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SEA 42

Experiment 5

Floyd Warshall Algo:

```
#include <stdio.h>
#define V 4
#define INF 99999
void printSolution(int dist[][V]);
void floydWarshall(int dist[][V]){
  int i, j, k;
 for (k = 0; k < V; k++) {
        for (i = 0; i < V; i++) {
            for (j = 0; j < V; j++) {
                if (dist[i][k] + dist[k][j] < dist[i][j])
                    dist[i][j] = dist[i][k] + dist[k][j]; }}}
    printSolution(dist);
}
void printSolution(int dist[][V]){
    printf(
        "The following matrix shows the shortest distances"
        " between every pair of vertices \n");
    for (int i = 0; i < V; i++) {
        for (int j = 0; j < V; j++) {
            if (dist[i][j] == INF)
                printf("%7s", "INF");
            else
                printf("%7d", dist[i][j]); }
        printf("\n"); }}
int main()
{
    int graph[V][V] = { { 0, 3, INF, 4 },
                        { 8, 0, 2, INF },
                        { 5, INF, 0, 1 },
                        { 2, INF, INF, 0 } };
    floydWarshall(graph);
    return 0;
}
```

Output:

```
The following matrix shows the shortest distances between every pair of vertices
      0 3 5 4
      5 0 2 3
```

3 6 0 1
2 5 7 0