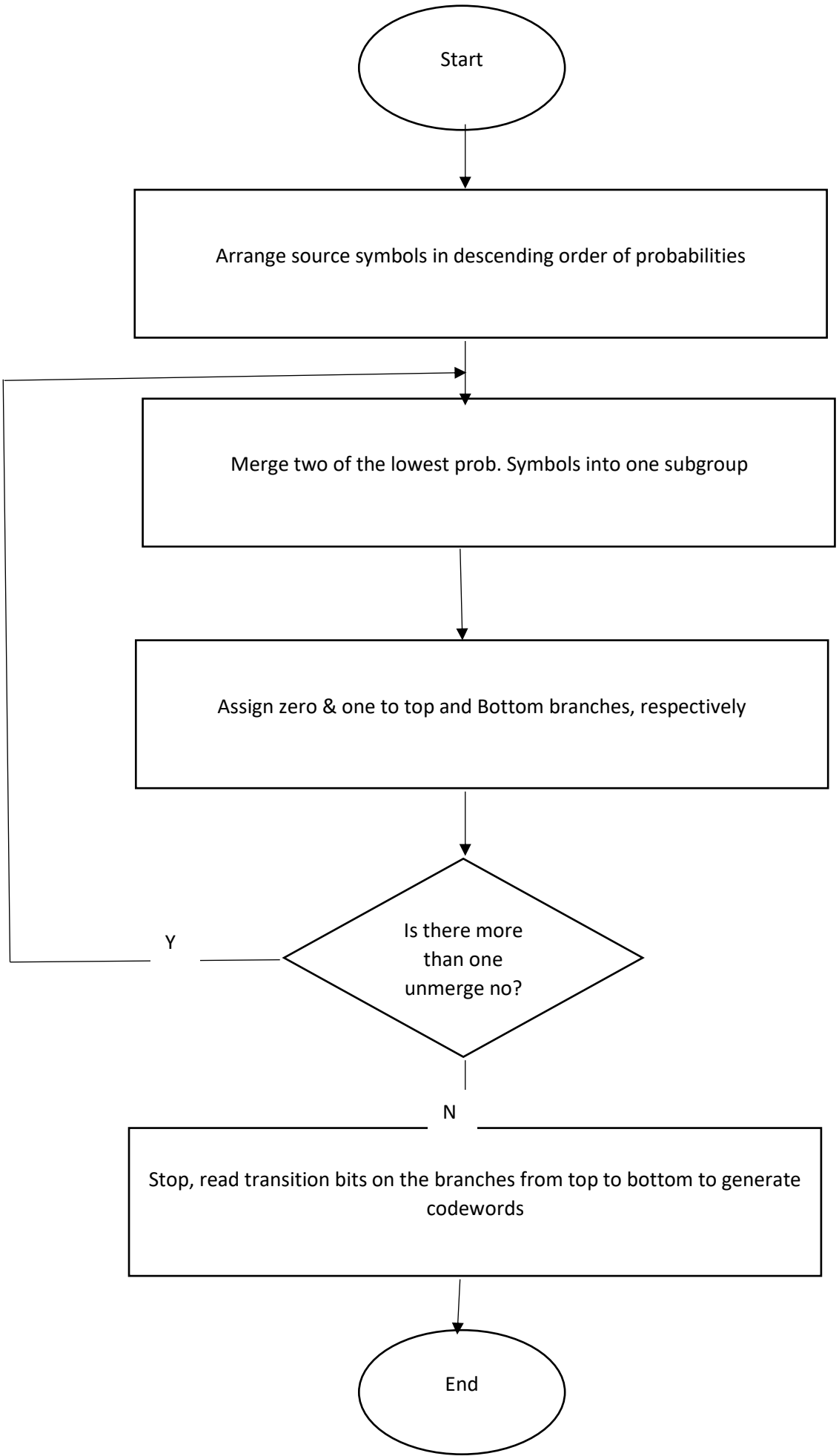
FLOW CHART


Start
Arrange source symbols in descending order of probabilities
Merge two of the lowest prob. Symbols into one subgroup
Assign zero & one to top and Bottom branches, respectively
Is there more than one unmerge no?
Y
N
Stop, read transition bits on the branches from top to bottom to generate codewords
End

