q\$0CH5,5,OUT QUEUE OCH5 SEIZE DISK5 DEPART OCH5 ASSIGN 1,DISK5 ADVANCE 25,25 TRANSFER ,MET9		<table> <tr> <th>START TIME</th><th>END TIME</th><th>BLOCKS</th><th>FACILITIES</th><th>STORAGES</th></tr> <tr> <td>0.000</td><td>150000.000</td><td>50</td><td>6</td><td>0</td></tr> </table> <table> <tr> <th>NAME</th><th>VALUE</th></tr> <tr><td>CAN</td><td>10006.000</td></tr> <tr><td>DISK1</td><td>10012.000</td></tr> <tr><td>DISK2</td><td>10004.000</td></tr> <tr><td>DISK3</td><td>10010.000</td></tr> <tr><td>DISK4</td><td>10002.000</td></tr> <tr><td>DISK5</td><td>10008.000</td></tr> <tr><td>MET1</td><td>6.000</td></tr> <tr><td>MET2</td><td>3.000</td></tr> <tr><td>MET3</td><td>13.000</td></tr> <tr><td>MET4</td><td>4.000</td></tr> <tr><td>MET5</td><td>20.000</td></tr> <tr><td>MET6</td><td>5.000</td></tr> <tr><td>MET7</td><td>27.000</td></tr> <tr><td>MET8</td><td>34.000</td></tr> <tr><td>MET9</td><td>41.000</td></tr> <tr><td>UCH1</td><td>10011.000</td></tr> <tr><td>UCH2</td><td>10003.000</td></tr> <tr><td>UCH3</td><td>10009.000</td></tr> <tr><td>UCH4</td><td>10001.000</td></tr> <tr><td>UCH5</td><td>10007.000</td></tr> <tr><td>UCH6</td><td>10005.000</td></tr> <tr><td>OUT</td><td>48.000</td></tr> <tr><td>ZEXP</td><td>10000.000</td></tr> </table> <table> <tr> <th>LABEL</th><th>LOC</th><th>BLOCK TYPE</th><th>ENTRY COUNT</th><th>CURRENT</th><th>COUNT</th><th>RETRY</th></tr> <tr><td></td><td>1</td><td>GENERATE</td><td>19829</td><td></td><td>0</td><td>0</td></tr> <tr><td></td><td>2</td><td>TRANSFER</td><td>19829</td><td></td><td>0</td><td>0</td></tr> <tr><td>MET2</td><td>3</td><td>TRANSFER</td><td>15904</td><td></td><td>0</td><td>0</td></tr> <tr><td>MET4</td><td>4</td><td>TRANSFER</td><td>11894</td><td></td><td>0</td><td>0</td></tr> <tr><td>MET6</td><td>5</td><td>TRANSFER</td><td>8001</td><td></td><td>0</td><td>0</td></tr> <tr><td>MET1</td><td>6</td><td>TEST</td><td>3925</td><td></td><td>0</td><td>0</td></tr> <tr><td></td><td>7</td><td>QUEUE</td><td>3697</td><td></td><td>2</td><td>0</td></tr> <tr><td></td><td>8</td><td>SEIZE</td><td>3695</td><td></td><td>0</td><td>0</td></tr> <tr><td></td><td>9</td><td>DEPART</td><td>3695</td><td></td><td>0</td><td>0</td></tr> <tr><td></td><td>10</td><td>ASSIGN</td><td>3695</td><td></td><td>0</td><td>0</td></tr> <tr><td></td><td>11</td><td>ADVANCE</td><td>3695</td><td></td><td>1</td><td>0</td></tr> <tr><td></td><td>12</td><td>TRANSFER</td><td>3694</td><td></td><td>0</td><td>0</td></tr> <tr><td>MET3</td><td>13</td><td>TEST</td><td>4010</td><td></td><td>0</td><td>0</td></tr> <tr><td></td><td>14</td><td>QUEUE</td><td>3767</td><td></td><td>4</td><td>0</td></tr> <tr><td></td><td>15</td><td>SEIZE</td><td>3763</td><td></td><td>0</td><td>0</td></tr> </table>		START TIME	END TIME	BLOCKS	FACILITIES	STORAGES	0.000	150000.000	50	6	0	NAME	VALUE	CAN	10006.000	DISK1	10012.000	DISK2	10004.000	DISK3	10010.000	DISK4	10002.000	DISK5	10008.000	MET1	6.000	MET2	3.000	MET3	13.000	MET4	4.000	MET5	20.000	MET6	5.000	MET7	27.000	MET8	34.000	MET9	41.000	UCH1	10011.000	UCH2	10003.000	UCH3	10009.000	UCH4	10001.000	UCH5	10007.000	UCH6	10005.000	OUT	48.000	ZEXP	10000.000	LABEL	LOC	BLOCK TYPE	ENTRY COUNT	CURRENT	COUNT	RETRY		1	GENERATE	19829		0	0		2	TRANSFER	19829		0	0	MET2	3	TRANSFER	15904		0	0	MET4	4	TRANSFER	11894		0	0	MET6	5	TRANSFER	8001		0	0	MET1	6	TEST	3925		0	0		7	QUEUE	3697		2	0		8	SEIZE	3695		0	0		9	DEPART	3695		0	0		10	ASSIGN	3695		0	0		11	ADVANCE	3695		1	0		12	TRANSFER	3694		0	0	MET3	13	TEST	4010		0	0		14	QUEUE	3767		4	0		15	SEIZE	3763		0	0
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MET4	4	TRANSFER	11894		0	0																																																																																																																																																																							
MET6	5	TRANSFER	8001		0	0																																																																																																																																																																							
MET1	6	TEST	3925		0	0																																																																																																																																																																							
	7	QUEUE	3697		2	0																																																																																																																																																																							
	8	SEIZE	3695		0	0																																																																																																																																																																							
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	14	QUEUE	3767		4	0																																																																																																																																																																							
	15	SEIZE	3763		0	0																																																																																																																																																																							
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	16	DEPART	3763	0	0																																																																																																																																																																								
	17	ASSIGN	3763	0	0																																																																																																																																																																								
	18	ADVANCE	3763	1	0																																																																																																																																																																								
	19	TRANSFER	3762	0	0																																																																																																																																																																								
MET5	20	TEST	3893	0	0																																																																																																																																																																								
	21	QUEUE	3707	3	0																																																																																																																																																																								
	22	SEIZE	3704	0	0																																																																																																																																																																								
	23	DEPART	3704	0	0																																																																																																																																																																								
	24	ASSIGN	3704	0	0																																																																																																																																																																								
	25	ADVANCE	3704	1	0																																																																																																																																																																								
	26	TRANSFER	3703	0	0																																																																																																																																																																								
MET7	27	TEST	3990	0	0																																																																																																																																																																								
	28	QUEUE	3776	0	0																																																																																																																																																																								
	29	SEIZE	3776	0	0																																																																																																																																																																								
	30	DEPART	3776	0	0																																																																																																																																																																								
	31	ASSIGN	3776	0	0																																																																																																																																																																								
	32	ADVANCE	3776	0	0																																																																																																																																																																								
	33	TRANSFER	3776	0	0																																																																																																																																																																								
MET8	34	TEST	4011	0	0																																																																																																																																																																								
	35	QUEUE	3765	2	0																																																																																																																																																																								
	36	SEIZE	3763	0	0																																																																																																																																																																								
	37	DEPART	3763	0	0																																																																																																																																																																								
	38	ASSIGN	3763	0	0																																																																																																																																																																								
	39	ADVANCE	3763	1	0																																																																																																																																																																								
	40	TRANSFER	3762	0	0																																																																																																																																																																								
MET9	41	QUEUE	18697	0	0																																																																																																																																																																								
	42	SEIZE	18697	0	0																																																																																																																																																																								
	43	DEPART	18697	0	0																																																																																																																																																																								
	44	ADVANCE	18697	0	0																																																																																																																																																																								
	45	RELEASE	18697	0	0																																																																																																																																																																								
	46	RELEASE	18697	0	0																																																																																																																																																																								
	47	TERMINATE	18697	0	0																																																																																																																																																																								
OUT	48	TERMINATE	1117	0	0																																																																																																																																																																								
	49	GENERATE	1	0	0																																																																																																																																																																								
	50	TERMINATE	1	0	0																																																																																																																																																																								

