FIRST SEMESTER MCA (2020 SCHEME) Practical Examination June 2021

20MCAI35 DATA STRUCTURES LAB

Date - 30/06/2021 Batch - II

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1. Merging of 2 Arrays.

```
#Include<stdio.h>
# include<conio.h>
 void main()
 {
 int arr1[50], arr2[50], arr3[100],m,n,i,j,k=0;
 Printf("Enter the no.of elements1 :\n");
 Scanf("%d", &m);
 Printf("Enter the elements\n");
 for(i=0;i<m;i++)
 {
 Scanf("%d", &arr1[i]);
 }
 Printf("Enter the no.of elements 2\n");
 & Scanf("%d", &n);
 Printf("Enter the elements\n");
 for(i=0;i<n;i++)
 {
 Scanf("%d", &arr2[i]);
 }
 i=0;
 j=0;
while(i<m && j<n)
{
if(arr1[i]<arr2[j])
{
arr3[k]=arr1[i];
i++;
}
else
{
arr3[k]=arr2[j];
j++;
}
```

```
k++;
}
if(i>=m)
{
while(j<n)
{
arr3[k]=arr2[j];
j++;
k++;
}}
if(j>=n)
{
while(i<m)
{
arr3[k]=arr1[i];
i++;
j++;
}}
Printf("Merged array:\n");
for(i=0;i<m+n;i++)
{
Printf("%d\n",arr3[i]);
}
getch();
}
```

Output-

```
Enter the no of elements 1:
3
Enter the elements
2
3
4
Enter the elements 2:
2
5
6
5
Merged array:
2
3
4
5
6
```

2. Implement Prims Algorithms

```
#include <stdio.h>
#include<conio.h>
int a,b,u,v,n,i,j,ne=1;
int visited[10]={0}, min, mincost=0, cost[10][10];
void main()
{
printf("enter the number of nodes \n");
scanf("%d",&n);
printf("\n adjacency matrix \n");
for(i=1;i<=n;i++)
{
scanf("%d",&cost[i][j]);
if(cost[i][j]==0)
cost[i][j]=999;
}
visited[1]=1;
printf("\n");
while(ne<n)
{
for(i=1,min=999;i<=n;i++)
for(j=1;j<=n;j++)
if(cost[i][j]<min)
if(visited[i]!=0)
{
min=cost[i][j];
a=u=i;
b=v=j;
}
if(visited[u]==0 || visited[v]==0)
{
printf("\n edge: %d (%d %d) cost: %d",ne++,a,b,min);
mincost+=min;
visited[b]=1;
}
cost[a][b]=cost[b][a]=999;
}
printf("\n minimum cost %d",mincost);
getch()
}
```

Output

```
enter the number of nodes
3
adjacency matrix
1
2
3
4
7
1
4
5
8
edge: 1(1 2) cost 2
edge: 2(2 3) cost 1
minimum cost 3
```