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pp1016 write-up
COSC 311
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1. Should the customer switch?
No, based on 6 out of 7 cases in the run analyzed below. In the vast majority of cases in my simulations switching to Q2 took longer.

2. Quantitative answer for each customer in a given run
(referring to runWithVirtual_limited.txt which is included)

a. 108 switched (tick # 108)
id 0108 *current wait time 3* original queue 1 current queue 2 serverTime 4 wouldHaveWaitedTime 0
would have waited time on 0108 is 6 (tick # 111)

108 did better switching because current wait time 3 < would have waited time 6

b. 0146 switched (tick # 146)
tick # 170 server 2 start service on customer 0146 server time 1
        switched client being served
 id 0146 *current wait time 24* original queue 1 current queue 2 serverTime 1 *wouldHaveWaitedTime 14*

0146 did not do better switching because current wait time 24 > wouldHaveWaitedTime 14.

c. 0165 switched (tick # 165)
tick # 193 server 2 start service on customer 0165 server time 5
        switched client being served
 id 0165 *current wait time 28* original queue 1 current queue 2 serverTime 5 *wouldHaveWaitedTime 11*

0165 did not do better switching because current wait time 28 > wouldHaveWaitedTime 11

d. 1175 switched (tick # 175)
tick # 216 server 2 start service on customer 1175 server time 3
        switched client being served
 id 1175 *current wait time 41* original queue 1 current queue 2 serverTime 3 *wouldHaveWaitedTime 23*

1175 did not do better switching because current wait time 41 > wouldHaveWaitedTime 23

e. 1182 switched (tick #182)
tick # 229 server 2 start service on customer 1182 server time 2
        switched client being served
 id 1182 *current wait time 47* original queue 1 current queue 2 serverTime 2 *wouldHaveWaitedTime 29*
1175 did not do better switching because current wait time 47 > wouldHaveWaitedTime 29

f. 0187 switched (tick # 187)
tick # 237 server 2 start service on customer 0187 server time 3
        switched client being served
 id 0187 *current wait time 50* original queue 1 current queue 2 serverTime 3 *wouldHaveWaitedTime 27*

0187 did not do better switching because current wait time 50 > wouldHaveWaitedTime 27

g. 0198 switched (tick # 198)
tick # 250 server 2 start service on customer 0198 server time 4
        switched client being served
 id 0198 *current wait time 52* original queue 1 current queue 2 serverTime 4 *wouldHaveWaitedTime 24*

0198 did not do better switching because current wait time 52 > wouldHaveWaitedTime 24.

3. **What can be done to improve the experiment?**
To make the experiment more realistic, both queues should be able to switch. Also, customers should be able to switch at any time, not just in the tick when they arrive.