



CS 342 Operating System

Project #2

CPU Scheduling

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Section 1

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Introduction

Four different timing algorithms, FCFS, SJF, SRTF, RR(q), are designed to be tested with different quantum values in the range of 10ms and 300ms, respectively. The outputs shown in the graph below will be a separate output average turnaround time for each scheduling algorithm, which is designed by rounding the time to the nearest integer.

Graphs

After testing the 4 different scheduling algorithms FCFS, SJF, SRTF, RR(q), we have reached the results given below in Figure 1. The outputs are shared below in Table 1. Based on these outputs, the graph has been drawn. The program was studied and graphed by running it with a fixed input file but with a different time quantum values.

#number of quantum values	FCFS	SJF	SRTF	RR(q)
10	10744	4775	4651	9997
50	10744	4775	4651	10380
100	10744	4775	4651	10743
150	10744	4775	4651	10337
200	10744	4775	4651	11037
250	10744	4775	4651	10919
300	10744	4775	4651	11789

Table 1- Outputs for different quantum values

Comparison of Scheduling Algorithms

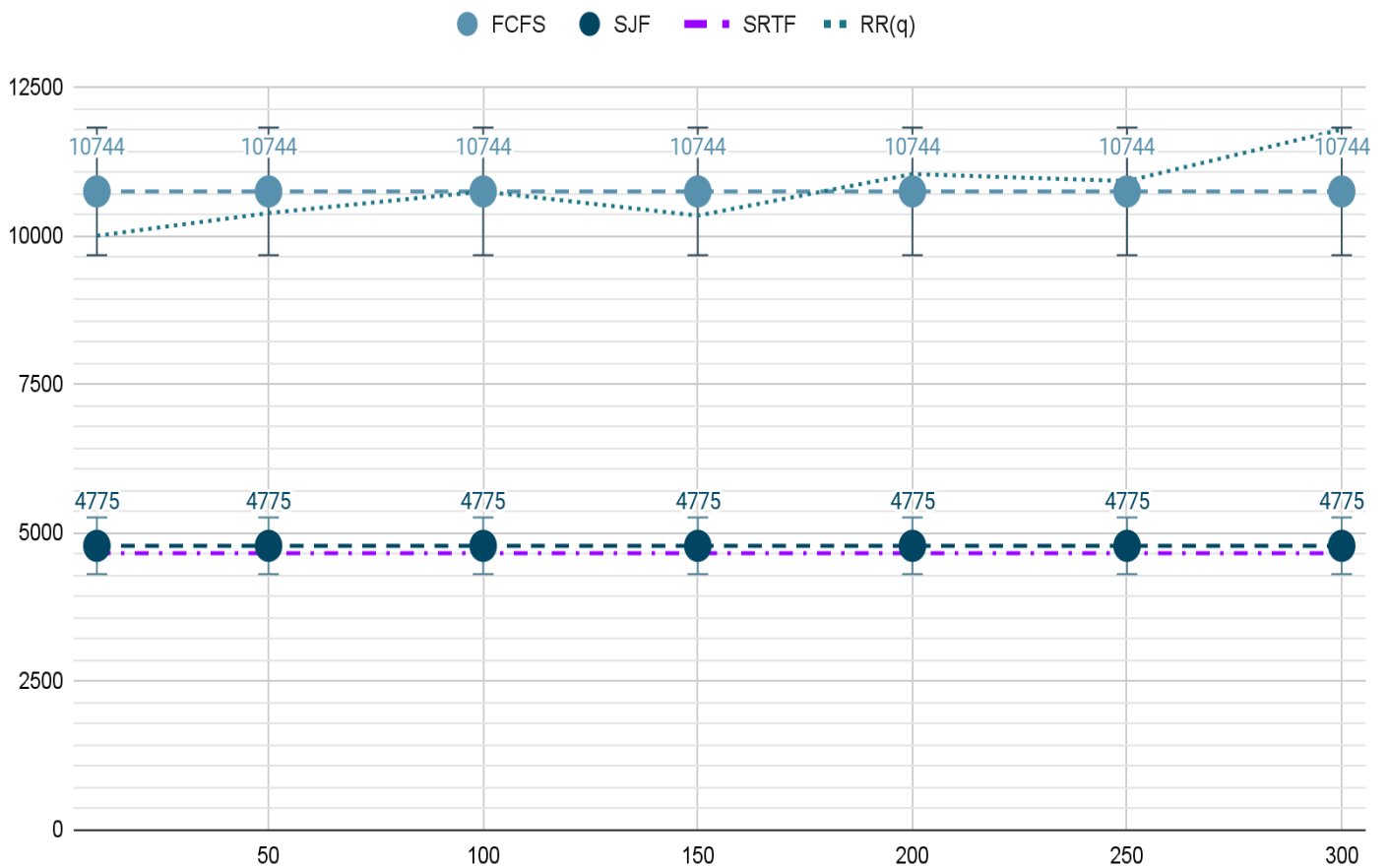


Figure 1- Comparison of Scheduling Algorithms

Input File

```
1 0 300
2 5 100
3 10 400
4 15 5
5 25 300
6 27 120
7 37 20
8 39 15
9 54 5
```

10 69 40
11 74 400
12 79 120
13 89 400
14 99 100
15 109 80
16 119 15
17 124 300
18 126 50
19 131 200
20 136 5
21 138 10
22 148 400
23 153 5
24 163 100
25 178 100
26 180 30
27 195 15
28 200 40
29 215 100
30 220 5
31 235 150
32 240 80
33 242 60
34 244 200
35 254 200
36 256 50
37 271 5
38 281 100
39 283 40
40 288 80
41 293 120
42 298 5
43 308 120
44 313 300
45 318 200
46 328 50
47 343 80
48 348 60

49 350 300
50 352 30
51 367 80
52 377 10
53 387 50
54 402 60
55 404 60
56 414 15
57 419 30
58 429 5
59 434 80
60 436 30
61 446 20
62 461 30
63 471 15
