



# CS 400

## **B-Tree Introduction**

**ID: 08-01**

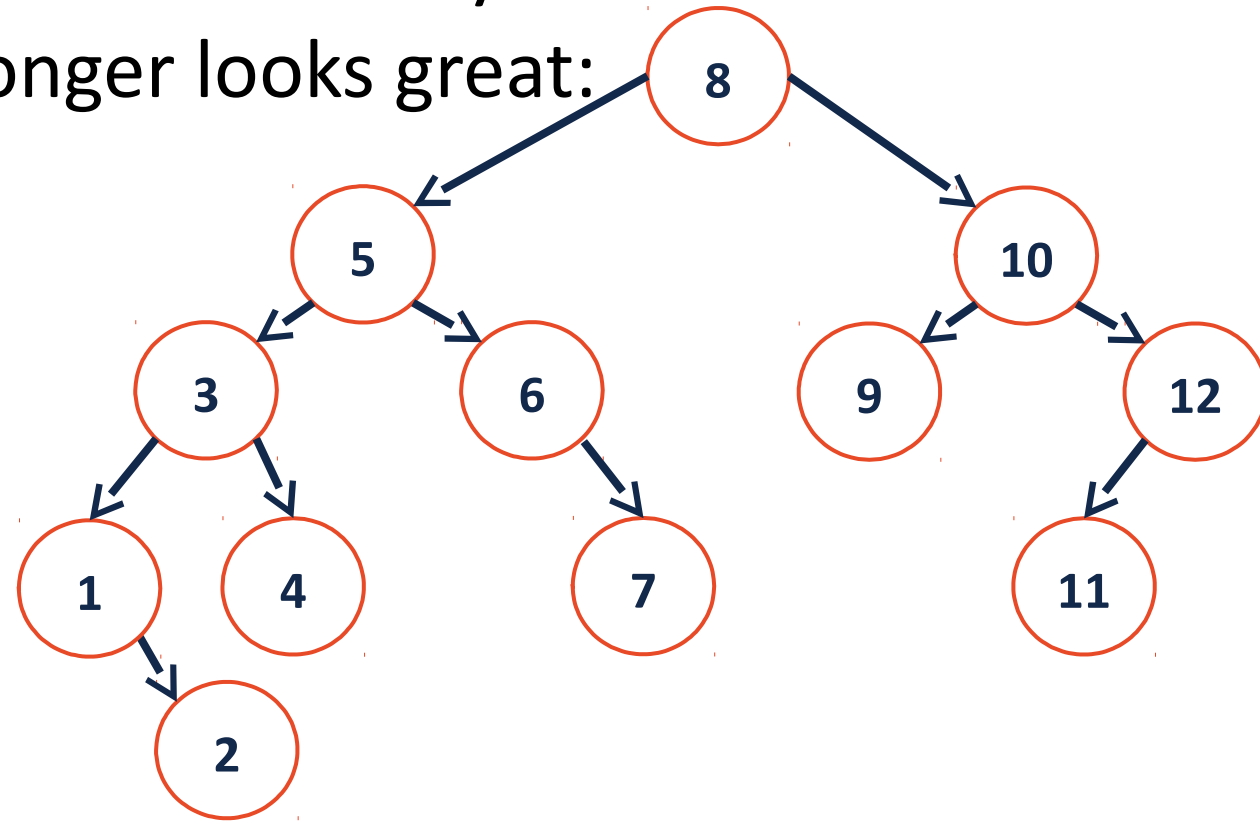
# B-Tree Motivation

Big-O assumes uniform time for all operations, but this isn't always true.

access data on disk or memory are different

However, seeking data from the cloud may take 100ms+.

...an  $O(\lg(n))$  AVL tree no longer looks great:



# Real Application

Imagine storing Facebook profiles for everyone in the US:

**How many records?**

**How much data in total?**

**How deep is the AVL tree?**

# BTree Motivations

Knowing that we have large seek times for data, we want to:

# BTree (of order m)

-3	8	23	25	31	42	43	55
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$m=9$

**Goal:** Minimize the number of reads!

Build a tree that uses \_\_\_\_\_ / node  
[1 network packet]  
[1 disk block]