STEPS

Step 1: Arrange source symbols in descending order of probabilities

Step 2: Merge two of the lowest prob. Symbols into one subgroup

Step 3: Assign zero & one to top and Bottom branches, respectively

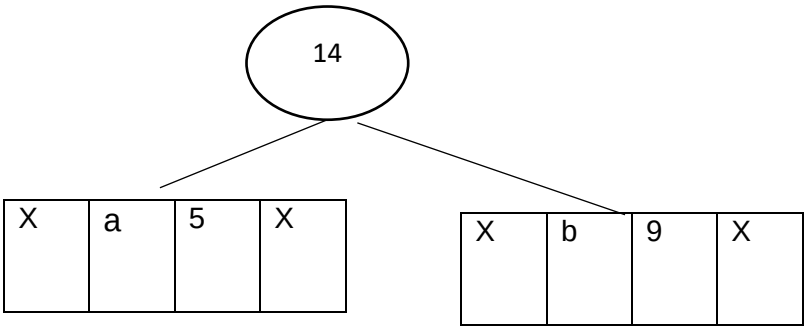
Step 4: Checking is there more than one unmerge no

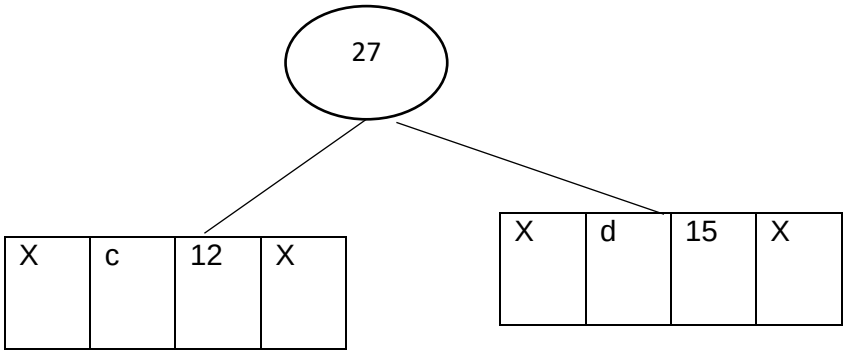
Step 5: Stop, read transition bits on the branches from top to bottom to generate codewords