64 473 30
65 483 400
66 488 120
67 490 100
68 505 400
69 520 5
70 525 120
71 535 400
72 540 10
73 555 15
74 565 20
75 575 300
76 590 60
77 595 120
78 605 50
79 615 60
80 620 300
81 635 120
82 640 50
83 650 50
84 660 300
85 675 120
86 680 300
87 695 5

88 700 400
89 705 5
90 715 200
91 725 15
92 730 60
93 745 60
94 755 120
95 765 10
96 775 40
97 790 20
98 800 100
99 805 5
100 820 60
101 822 100
102 832 5
103 847 200
104 852 30
105 854 80
106 859 15
107 864 30
108 874 10
109 879 80
110 889 150
111 891 400
112 901 300
113 906 20
114 911 20
115 913 400
116 923 60
117 928 80
118 943 15
119 948 50
120 958 10
121 960 300
122 975 20
123 980 300
124 985 200
125 995 100
126 1005 5

127	1010	50
128	1020	100
129	1022	50
130	1024	200
131	1039	400
132	1044	40
133	1059	30
134	1069	120
135	1074	200
136	1079	100
137	1094	10
138	1104	30
139	1114	100
140	1124	40
141	1126	5
142	1141	150
143	1146	30
144	1161	5
145	1163	5
146	1178	400
147	1183	80
148	1185	400
149	1190	20
150	1195	60
151	1205	5
152	1207	100
153	1209	400
154	1214	400
155	1229	400
156	1244	150
157	1249	150
158	1251	200
159	1266	80
160	1268	10
161	1278	80
162	1288	400
163	1290	200
164	1292	300
165	1297	80

```
166 1299 5
167 1304 400
168 1309 80
169 1311 5
170 1326 40
171 1341 30
172 1351 200
173 1353 30
174 1363 40
175 1368 50
176 1378 30
177 1388 400
178 1398 5
179 1400 10
180 1402 150
181 1407 120
182 1412 10
183 1417 200
184 1432 60
185 1442 80
186 1444 150
187 1449 120
188 1454 120
189 1456 80
190 1461 120
191 1471 5
192 1473 50
193 1475 120
194 1490 15
195 1500 200
196 1510 40
197 1512 5
198 1517 120
199 1527 400
200 1542 10
```

Figure 2- Example input file

As can be seen from the graph, with the given input file shared in Figure 2, we reached the outputs for four different algorithms. It can be seen in the graph, except RR(q), FCFS, SJF, SRTF remain constant values as linear. However, for RR(q) we can see the change in various quantum values.