

Check My Math

$$\bar{S} = 5 \text{ ms}$$

$$\bar{R} = 1 \text{ s}$$

$$u = 1/5 \text{ ms}$$

$$\bar{N} = 120 \text{ jobs}$$

$$\bar{N} = \lambda \bar{R}$$

$$120 \text{ jobs} = \lambda \text{ s}$$

$$\lambda = \frac{120 \text{ jobs}}{1 \text{ second}} \times (2 \text{ accesses per job})$$

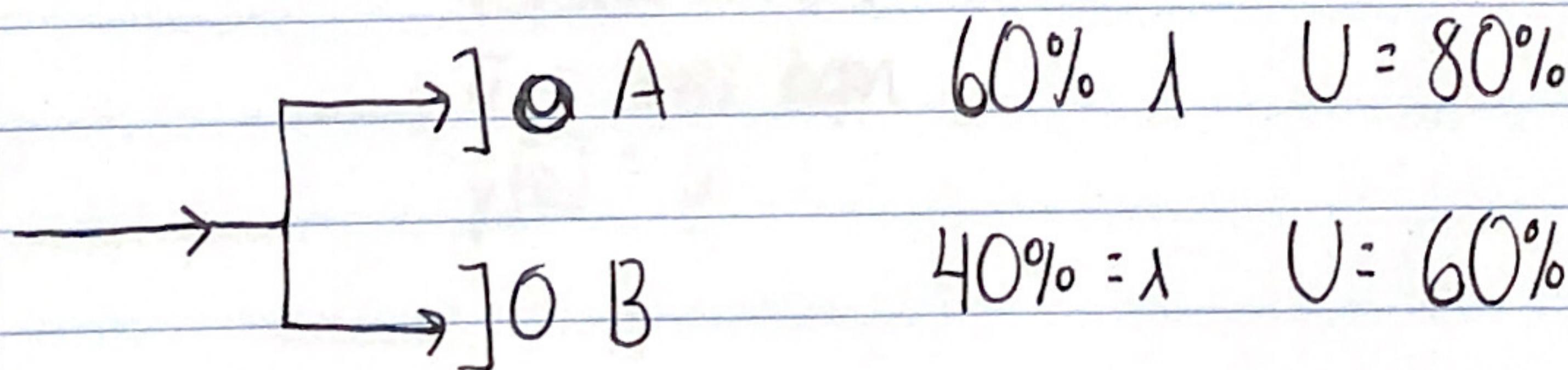
$$240 \text{ accesses / second}$$

$$U = \left(\frac{240 \text{ accesses}}{1 \text{ second}} \right) \times (0.005 \text{ second})$$

$$U = 1.2$$

The Utilization rate is higher than 1 which is impossible, it would mean the system is more busy than time it could be running

Unbalanced Server Loads



$$\bar{S}_b = 250 \mu\text{s} \quad \bar{S}_a = ?$$

~~$$\lambda_b = \bar{S}_b / \bar{R}_b$$~~
$$\lambda_b = U_b / \bar{S}_b$$

$$\lambda_b = .6 / 250 \mu\text{s}$$

$$(.4) \lambda = (.6 / 250 \mu\text{s})$$

$$\text{find total throughput: } \lambda = (.6 / 250 \mu\text{s}) / .4 = .006$$

$$\text{find a's throughput: } \lambda_a = (.6) \times (.006) = .0036$$

$$\text{find a's service time } \bar{S}_a = U_a / \lambda_a$$

$$\bar{S}_a = (.8) / .0036 = \boxed{222.22}$$