$$\therefore \quad r_j = \max_{j=0}^{i} \left(2^{p_j} + 2^{p_{i-j}} \right)$$

↓

we can keep track of the maximum element up to i, so i have maintained pmx_i & qmx_i which denote the maximum element in p and q upto i.

Now Let $pmx_i = v_1$ & $qmx_i = v_2$

Suppose $v_1 > v_2$ → then I have the maximum element in p and I have to find the index of (say) j

↓

We are finding the j index j because we need $2^i + 2^{i-j}$ max value.

So in order to find where the value v_1 occurs in p I have used two array p_1 & p_2 that will record that which value is at which index in p & q respectively

1 pm

• Now once we get index by ~~p~~ $p_1[v_1]$ (say) j.

2

we get our two addresses, $\boxed{i \,\&\, j}$

3

Similarly we can it it for $v_2 > v_1$

4

ie for $\boxed{v_2 == v_1}$ → ∵ I don't ~~k~~ know whether my $p[i-j]$ or $q[i-j]$ which will be max I will simply take the $\max(p[i-j], q[i-j])$ → ad_2

5

$ad_1 = v_1$ or v_2

6

both are same

NOTES

• Also I will maintain a "power" array which will precompute all the powers of 2.