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Lab - 9 Bellman - Ford

```
#include <stdio.h>

int Bellman_Ford (int G[20][20], int v, int E
int edge [20][20])
{
 int i, u, v, k, distance [20], Parent [20], S, flag
                                          =1;

for (i=0; i<v ; i++)
      distance [i] = 1000, Parent [i] = -1;
 Printf ("Enter Source:");
 Scanf ("%d", &S)
 distance [S-1] = 0;
 for (i=0; i<v-1; i++)
   {
     for (k=0; k<E; k++)
   {
     u = edge [k][0] , v = edge [k][1];
    if ( distance [u] + G[u][v] < distance[v])
     distance [v] = distance[u] + G[u][v],
     Parent [v] = u;
   }
}
 For (k=0; k<E; k++)
        {
          u = edge [k][0] , v = Edge [k][1];
    if (distance [u] + G [u][v] < distance [v])
    distance [v] = dist
        flag = 0;
}
int (flag)
    for (i=0; i<v ; i++)
        Printf ("vertex %d → cost = %d
                Parent = %d \n" i+1,
```

```
distance[i], Parent[i][1);
return flag;

int main()
{
    int v, edge[20][2], G[20][20], i, j, k=0;
    Printf("Bellman Ford \n");
    Printf("Enter no of vertices: ");
    Scanf("%d", &v);
    Printf("Enter graph in matrix form: \n");
    for(i=0; i<v; i++);
        for(j=0; j<v; j++)
        {
            Scanf("%d", &G[i][j]);
            if(G[i][j]!=0)
                edge[k][0]=i, edge[k++][1]=j;
        }
    if(Bellman_ford(G, v, k, edge)
        Printf("\n NO Negative weight cycle\n")
else
    Printf("\n Negative weight cycle exist\n");
    return 0;
}
```