Green University of Bangladesh

Department of Computer Science and Engineering

CLP-02

Course Title: Algorithms Lab

Course code: CSE-206

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```
#include <bits/stdc++.h>
using namespace std;
int n, m;
struct Edge{
    int u, v, w;
};
Edge edge[100];
int parent[100];
int Rank[100];
bool comp(Edge a,Edge b)
{
   return a.w < b.w;
}
int find (int u)
{
  if(u != parent[u])
        parent[u] = find(parent[u]);
  return parent[u];
}

void Union(int x, int y)
```

```
{
    if(Rank[x]> Rank[y])
       parent[y] =x;
   else if(Rank[x] < Rank[y])
        parent[x] = y;
    else{
         parent[y] = x;
         Rank[x]++;
    }
}
int kruskalMST()
{
   sort(edge,edge+m,comp);
int mstWt =0;
   for(int i=0;i<n;i++){
        parent[i]=1;
        Rank[i]=0;
    }
   for(int i=0;i<m;i++){
        int x = find(edge[i].u);
        int y = find(edge[i].v);
```

```
        if(x !=y){
         mstWt += edge[i].w;
         Union(x, y);
        }
    }
    return mstWt;
}
int main()
{
   printf("Enter vertex & edge: ");
   scanf("%d %d",&n,&m);
   for(int i=0;i<m;i++){
      scanf("%d %d %d",&edge[i].u,&edge[i].v,&edge[i].w);
   }
   int mst_wt = kruskalMST();
   printf("Minimum weight= %d\n",&mst_wt);

    return 0;
}
```