Scheduling Project

Programming Project 2

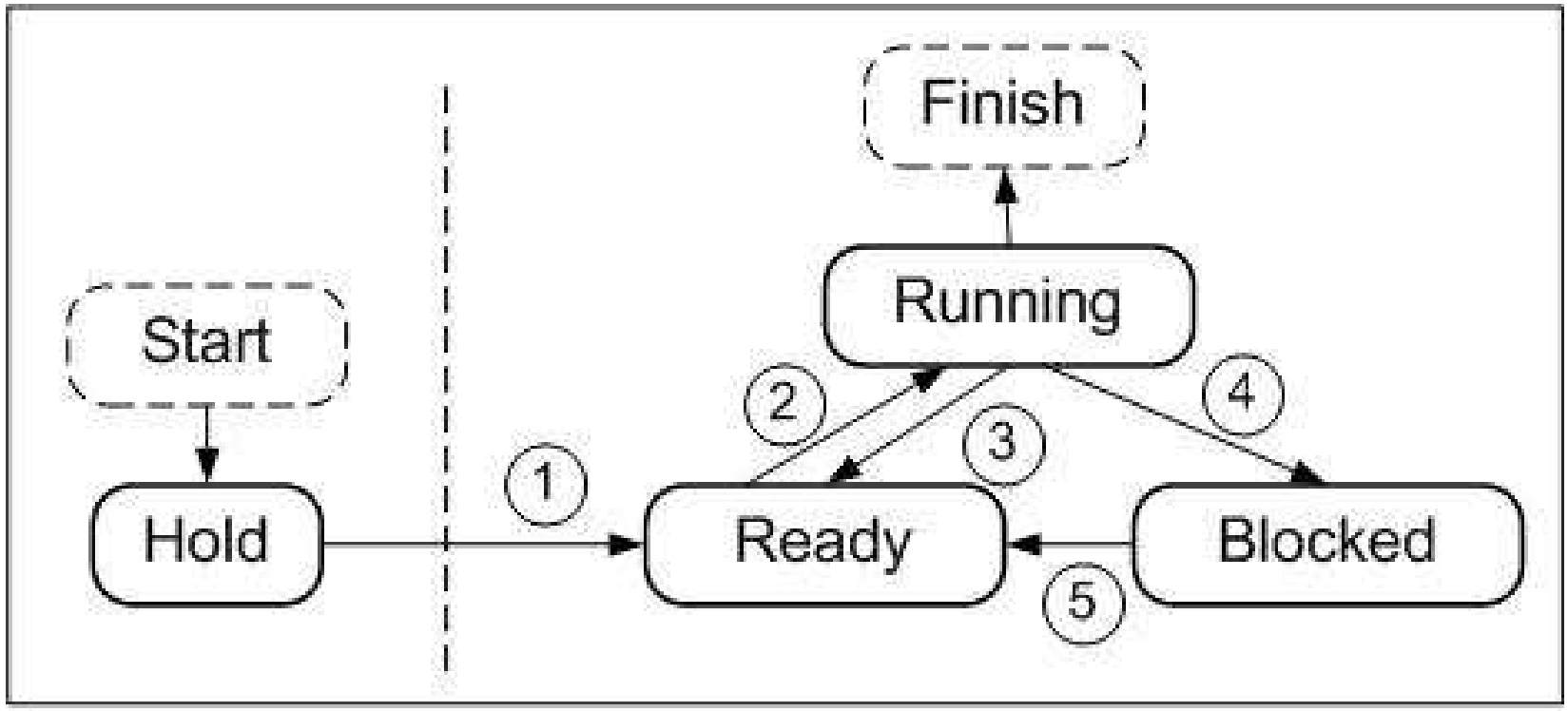

Figure 1: Round Robin State Diagram

Input file format

- Initialization
  I <memory> <resources> <timequantum>
- Job arrival
  A <jobnum> <arrivaltime> <cputime> <memory>
- Resource request
  Q <jobnum> <reqtime> <numresources>
- Resource release
  L <jobnum> <reltime> <numresources>
- Display statistics
  D <displaytime>

Example 1 (No resources)

- Input file

I 48 5 10

A 1 00 60 16

A 2 10 50 8

A 3 40 40 8

Example 1 (…continued)

Time	Event	HoldQ	Ready	Run	MM	Res	Time left
00	1 A, S	-	-	1	16	5	1 60
10	2 A, R	-	2	1	8	5	1 50
							2 50
20	CX	-	1	2	8	5	1 40
							2 50
30	CX	-	2	1	8	5	1 40
							2 40
40	CX	-	1	2	8	5	1 30
							2 40
	3 A, R	-	1,3		0	5	3 40
50	CX	-	3,2	1	0	5	1 30
							2 30
							3 40

