

C N

```

#include <conio.h>
#include <iostream.h>

#define MAX 10
int n;

class router {
    char adj-new[MAX], adj-old[MAX];
    int table-new[MAX], table-old[MAX];

public:
    router() {
        for (int i=0; i<MAX; i++)
            table-old[i] = table-new[i] = 99;
    }

    void copy() {
        for (int i=0; i<n; i++) {
            adj-old[i] = adj-new[i];
            table-old[i] = table-new[i];
        }
    }

    int equal() {
        for (int i=0; i<n; i++)
            if (table-old[i] != table-new[i] || adj-new[i] != adj-old[i])
                return 0;
        else
            return 1;
    }
}

```

①


```
void input(int s) {
```

```
    cout << "Enter 1 if the corresponding router is adjacent  
    to router" << (char)('A'+s) << "else enter 99:" << endl << " ";
```

```
    for (int i=0; i<n; i++)
```

```
        if (i!=s) cout << (char)('A'+i) << " ";
```

```
        cout << "\n Enter matrix: ";
```

```
        for (i=0; i<n; i++) {
```

```
            if (i==s)
```

```
                table_new[i]=0;
```

```
            else
```

```
                cin >> table_new[i];
```

```
                adj_new[i] = char('A'+i);
```

```
            }
```

```
            cout << endl;
```

```
        }
```

```
void display() {
```

```
    cout << "\n Destination Router: ";
```

```
    for (int i=0; i<n; i++) cout << (char)('A'+i) << " ";
```

```
    cout << "\n outgoing Line: ";
```

```
    for (i=0; i<n; i++) cout << adj_new[i] << " ";
```

```
    cout << "\n Hop Count: ";
```

```
    for (i=0; i<n; i++) cout << table_new[i] << " ";
```

```
    }
```

```
void build(int s) {
```

```
    for (int i=0; i<n; i++)
```

```
        for (int k=0; (i!=s) && (k<n); k++)
```

```
            if (table_old[i] != 99)
```

```
                if (table_new[i] + 1[i].table_new[k] < table_new[k]) {
```

```
                    table_new[k] = table_new[i] + 1[i].table_new[k];
```

```
                    adj_new[k] = (char)('A'+i);
```

```
                }
```

```
            }
```

```
    } n[10];
```

Ⓢ


```
void build-table() {
```

```
    int i = 0, j = 0;
```

```
    while (i != n) {
```

```
        for (j = 0; j < n; j++) {
```

```
            r[i].copy();
```

```
            r[i].build(i);
```

```
        }
```

```
        for (i = 0; i < n; i++)
```

```
            if (!r[i].equal()) {
```

```
                j = i;
```

```
                break;
```

```
            }
```

```
        }
```

```
    }
```

```
void main() {
```

```
    clrscr();
```

```
    cout << "Enter number routers (<MAX): "; cin >> n;
```

```
    for (int i = 0; i < n; i++) r[i].input(i);
```

```
    build-table();
```

```
    for (i = 0; i < n; i++) {
```

```
        cout << "Router Table entries for router " << (char)('A' + i) << ":-";
```

```
        r[i].display();
```

```
        cout << endl << endl;
```

```
    }
```

```
    getch();
```

```
}
```