

Kth number in C++

```
#include <iostream>
#include <queue>
#include <string>
using namespace std;

string kth(int k) {
    queue<string> q;
    q.push("1");
    q.push("2");

    string ans;
    for (int i = 0; i < k; i++) {
        string temp = q.front();
        q.pop();
        ans = temp;
        q.push(temp + "1");
        q.push(temp + "2");
    }

    return ans;
}

int main() {
    int k = 5;
    cout << kth(k) << endl;
    return 0;
}
```

Initial Setup:

```
queue<string> q;
q.push("1");
q.push("2");
```

Initial queue: ["1", "2"]

Dry Run Table:

Iteration (i)	Queue Before	temp (popped)	ans	Queue After Push
0	["1", "2"]	"1"	"1"	["2", "11", "12"]
1	["2", "11", "12"]	"2"	"2"	["11", "12", "21", "22"]
2	["11", "12", "21", "22"]	"11"	"11"	["12", "21", "22", "111", "112"]
3	["12", "21", "22", "111", "112"]	"12"	"12"	["21", "22", "111", "112", "121", "122"]
4	["21", "22", "111", "112", "121", "122"]	"21"	"21"	["22", "111", "112", "121", "122", "211", "212"]

📌 Final Output:

```
cout << kth(5);
```

Since index starts at 0, on the **5th iteration** (i = 4), we return:

21

💡 Output:

21