

Itinerary in C++

```
#include <iostream>
#include <unordered_map>
#include <string>

using namespace std;

int main() {
    unordered_map<string, string> map;
    map["Chennai"] = "Banglore";
    map["Bombay"] = "Delhi";
    map["Goa"] = "Chennai";
    map["Delhi"] = "Goa";

    // Create a hashmap to mark if a city is a potential
    source
    unordered_map<string, bool> psrc;
    for (auto it = map.begin(); it != map.end(); ++it) {
        string src = it->first;
        string dest = it->second;

        psrc[dest] = false; // Destination city cannot be a
        source
        if (psrc.find(src) == psrc.end()) {
            psrc[src] = true; // Source city if it is not a
            destination in the map
        }
    }

    string src = "";
    for (auto it = psrc.begin(); it != psrc.end(); ++it) {
        if (it->second == true) {
            src = it->first;
            break;
        }
    }

    // Print the itinerary
    while (true) {
        if (map.find(src) != map.end()) {
            cout << src << " -> ";
            src = map[src];
        } else {
            cout << src << ". ";
            break;
        }
    }

    return 0;
}
```

Step 1: Initialize Data

- **Input Map (City Routes):**

```
Chennai  → Banglore
Bombay   → Delhi
Goa      → Chennai
Delhi    → Goa
```

- **Creating psrc (Potential Source Map):**
 - Initially Empty

Step 2: Mark Potential Sources (psrc Construction)

Iteration	Source (src)	Destination (dest)	Updated psrc (Potential Source Map)
1	Chennai	Banglore	{ Banglore → false, Chennai → true }
2	Bombay	Delhi	{ Banglore → false, Chennai → true, Delhi → false, Bombay → true }
3	Goa	Chennai	{ Banglore → false, Chennai → false, Delhi → false, Bombay → true, Goa → true }
4	Delhi	Goa	{ Banglore → false, Chennai → false, Delhi → false, Bombay → true, Goa → false }

- **Final psrc Map:**

```
Bombay → true   (Only Source)
Banglore → false
Chennai → false
Delhi → false
Goa → false
```

Step 3: Find the Start City

- The only city with `true` in `psrc` is **"Bombay"**.
- Start `src` = **"Bombay"**.

Step 4: Print the Itinerary

Iteration	Current <code>src</code>	Next City (<code>map[src]</code>)	Printed Output
1	Bombay	Delhi	Bombay ->
2	Delhi	Goa	Delhi ->
3	Goa	Chennai	Goa ->
4	Chennai	Banglore	Chennai ->
5	Banglore	(Not Found)	Banglore.

Final Output

Bombay -> Delhi -> Goa -> Chennai ->
Banglore.

Output:
Bombay -> Delhi -> Goa -> Chennai -> Banglore.