FACILITY	ENTRIES	UTIL.	AVE. TIME	AVAIL.	OWNER	PEND	INTER	RETRY	DELAY
DISK4	3776	0.670	26.603	1	0	0	0	0	0
DISK2	3763	0.682	27.177	1	19798	0	0	0	4
CAN	18697	0.212	1.700	1	0	0	0	0	0
DISK5	3763	0.679	27.047	1	19814	0	0	0	2
DISK3	3704	0.664	26.900	1	19825	0	0	0	3
DISK1	3695	0.667	27.057	1	19818	0	0	0	2

QUEUE	MAX	CONT.	ENTRY	ENTRY(0)	AVE. CONT.	AVE. TIME	AVE. (-0)	RETRY
0CH4	5	0	3776	676	1.267	50.311	61.282	0
0CH2	5	4	3767	636	1.273	50.706	61.006	0
0CH6	3	0	18697	14758	0.026	0.212	1.008	0
0CH5	5	2	3765	712	1.329	52.937	65.283	0
0CH3	5	3	3707	759	1.160	46.949	59.036	0
0CH1	5	2	3697	732	1.231	49.963	62.298	0

FEC XN	PRI	BDT	ASSEM	CURRENT	NEXT	PARAMETER	VALUE
19825	0	150001.363	19825	25	26	1	10010.000
19831	0	150003.063	19831	0	1		
19798	0	150007.054	19798	18	19	1	10004.000
19814	0	150007.494	19814	39	40	1	10008.000
19818	0	150020.841	19818	11	12	1	10012.000
19832	0	300000.000	19832	0	49		