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 VSN: IBM17CS034

```
#include <iostream>
```

```
using namespace std.
```

```
int a[30][30], source, d[30], p[30]
```

```
void alg (int a[][30], int n)
```

```
{
```

```
int s[n];
```

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

```
{
```

```
    d[i] = a[source][i];
```

```
    p[i] = source;
```

```
    s[i] = 0;
```

```
}
```

```
s[source] = 1;
```

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

```
{
```

```
    int min = 999;
```

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

```
        if (d[j] < min && s[j] != 1)
```

```
            min = d[j];
```

```
            u = j;
```

```
    }
```

```
}
```

```
s[u] = 1;
```

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

```
{
```

```
    if (min + a[u][i] < d[i])
```

```
{
```

```
        d[i] = min + a[u][i];
```

```
        p[i] = u;
```

```
}
```

```

    }
}

int main ()
{
    int n;
    cout << "Enter no of vertices"
    cin >> n;
    cout << "Enter adjacency matrix x"
    for (int i=0; i<n; i++)
        for (j=0; j<n; j++) {
            cin >> a[i][j];
        }
    }
    }
    cout << "Enter source vertex";
    cin >> source;
    cout << "The shortest path is ";
    alg(a, n)
    for (int i=0; i<n; i++)
        int k=i;
        while (k != source) {
            cout << " ← ";
            k = p[k];
        }
    cout << source << " = ";
    cout << d[i] << endl;
}

```