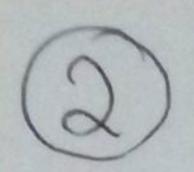(1) Computer Networks Lab.
Batch - 3
Program - 7

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```cpp
#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_old[i] != adj_new[i])
            return 0;
            return 1;
        }
```
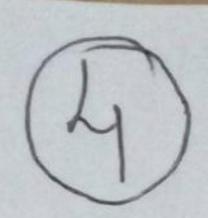
②

```cpp
void input (int j){
    cout << "Enter 1 if corresponding router is adjacent to
            router " << (char)('A'+j) << "else enter 99:" <<
            endl << "  ";
    for (int i=0; i<n; i++)
    if (°i! = j)
        cout << "\n Enter matrix";
    for (i=0; i<n; i++){
        it (i == j)
            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] << " ";
    }
```

③

```
void build (int j) {
    for (int i = 0; i < n; i++)
    for (int k = 0; (i != j) && (k < n); k++)
    if (table - old [i] != 99)
    if ((table - new [i] + r [i]. table - new [k] <
                            table - new [k]) {
        table - new [k] = table - new [i] + r. [i] table - new [k],
        adj - new [k] = (char)('A' + i);
    }
}
} r [10];
void build - table () {
    int i = 0, j = 0;
    while (i != n) {
        for (i = j; i < n; i++) {
            r [i]. copy();
            r [i]. build (i);
        }
    for (i = 0; i < n; i++)
    if (!r [i].equal ()) {
        j = i;
        break;
    }
}
}
```

```cpp
void main () {
    clrscr ()
    cout << " Enter the number the rulers (< "<<MAX <<'l): ";
        cin >> n;
    for (int i = 0; i < n; i++)
        r [i]. input (i);
        build_table ();
    for (i=0; i<n; i++){
        cout << "\n enter table entries for router"
            << (char)('A'+i) <<":- ";
        r [i]. display ();
        cout << endl <<endl;
    }
    getch ();
}
```