include < Stdio. h >

void Swap (int *a int *b) &
int *kmb= *a;

*b = temb;

Void heatiby (int area c], int, n, int i) e int longest = i; int lyt = 2 * i+1; int right = 2 * i+2;

it (lyt < n & g own clyt] > own [longyt])

longest = left;

if LRight < n & & are Eright] > are Changest]

Longest = night;

ib (angust! = i) }

Snab (four Ci], Save (Longust);

huabiby (and, n, longust);

Void heapport (int our CJ, int n) (
bor (int i=n/2-1, i >=0; i--)

the heapiby (our, n,i);

for (nt i=n-1; 1>=0; i--) {
Swat (saur co), saur ci);
heatiby (aun, i, 0);

3

```
void print array (mt array, int n) (
       for (inti=0; i<n', ++i)
  Printt (", d" aver ci]);
Printt ("In");
int main CoL
   int a [15000] n, i, j, ch, temp.
      clocket Stort; End.
  Printt C'Ini: for namual Entry of N value
     and away Rements ");
 Print ("In2: for manual distray time takings
  Sorting number of sement N in the range 14500);
 Ant ("m3; Enten Esuit");
 brint (" In Enter your Choice");
 Scont (" 1-d", Bn); Switch (ch)
Cole 1: Print + ("In Enter your away
           Elementy ");
    tor Ci=0; i <n', i++) [
Stant (v-1.d", faci));
    Start = clock ();
      heatsort (a,n);
      End = Clock ();
    End = Clock ();

knintt ("In Sorted away");
       for Ci=o; izn;i++)(
      bont ("td", alis);
       brinth (up The taken to Start 1.d
                 number "4 1-4 Sees", n,
      (CCdouble) (End-Stort))/Clocks-PER_
         SEC ));
        brok;
```

```
N= 500',
  While (n c = 11500) [
  for liso; ien; i++)
     stort = clock C);
   hear sort (a,n);
 for (1=0; i < 500000; j+t) Stemb=38/600 5)
      End = Chock ();
print + ( yn Time token to sont 1.d number
 is 1. + Sey", n, cccdoubles ( and - stort))
   clocks-PER-SEC));
        n=n+ 1000;
       2(3" s siles your word of ") things
     breake; and Cus ("bat as amos
   Cose 3: buit (0);
  9 etchor ( );
Output: 1) To Enter dator into away morning
25 To display time token bor Sorting number of
      n Elements n in range 500 to 1450
 3) To bit.
Entryour Choice: 1
Enter fue number of Elements :3
Enter away lummy : 33
  Sortal average is " 22 33
Time token to sort 3 numbers is 0.000002 Sey
```

Enter your Choice: 2

Time token to sort 500 numbers is 0.000557 Sey The topen to Sort 1500 number 4 0.0005 38 sey Time taken to sort 2500 number is 0.000621 say Time baken to Sort 3500 Number is 0.0000 784 Secq The token to sort 4500 number is 0.0009 26 Seg Time taken to sort 5500 number is 0.0001010Sey Time taken to sort 6500 number is 0.000 10 12 seg The topen to sort 2500 number is 0.0001097 Ey The token to 5.00t 8500 number is 0.0000 10994 Enter your charce: 3 down and retail!

Scan + ("4.d", SE) .2. Floyd's algorithm

include 2 stdio. h > # degine INF 9999 void toy durunall (int graph CJCWOJ, int V) (int i, isk;

for (k = 0's kev; k++) (for Ci=o; i <v; i++) L

tor G=0 ;jev;jtt)[It (graph CiJCKJ + graph [KJCjJ x graph 6] 6] Graph CiJlij = graph CiJlk] tgraph [k] Ejj

Prints Cushostest distances between Every Pair of vertices : (n");

for liz 0 sizy si++) (tor (j=0; j <v sitt) & graph b If (graph [i][j] == INE)

```
Print (449", "INF");
  Elle
  Print+ ("", ud", grab [i] [i]);
 we were to sort agon much as The and the
 Printe ("In");
 per shore of James over the observator
int mais coc
       int V, 1=;
      Print ("enter the number of Vinkey:")3
   Scont ("1.d", 8V);
   Print ("Inter the number of Edges:");
     Scan + ("1.d", RE);
       int Grath Crool Cool
      for Cinti=0; 1 < v; i++) (
  for Cint j=0; j < v; j++) L
        grath LiJejJ=INF;
   Printl ("Enter the edge and their bright: \n");
for Cint 1= 0; ICE ; it t) [
   int U, V, W;
      Scant [4.1.d.1.d.1.d", 80,50, 3 w);
         graph cusevs=w;
  for Cin+1=0; icv; i++) C
             graph lidli J=0.
          hay dwarehall Egraph, V);
```

(and = 17 13 [11 14 1)

Dutbut: Enter the number of Vertices 14 Enter the number of blgg; 6 Enter the edges of and their weights. 1000 (15700) (Kod. devis) & abulant H 23 Tool Rosmov - now simplette 20 " KAMLIUI FUL SNIPS TO CE12 +31 4 Esb +ni, N +ni) Shortest distances voiti cer: (++v :n> v (0 =v +n) rol 1 if CscvJ == 0 S& devJ. 0 5 3 9 Will a Nim
7 0 2 6 Sodoni - nim
3 2 0 4 9 5 4 0 int Print MST (int B) int PETT (INT COST (MAX-VERTICES) (MAX _ VERTICES 3) int total 2026 = 01 CO Print P [" Edge" Hough the) for (intile) reals Prints (Int 12 19 reads 1 tota) Print + CHd -1-ST 0.0075 idealetot mustr 100.001 6.0005 2000 10000 1 12000 Tely 000 1 6000 6000 THUX-NEUTEREZ DIT