

# Bucket Sort

## 4. Bucket Sort

- **Why Important:** Bucket Sort works well when the data is uniformly distributed and falls within a known range.
- **Where It's Useful:**
  - **Depth Sorting:** Sort objects by their Z-depth for transparency.
  - **Light Probes or Particles:** Sorting objects into spatial buckets for rendering optimizations.
  - Sorting **textures or UV coordinates** into regions when packing atlases.

### Why Bucket Sort?:

- Very fast **O(N)** sorting when data can be grouped into buckets (common in spatial optimizations).

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