Combinations in C++

```cpp
#include <iostream>
using namespace std;

void combinations(int cb, int nboxes, int ssf, int ritems, string asf) {
    if (cb > nboxes) {
        if (ssf == ritems) {
            cout << asf << endl;
        }
        return;
    }
    combinations(cb + 1, nboxes, ssf + 1, ritems, asf + "i");
    combinations(cb + 1, nboxes, ssf, ritems, asf + "-");
}

int main() {
    int nboxes = 3;
    int ritems = 2;
    combinations(1, nboxes, 0, ritems, "");
    return 0;
}
```

Dry Run with Table for Input:

- `nboxes = 3`
- `ritems = 2`

We're tracing the recursive calls:

- `cb`: current box index
- `ssf`: selected so far
- `asf`: answer so far

Step	cb	ssf	asf	Action
1	1	0	""	→ i at box 1 → recurse
2	2	1	"i"	→ i at box 2 → recurse
3	3	2	"ii"	→ i at box 3 → recurse
4	4	3	"iii"	✘ too many items (ssf > ritems)
5	3	2	"ii"	→ - at box 3 → ✅ print: ii-
6	2	1	"i"	→ - at box 2 → recurse
7	3	1	"i-"	→ i at box 3 → recurse
8	4	2	"i-i"	✅ valid → print: i-i
9	3	1	"i-"	→ - at box 3 → recurse
10	4	1	"i--"	✘ too few items
11	1	0	""	→ - at box 1 → recurse
12	2	0	"-"	→ i at box 2 → recurse
13	3	1	"-i"	→ i at box 3 → recurse
14	4	2	"-ii"	✅ valid → print: -ii
15	3	1	"-i"	→ - at box 3 → recurse
16	4	1	"-i-"	✘ too few items
17	2	0	"-"	→ - at box 2 → recurse
18	3	0	"--"	→ i at box 3 → recurse
19	4	1	"--i"	✘ too few items
20	3	0	"--"	→ - at box 3 → recurse
21	4	0	"---"	✘ too few items

✅ Final Output

```
ii-
i-i
-ii
```

Output:-

ii-
i-i
-ii