**Maximum XOR of Two Numbers in an Array**

**#include <bits/stdc++.h>**

**#include <iostream>**

**#include <vector>**

**#include <algorithm>**

**struct Node {**

**Node\* children[2];**

**};**

**class Trie {**

**Node\* root;**

**public:**

**Trie() {**

**root = new Node();**

**}**

**void insert(int num) {**

**Node\* node = root;**

**for (int i = 31; i >= 0; i--) {**

**int bit = (num >> i) & 1;**

**if (!node->children[bit])**

**node->children[bit] = new Node();**

**node = node->children[bit];**

**}**

**}**

**int getMax(int num) {**

**Node\* node = root;**

**int result = 0;**

**for (int i = 31; i >= 0; i--) {**

**int bit = (num >> i) & 1;**

**if (node->children[1 - bit]) {**

**result = result | (1 << i);**

**node = node->children[1 - bit];**

**}**

**else {**

**node = node->children[bit];**

**}**

**}**

**return result;**

**}**

**};**

**int maximumXor(vector<int> A) {**

**Trie trie;**

**for (auto& it : A)**

**trie.insert(it);**

**int result = 0;**

**for (auto& it : A) {**

**result = std::max(result, trie.getMax(it));**

**}**

**return result;**

**}**