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# CIS 351 Sample SL6 Problem

06 September 2025

## SL6: Design a Sequential Circuit

Design a sequential circuit that will examine a sequence of characters and determine whether all five vowels are present in the string. The circuit will have one 8-bit input that will contain the ASCII representation of a character. On each clock tick, the input will contain the next character in the sequence. The circuit also has a 1-bit output that is initially **false** and becomes **true** once all five vowels have been observed. You may treat sub-circuits “**is a**”, “**is e**”, “**is i**”, “**is o**”, and “**is u**” as “black boxes”.