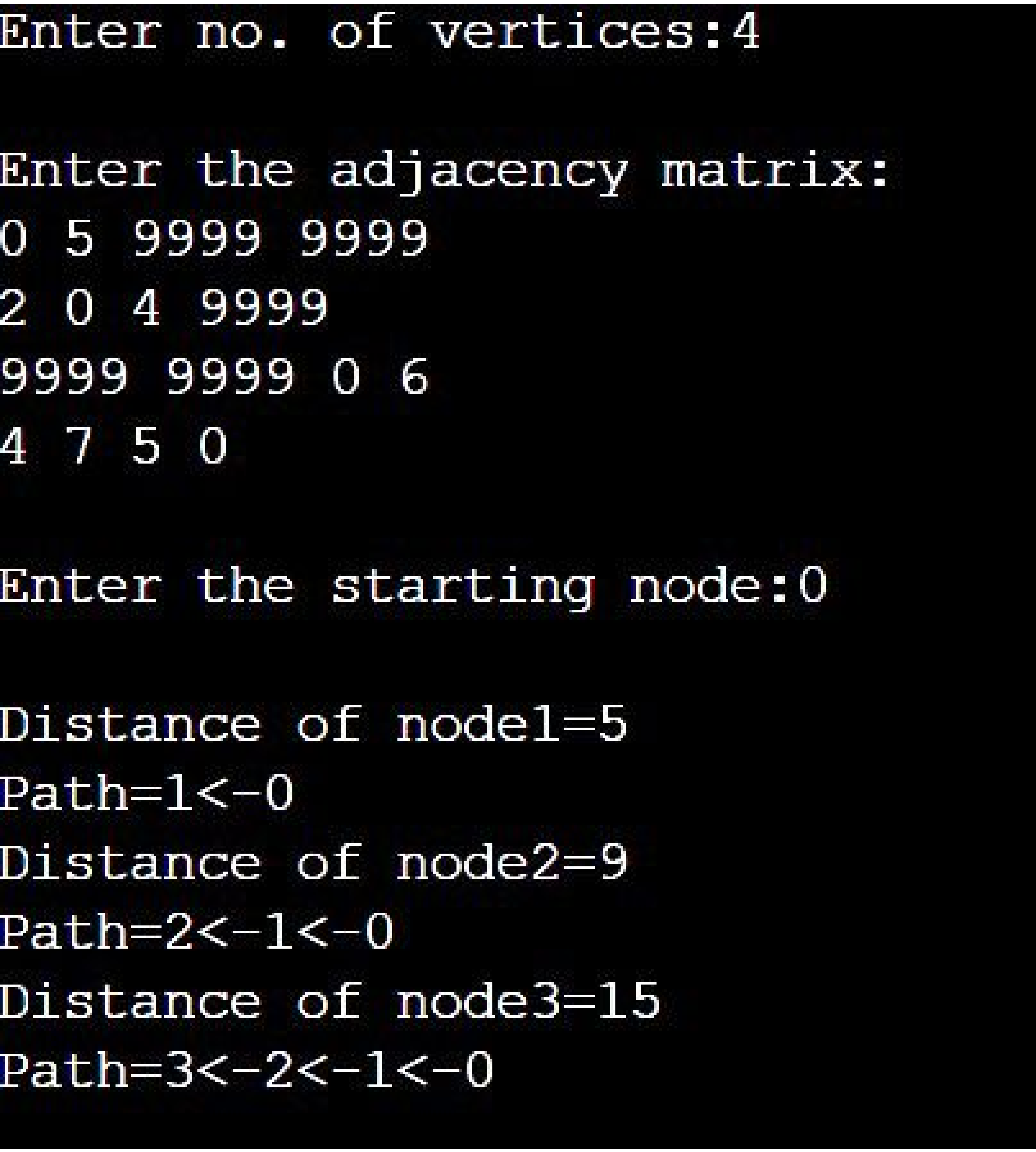
DISTANCE VECTOR:-

```
#include <bits/stdc++.h>
using namespace std;
#define MAX 10
int n;
class router {
char adj-new [MAX], adj-old [MAX];
int table-new [MAX], table-old [MAX];
public() {
for(int i=0; i<MAX; i++)
 table-old [i] = table [new] = 99;
 }
void copy() {
for (int i=0; i<n; i++) {
 adj-new = adj-old [i],
 table-old [i] = table-new[i];
 }
}
int equal () {
for (int i=0; i<n, i++)
for (table-old [i] != table-new [i] || adj-new [i]
    != adj-old [i]) return 0;
return 1;
}
void input (int j) {
cout << Enter 1 << char ('A'+j) <<"else enter 99:"
for (int i=0; i<n; i++)
if (i!=j)  cout << (char)('A'+i) << " ";
cout << " 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<<"Destination router";
for(int i=0;i<n;i++)
cout<<"Outgoing line:";
for(int i=0;i<n;i++)
cout<<"Hop Count:";
for(int i=0;i<n;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]+table_new[k]<table[k]))
{
table_new[k]=table_new[i]+table_new[k];
adj_new[k]=(char)('A'+i);
}
}
r[MAX];
void build_table() {
int i=0;j=0;
while(i!=n) {
r[i]=copy();
r[i]=build(i);
```

```
}
for (i=0; i<n; i++)
if (!r[i].equal()) {
 j=1;
 break;
 }
}
int main() {
 cout<<"Enter no.of routers"
 cin >> n;
 for (int i=0; i<n; i++)
 r[i].input(i);
 build_table();
 for (int i=0; i<n; i++) {
 cout<<"Entries are :"<<(char)('A'+i);
 r[i].display();
 cout<<endl;
 }
}
```

<u>Output</u>:
```
No. of routers :- 5
Enter if router is next to A : B C D E
 matrix 1 = 1 1 99 99
 Enter router B : A C D E   A B C E
 Enter matrix : 99 99 1 99
 Enter router E : A B C D
 matrix :- 99 99 1 99.
 routing table for A :-
 Destination : A B C D E
 Outgoing : A B C D E
 Hop count : 0 1 1 99 99.
```



```
Enter no. of vertices:4

Enter the adjacency matrix:
0 5 9999 9999
2 0 4 9999
9999 9999 0 6
4 7 5 0

Enter the starting node:0

Distance of node1=5
Path=1<-0
Distance of node2=9
Path=2<-1<-0
Distance of node3=15
Path=3<-2<-1<-0
```