



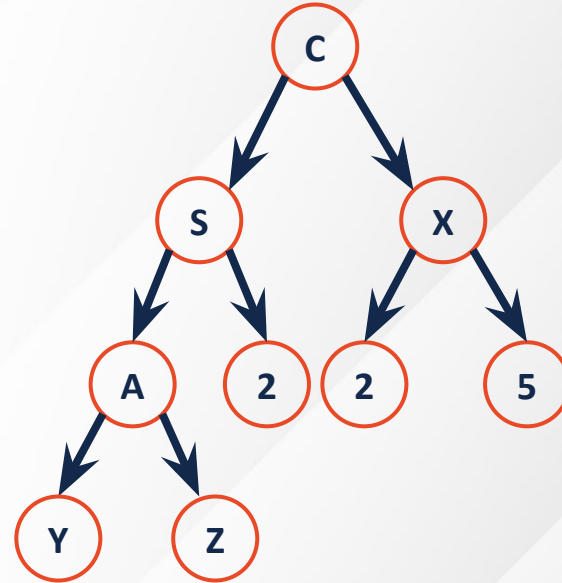
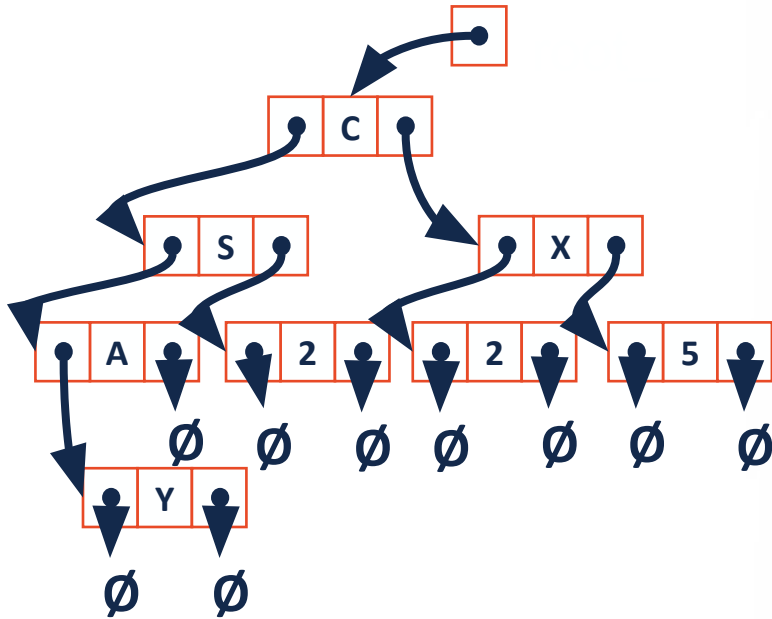
Tree Overhead

Learning Objectives

1. Prove how much overhead a tree has



Wasted Pointers in a binary tree?



How many Null Pointers?

Theorem: If there are n data items in our representation of a binary tree, then there are _____ NULL pointers.



How many Null Pointers?

Base Cases:

Null(n):= the number of null pointers with n nodes in the tree

n = 0:

n = 1:

n = 2:



Induction Hypothesis



Proof

Consider an arbitrary tree T containing k data elements:

