Online Supplement for The Extraboard Operator Scheduling and Work Assignment Problem by Fei Li and Diwakar Gupta

Data Summary

Table 1: Distribution of Job Durations (Percent)

Duration (Minutes)	Garage 1	Garage 2	Garage 3	Garage 4	Garage 5
≤ 30	1.1	1.8	3.1	7.0	1.5
31-60	0.8	5.0	1.5	4.4	0.8
61-90	0.4	5.8	9.4	7.5	1.1
91-120	2.4	10.5	16.4	10.6	6.8
121-150	4.0	6.8	4.9	4.6	4.6
151-180	7.2	7.5	7.1	9.8	5.3
181-210	10.3	6.8	13.0	9.0	7.7
211-240	9.5	6.8	2.2	5.1	9.0
241-270	4.8	8.1	2.0	3.0	4.5
271-300	6.0	4.2	3.2	1.4	10.8
301-330	7.3	3.2	1.2	3.0	6.0
331-360	6.6	3.0	0.5	4.8	6.0
361-390	3.7	7.3	6.1	2.8	4.7
391-420	0.9	2.9	4.0	0.4	3.6
421-450	1.5	4.4	3.5	2.9	2.1
451-480	1.5	5.1	2.4	1.8	2.4
≥ 481	10.3	5.3	10.1	13.7	8.2
each column sums to 100					

Table 2: Distribution of Job Start Times (Percent)

Start Time	Garage 1	Garage 2	Garage 3	Garage 4	Garage 5
3:30-3:59 AM	1.7	0.4	4.6	1.4	0.2
4:00-4:29 AM	2.7	2.4	0.2	0.8	0.8
4:30-4:59 AM	3.3	5.6	5.6	2.5	7.7
5:00-5:29 AM	5.6	2.6	7.8	3.3	11.3
5:30-5:59 AM	5.4	11.0	2.9	5.7	7.9
6:00-6:29 AM	9.2	5.0	9.1	5.0	6.4
6:30-6:59 AM	3.3	4.4	5.1	7.7	4.8
7:00-7:29 AM	2.5	1.2	2.2	0.7	0.7
7:30-7:59 AM	1.3	0.2	0.7	1.9	0.1
8:00-8:29 AM	3.5	1.1	5.9	8.6	2.0
8:30-8:59 AM	4.0	1.3	6.1	1.9	1.6
9:00-9:29 AM	2.2	1.1	1.2	2.3	2.3
9:30-9:59 AM	1.4	2.3	4.7	1.2	0.4
10:00-10:29 AM	4.6	2.2	2.0	1.8	1.9
10:30-10:59 AM	2.5	1.5	1.3	2.8	0.8
11:00-11:29 AM	2.8	2.9	0.7	1.9	2.5
11:30-11:59 AM	1.1	2.1	6.4	1.2	4.3
12:00-12:29 PM	3.6	3.4	0.7	3.3	2.1
12:30-12:59 PM	0.8	2.4	1.0	2.3	2.0
1:00-1:29 PM	3.0	1.6	0.8	3.7	2.7
1:30-1:59 PM	6.8	1.7	0.5	4.4	5.1
2:00-2:29 PM	7.6	4.7	2.0	4.4	9.2
2:30-2:59 PM	4.7	2.8	6.6	1.7	5.8
3:00-3:29 PM	5.6	5.4	6.2	6.6	4.9
3:30-3:59 PM	3.1	9.4	5.7	6.6	3.3
4:00-4:29 PM	2.0	7.7	5.7	8.0	1.2
4:30-4:59 PM	0.3	2.2	0.8	2.1	0
5:00-5:29 PM	0.0	0.3	5.1	0.3	0.1
5:30-5:59 PM	0.4	0.9	0.2	1.2	0
6:00-6:29 PM	0.1	0.2	0.3	0.8	1.2
6:30-6:59 PM	0.9	0.4	0.3	2.3	0.8
7:00-7:29 PM	0.4	1.2	1.2	1.0	1.5
7:30-7:59 PM	1.5	1.1	0.3	0.1	1.1
8:00-8:29 PM	1.8	0.8	0	0.1	2.8
8:30-8:59 PM	0	2.0	0.2	0	0.1
9:00-9:29 PM	0	0.2	0.3	0	0
9:30-9:59 PM	0	0.6	0.2	0	0
10:00-10:29 PM	0	0.3	0	0	0
10:30-10:59 PM	0	0.8	0	0	0
11:00-11:29 PM	0	0	0	0	0
11:30-11:59 PM	0	0.8	0	0	0

each column sums to 100

Table 3: Distribution of Job Numbers (Percent)

Job Number	Garage 1	Garage 2	Garage 3	Garage 4	Garage 5
≤ 30	0	0	80.9	25	0
31-40	0	0	14.3	60	0
41-50	0	0	4.8	10	0
51-60	4.8	0	0	5	0
61-70	9.5	0	0	0	9.1
71-80	19.0	0	0	0	54.5
81-90	19.0	0	0	0	36.4
91-100	14.3	0	0	0	0
101-110	9.5	0	0	0	0
111-120	4.8	0	0	0	0
121-130	0	18.2	0	0	0
131-140	9.5	9.1	0	0	0
141-150	4.7	4.5	0	0	0
151-160	4.7	18.2	0	0	0
161-170	0	18.2	0	0	0
171-180	0	13.6	0	0	0
181-190	0	4.5	0	0	0
191-200	0	9.1	0	0	0
≥ 201	0	4.5	0	0	0

each column sums to 100

Table 4: Distribution of Operator Numbers (Percent)

Operator Number	Garage 1	Garage 2	Garage 3	Garage 4	Garage 5
1-2	0	0	0	0	0
3-4	0	0	4.8	0	0
5-6	0	0	19.0	0	0
7-8	0	0	42.8	5	0
9-10	4.8	0	23.8	20	4.5
11-12	14.3	0	9.5	20	13.6
13-14	47.6	0	0	35	18.2
15-16	9.5	4.5	0	15	22.7
17-18	23.8	4.5	0	5	31.8
19-20	0	9.1	0	0	9.1
21-22	0	27.3	0	0	0
23-24	0	13.6	0	0	0
25-26	0	22.7	0	0	0
27-28	0	9.1	0	0	0
29-30	0	9.1	0	0	0
≥ 31	0	4.5	0	0	0

each column sums to 100