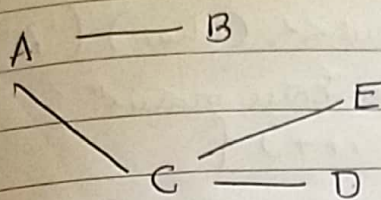


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router A
print destination router & hop count

Distance vector algorithm

```
#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;
```

```
        }
```

```
        return 1;
```



```

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

```

```

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[0];

```

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```

void build_table() {
    int i=0, j=0;
    while (i < n) {
        for (j=i; j < n; j++) {
            r[i].copy(j);
            r[i].build(j);
        }
        for (i=0; i < n; i++)
            if (!r[i].equal(i)) {
                j=i;
                break;
            }
    }
}

```

```

void main() {
    clrscr();
    cout << "Enter no. of 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();
}

```