DESIGN

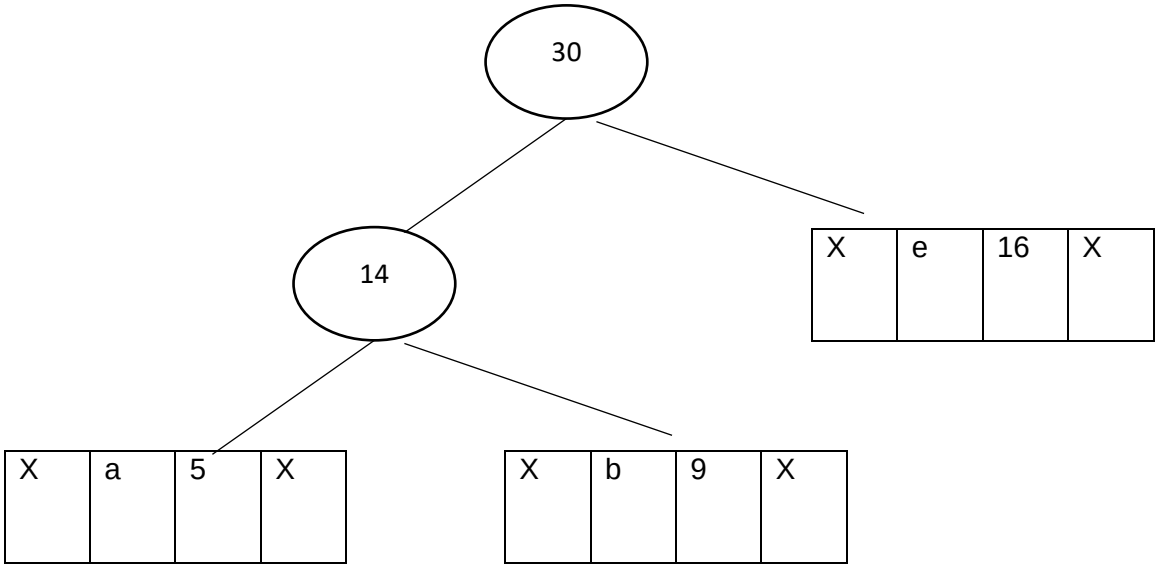
{5,9,12,15,16,55}

Step 1. Build a min heap that contains 6 nodes where each node represents root of a tree with single node.
Step 2 Extract two minimum frequency nodes from min heap. Add a new internal node with frequency 5 + 9 = 14.
Step 3: Extract two minimum frequency nodes from heap. Add a new internal node with frequency 12 + 15 = 27

