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Experiment no. 3(a)

Input:

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#include <stdio.h>
#include <stdlib.h>

int i, j, k, a, b, u, v, n, ne = 1;
int min, mincost = 0, cost[9][9], parent[9];

int find(int);
int uni(int, int);

void main()
{
  printf("Enter the no. of vertices:\n");
  scanf("%d", &n);

  printf("\nEnter the cost adjacency matrix:\n");
  for (i = 1; i <= n; i++)
  {
    for (j = 1; j <= n; j++)
    {
      scanf("%d", &cost[i][j]);
      if (cost[i][j] == 0)
        cost[i][j] = 999;
    }
  }

  printf("The edges of Minimum Cost Spanning Tree
  are\n"); while (ne < n)
  {
    for (i = 1, min = 999; i <= n; i++)
    {
      for (j = 1; j <= n; j++)
      {
        if (cost[i][j] < min)
        {
          min = cost[i][j];
          a = u = i;
          b = v = j;
```

```
        }
      }
    }

    u = find(u);
    v = find(v);

    if (uni(u, v))
    {
      printf("%d edge (%d,%d) =%d\n", ne++, a, b,
      min); mincost += min;
    }

    cost[a][b] = cost[b][a] = 999;
  }

  printf("\nMinimum cost = %d\n",

mincost); }

int find(int i)
{
  while (parent[i])
    i = parent[i];
  return i;
}

int uni(int i, int j)
{
  if (i != j)
  {
    parent[j] = i;
    return 1;
  }

  return 0;
}
```

Output:

Enter the no. of vertices:
3
Enter the cost adjacency matrix:

5 4 5
3 7 8
9 10 2
The edges of Minimum Cost Spanning Tree are 1
edge (2,1) =3
2 edge (1,3) =5

Minimum cost =

8