COP3502 9/27/23

0) P2 data, sol
RP2 this week
Updated Posted

1) finish recursion
2) start algorithm analysis
   - sums (start)
   - recurrences

→ 1) Derangements
2) Upwards
3) Jump - Application of Permutations
4) Sums

Derangement

0	1	2
1	2	0
2	0	1

Only diff btw this and (perm): PERM
Value in slot k can not equal k

```
if (used[i]) continue; //perm
if (used[i] || i==k) continue;
```

Upwards

1 9 3
a c m q

upwards sorted order
strictly increasing

→ 1 upward

k upward is an upward where each gap btw letters is at least k

14 8
b q z

& upwards of size 3

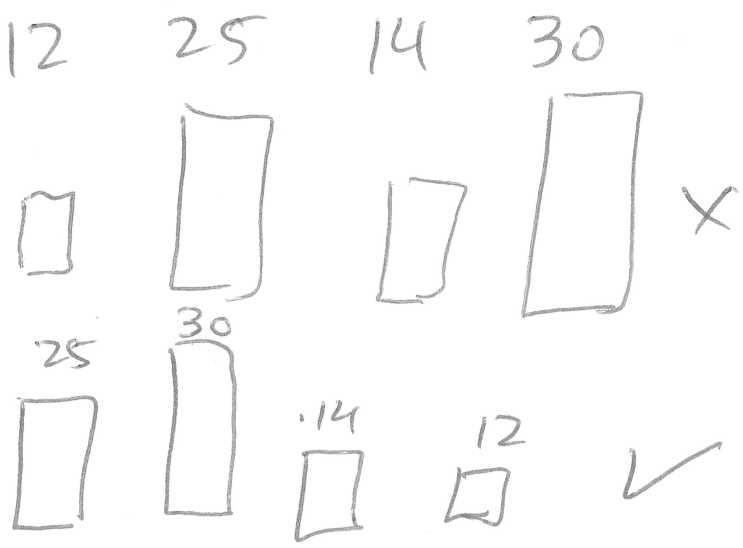
Problem list all ∞ (k) upwards of length (n)
2 5

in alphabetical order

adgjm
adgjn
adgjo
↓ ⋮
adgjz
adgkn
↓

Calculation of start letter

Jump



Jump up $v = 12$

Jump down $d = 20$