CS286 Computer architecture & Organization
Fall 2026
Exercise Questions for October 26, 2026

EXERCISE

Assume that we have a CPU with a pipeline datapath that has 15 (***k*** = 15) stages. For the programs executed by this CPU, branches are taken for 43% of their executions. Assume that the number of the instructions the CPU executes is huge (you can safely consider that is infinity (∞)). Also assume that 12% of the instructions in an executable program are conditional branch instructions.

Question: How much this pipeline processor will be slowed down by due to the control hazards?

Show your work for full credit.