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8.1

Suclude Liostnam!

Suclude Lestning!

using namespace std;

define INF 99999999

define V 5

int GEUJEUJ = d

io, 9, 45, 0, 03,

19, 423,

175, 95, 0, 51, 663,

20, 42, 66, 31, 03

33

int main() if

int no.edge = 0;

int selected[v];

memset (selected, fulso, sizeot(selected));

selected [o] = true

int o(, y);

cout << "Edge": Weight": xx endl;

Und Alica: 1 of neclarates [] anew of the could

while (no edge x v-1)d did a shalowith 9nt min=INF; the stage and priles 1 1024 200 S d=0, y=0; for ("nt 1 = 0; 1 < v; 1+t) () if (selected [i]) & som for Cint 2=0; 2 KV; gt+) 1 Th (! selected (j] & & G [;][j]) { if (min) acideally min = acijejj; 1 = [3] who man out son soll- "xoy con " : "xo a [o][o] xx end; selected (s)=true; 11 monog non-si no-edgett; void · unite (Sur at, Sur M) neturn 0; int Erztind (1)3 Te (nounces) Anaile > Adge: weight 3-4:31

-3-2: 51

```
# include (bits/stact+.th)
     using namespace std;
      class DSU of
          Int panent ; the state of the soul
          gut reank; ([1] about sales)
      public:
          DSU(9nt n)d
             papent = new int [n];
           rank = new Int [n];
             for ("int 9=0; i(n; i++) d
                   parent [i]=-1;
                   rank[]=1;
         int find (intild
             it (panent (:)==-1)
return ?;
             Heturn panent[:]= And (panent[:]);
          void unite (Int or, Inty) of
             9nt si= find (n);
             int 522 Hind (b);
             9+ (si.1=si)d
                of (nank [si] x nank [si]) d
                     parent [si]= 52;
                      Mank [s2] += rank[si];
                Felsed
                     parent(2]= st;
                     orank[s] += rank[si];
                2
```

```
class Greaph 1
    vector (vector(int)) edgelist;
    Ind V:
public:
                        5. ald Edge (1,8,15);
     Greaph (Int V) d
          this y v=v; (1, 2, 3) sepabbon B
     void add Edge (int re, int y, int w) of
           edgelist. pushiback ( sw, or, y3);
     void knuskals_mst()/
           sont (edgelist. begin(), edgelist. end());
           DSW 'S(V);
          Int aw = 0;
           cout . K " Edges In MST construction " KK end;
           for (auto edge: edgelist) ¿
              int wa edgetos;
              9nt or edgelits
              9nt yoedge [2];
              If (s. Find (a) != s. find (y)) d
                  S. unite (oc, b);
                  any t=w;
                  cont to ack then ken's "1==" ken kendl;
         cout Re "Minimum Cost spanning Thre: "Re ans wend;
```

recton (vectors and) adoubt int mount of Graph g(4); g. and Edge (0, 1,10); 9-add Edge (1,3,15); g. add Edge (2, 3, 4); or the add blog brown g. add Edge (2, 0, 6); g. addfdge (0,3,5); 9. knuskali-mst()) () tem elastered brow Hetuno; Canada telego toos

INE and = Of Output Ls folges in MST construction 2 -- 3 == 9 tolerby the 0-- 3 == 5 1 10 100 000000 0 -- 1 2=10 Minimum Cost spanning Thee: 19

the granting heet we are against

5. unite (x) 2) 2

Mand al

Graph (Sut 1) &