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Dijkstras algortihm:

Modified Code:

```
#include<stdio.h>
#include<limits.h>
#include<stdbool.h>
int V;
int minKey(int key[],bool mstset[])
{
    int min,minIndex;
    min=INT_MAX;
    for(int i=0;i<V;i++)
    {
        if(mstset[i]==false && key[i]<min)
        {
            min=key[i];
            minIndex=i;
        }
    }
    return minIndex;
}
void printpath(int parent[],int j)
{
    if(parent[j]==-1)
        return;

    printpath(parent,parent[j]);
    printf("%d\t",j);
}
void printmst(int key[],int parent[])
{
    int sum=0;
    printf("Distance From Source\n");
    for(int i=0;i<V;i++)
    {
        printf("\n%d-%d\t%d\t%d\t",0,i,key[i],0);
        printpath(parent,i);

    }
}
void primst(int graph[V][V])
{
    int parent[V];
    int key[V];
    bool mstset[V];
    int sum=0;
    for(int i=0;i<V;i++)
    {
        parent[i]=0;
        key[i]=INT_MAX;
        mstset[i]=false;
    }
    key[0]=0;
    parent[0]=-1;
    for(int count=0;count<V-1;count++)
```

```

    {
        int u=minKey(key,mstset);
        mstset[u]=true;
        for(int v=0;v<V;v++)
        {
            if(graph[u][v] && mstset[v]==false && key[u]!=INT_MAX &&
key[u]+graph[u][v]<key[v])
            {
                parent[v]=u;
                key[v]=key[u] + graph[u][v];
            }
        }
    }
    printmst(key,parent);
}
int main()
{
    printf("Enter the number of vertices\n");
    scanf("%d",&V);
    int graph[V][V];
    printf("Enter the Distance Matrix\n");
    for(int i=0;i<V;i++)
    {
        for(int j=0;j<V;j++)
        {
            scanf("%d",&graph[i][j]);
        }
    }
    primst(graph);
}

```

Output:

```

C:\Users\Praveen\Documents\1BM19CS138_SAI PRAVEEN MARNI_modified dijkstra.exe
Enter the number of vertices
4
Enter the Distance Matrix
0 0 3 0
2 0 0 0
0 7 0 1
6 0 0 0
Distance From Source
0-0    0    0
0-1    10   0    2    1
0-2     3   0    2
0-3     4   0    2    3
Process returned 0 (0x0)   execution time : 90.460 s
Press any key to continue.

```