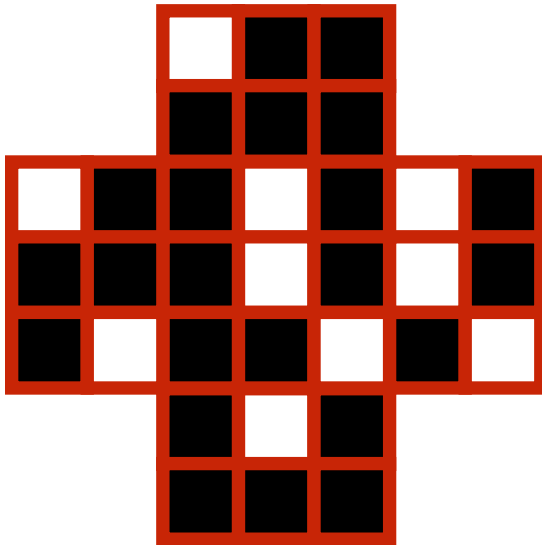


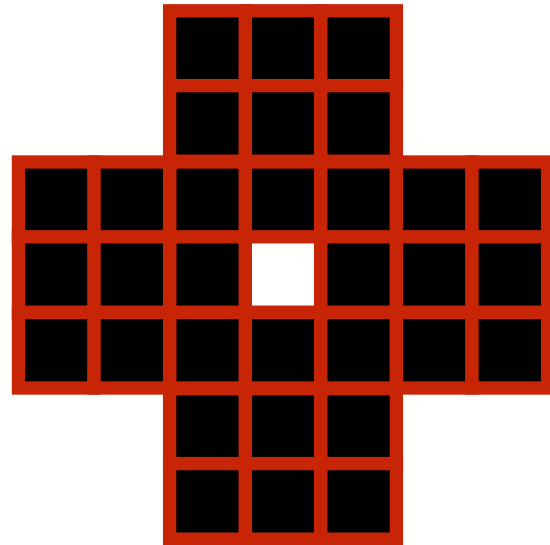
Computer Science COMP-250 Homework #4 v4.0

Due Friday April 1st, 2016

A “**HIЯIQ**” (pronounced higher-I.Q.) puzzle is an array of 33 black or white pixels (bits), organized in 7 rows, 4 of which contain 3 pixels each and the middle 3 rows contain 7 pixels each. You are given a particular configuration of these pixels as in (A).



(A)



(B)

Your task is to write a JAVA program that will transform this configuration into the *solved* configuration (B). To modify your configuration you are allowed to apply one of two substitution rules whenever the rule is applicable: anywhere in your configuration if one of these patterns is found (horizontally or vertically), you can replace it with the other:



We recommend that you use a tree/graph data structure to represent each reachable configuration of the “**HIЯIQ**” puzzle. The children of a configuration should be the possible configurations that can be reached applying a single substitution rule. Your algorithm should traverse the tree so to locate the *solved* configuration. Once the solution is found, your algorithm should return a **String** containing the sequence of substitutions necessary to solve the puzzle. For convenience we will name the “BBW to WWB” substitution a **B-substitution** and the “WWB to BBW” substitution a **W-substitution**.