Example 1 (… continued)

Time	Event	HoldQ	Ready	Run	MM	Res	Time left
60	CX	-	2,1	3	0	5	1 20, 2 30, 3 40
70	CX	-	1,3	2	0	5	1 20, 2 30, 3 30
80	CX	-	3,2	1	0	5	1 20, 2 20, 3 30
90	CX	-	2,1	3	0	5	1 10, 2 20, 3 30
100	CX	-	1,3	2	0	5	1 10, 2 20, 3 20
110	CX	-	3,2	1		5	1 10, 2 10, 3 20
120	1 F	-	2	3	16	5	2 10, 3 20
130	CX	-	3	2	16	5	2 10, 3 10
140	2F	-	-	3	24	5	3 10
150	3F	-	-	-	32	5	

W and T for Example 1

Job #	**Ai**	**Fi**	**Wi**	**Trnd**	**Wt. Trnd**
1	0	120	0	120	2.0
2	10	140	10	130	2.6
3	40	150	20	110	2.75
Sum			30	360	7.35
Avg.			10	120	2.45

Example 2

- Input file

I 48 5 10

A 1 00 40 16

A 2 10 30 8

A 3 40 20 8

A 4 50 10 8

A 5 60 10 8

Example 2 (… continued)

Time	Event	HoldQ	Ready	Run	MM	Res	Time left
00	1 A, S	-	-	1	16	5	1 40
10	2 A, R	-	2	1	8	5	1 30
							2 30
20	CX	-	1	2	8	5	1 20
							2 30
30	CX	-	2	1	8	5	1 20
							2 20
40	CX	-	1,3	2	8	5	1 10
							2 20
	3 A, R	-					
50	CX	-	3,2	1	0	5	1 10
							2 10, 3 20
	4 A, H	4					4 10

Example 2 (… continued)

Time	Event	HoldQ	Ready	Run	MM	Res	Time left
60	1F, CX	4	2	3	16	5	2 10, 3 20
	4 M	-	2,4	3	8	5	4,10
	5 A, R	-	2,4,5	3	0	5	5,10
70	CX	-	4,5,3	2	0	5	2 10, 3 10, 4 10 5 10
80	2 F, CX	-	5,3	4	8	5	3 10, 4 10, 5 10
90	4 F, CX	-	3	5	16	5	3 10, 5 10
100	5 F, CX	-	-	3	24	5	3,10
110	3 F	-	-	-	32	5	

W and T for Example 2

Job #	**Ai**	**Fi**	**Wi**	**Trnd**	**Wt. Trnd**
1	0	60	0	60	1.5
2	10	80	10	70	2.33
3	40	110	20	70	3.5
4	50	90	30	40	4.0
5	60	100	30	40	4.0
Sum			90	280	15.33
Avg.			18	56	3.066

Example 3

- Input file

I 48 5 10
A 1 00 40 16
Q 1 05 5
A 2 10 30 8
Q 2 25 2
L 1 30 3
A 3 40 10 8
L 1 50 2
L 2 70 2

Example 3 (… continued)

Time	Event	Blocked	Ready	Run	MM	Res	Time left
00	1 A, S	-	-	1	16	5	1 40
05	1 Q	-	-	1	16	0	1 35(5)
10	2 A, R	-	2	1	8	0	1 30 (5)
							2 30
20	CX	-	1	2	8	0	1 20 (5)
							2 30
25	2 Q, CX	2	-	1	8	0	1 20 (5)
							2 25
30	1 L, 2 M	-	2	1	8	1	1 15 (2)
							2 25 (2)
35	CX	-	1	2	8	1	1 10 (2)
							2 25 (2)

Example 3 (… continued)

Time	Event	HoldQ	Ready	Run	MM	Res	Time left
40	3 A, R	-	1,3	2	0	1	1 10(2) 2 20 (2), 3 10
45	CX	-	3,2	1	0	1	1 10 (2) 2 15(2), 3 10
50	1 L	-	3,2	1	0	3	1 5 2 15(2), 3 10
55	1 F, CX	-	2	3	16	3	2 15(2), 3 10
65	3 F, CX	-	-	2	24	3	2 15(2)
70	2 L	-	-	2	24	5	2 10
75	CX	-	-	2	24	5	2 5
80	2 F	-	-	-	32	5	-

W and T for Example 3

Job #	Ai	Fi	Wi	Trnd	Wt. Trnd
1	0	55	0	55	1.375
2	10	80	20	70	2.333
3	40	65	15	25	2.5
Sum			35	150	6.2083
Avg.			11.67	50	2.07