Analytic Models

Assignment 2

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Question 1.

a)

Based on Little's law so far we have: $N = X(R + Z)$
Where N = number of users in system, X = access rate to webpage, R = mean residence time, Z = think time.
In addition access rate to disk is 16 $\frac{access}{second}$ and each webpage access needs 2 accesses to disk. So the access rate for a webpage is: $X_{webpage} = 16/2 = 8 \frac{access}{second}$
So:

$$36 = 8 * (1.5 + Z) \rightarrow 4.5 = 1.5 + Z \rightarrow Z = 3 seconds$$

b)

Based on Little's law and previous part: $N = X * Z$
Where N = average number of users thinking, X = access rate to webpage, Z = think time.

$$N = 3 * 8 = 24$$

Question 2.

a)

answer!

b)

answer!

Question 3.

a)

answer!

b)

answer!

c)

answer!

Question 4.

a)

answer!

b)

answer!

c)

answer!

Question 5.

a)

answer!

b)

answer!