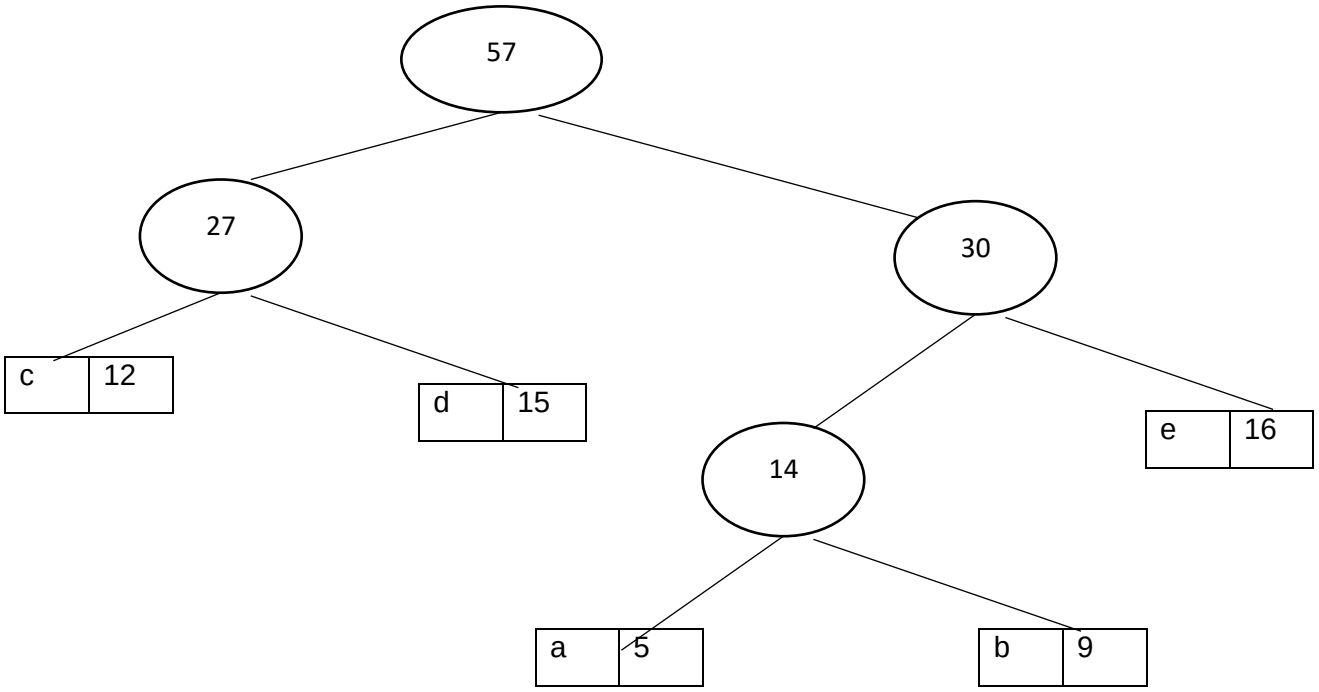


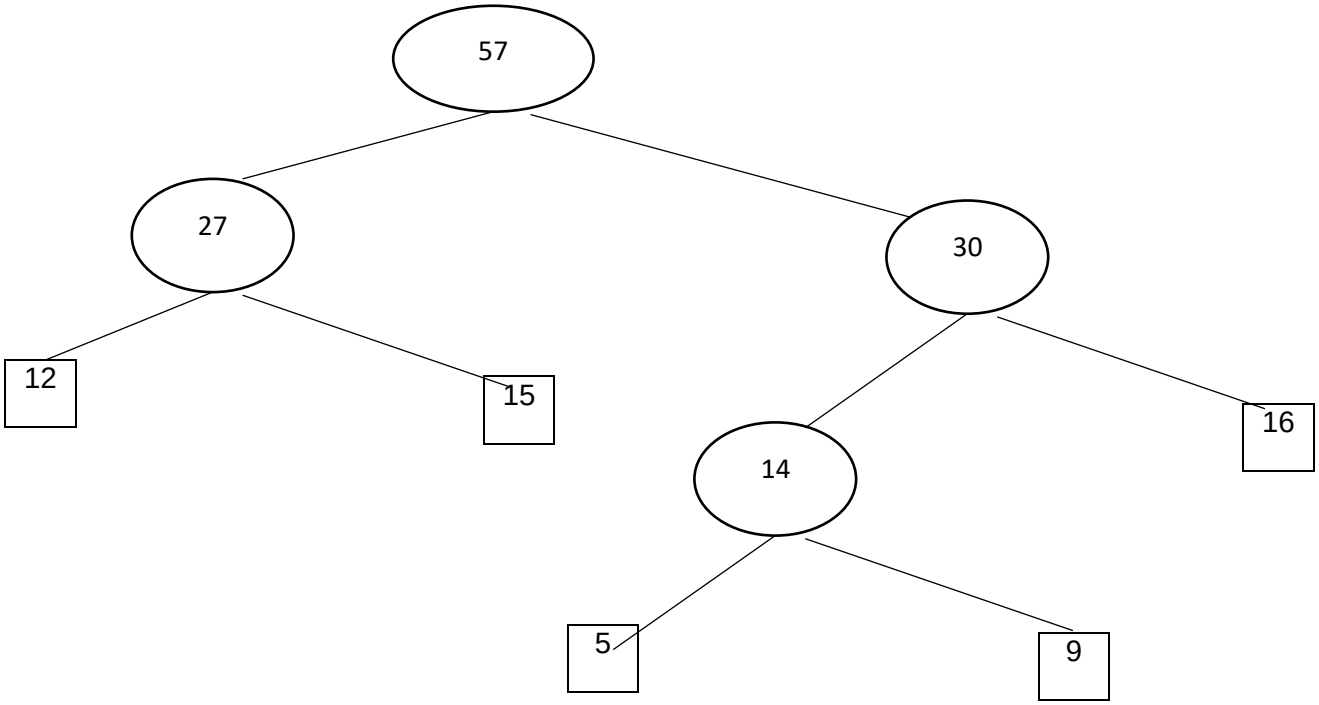


Step 4: Extract two minimum frequency nodes. Add a new internal node with frequency 14 + 16 = 30



Step 5: Extract two minimum frequency nodes. Add a new internal node with frequency 27 + 30 = 57





Step 6: Extract two minimum frequency nodes. Add a new internal node with frequency 55 + 57 = 112