# Range Queries
# Segment Trees
# (Lazy Propagation)

# Use Case

- Perform the following 2 queries on an array:
  - 1 L R X -> Add X to all elements from L to R
  - 2 L R -> Return the sum of all elements from L to R

- Perform the following 2 queries on an array:
  - 1 L R X -> Add X to all elements from L to R
  - 2 L R -> Return the min of all elements from L to R

- Perform the following 2 queries on an array:
  - 1 L R X -> Make all elements from L to R = X
  - 2 L R -> Return the xor of all elements from L to R

# Lazy Segment Tree

- **Range Updates are similar to Range Queries**
- **Same number of recursive calls for query as that for update**
- **Time Complexity for each update: O(logN)**
- **Time Complexity for each query: O(logN)**
- **Extra O(N) space for storing an additional tree**
- **Slower than normal segment tree**
- **Harder to code (Use Generic Segment Tree Code)**
- **Nothing fancy if you understand it properly - Super intuitive**