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CLASS: SE COMPUTER
DIV: A
BATCH: B3
ASSIGNMENT NO:7

CODE:-

```
#include<iostream>
using namespace std;

class tree
{
	int a[20][20],l,u,w,i,j,v,e,visited[20];
public:
	void input();
	void display();
	void minimum();
};

void tree::input()
{
	cout<<"Enter the no. of branches: ";
	cin>>v;

	for(i=0;i<v;i++)
	{
		visited[i]=0;
		for(j=0;j<v;j++)
		{
			a[i][j]=999;
		}
	}

cout<<"\nEnter the no. of connections: ";
cin>>e;

for(i=0;i<e;i++)
{
	cout<<"Enter the end branches of connections:  "<<endl;
```

```
            cin>>l>>u;
            cout<<"Enter the phone company charges for this connection:  ";
            cin>>w;
            a[l-1][u-1]=a[u-1][l-1]=w;
        }
}

void tree::display()
{
        cout<<"\nAdjacency matrix:";
        for(i=0;i<v;i++)
        {
                cout<<endl;
                for(j=0;j<v;j++)
                {
                        cout<<a[i][j]<<"   ";
                }
                cout<<endl;
        }
}

void tree::minimum()
{
        int p=0,q=0,total=0,min;
        visited[0]=1;
        for(int count=0;count<(v-1);count++)
        {
                min=999;
                for(i=0;i<v;i++)
                {
                        if(visited[i]==1)
{
        for(j=0;j<v;j++)
        {
                if(visited[j]!=1)
                {
                        if(min > a[i][j])
                        {
                                min=a[i][j];
```

```
                        p=i;
                        q=j;
                    }
                }
            }
        }
    }
    visited[p]=1;
            visited[q]=1;
            total=total+min;
            cout<<"Minimum cost connection is"<<(p+1)<<" -> "<<(q+1)<<"  with charge :
"<<min<< endl;

        }
        cout<<"The minimum total cost of connections of all branches is: "<<total<<endl;
}

int main()
{
int ch;
tree t;
do
{
        cout<<"==========PRIM'S ALGORITHM================="<<endl;
        cout<<"\n1.INPUT\n \n2.DISPLAY\n \n3.MINIMUM\n"<<endl;
        cout<<"Enter your choice :"<<endl;
        cin>>ch;

switch(ch)
{
case 1: cout<<"*******INPUT YOUR VALUES*******"<<endl;
        t.input();
        break;

case 2: cout<<"*******DISPLAY THE CONTENTS********"<<endl;
        t.display();
        break;

case 3: cout<<"*********MINIMUM**********"<<endl;
```

```
            t.minimum();
            break;
        }

        }while(ch!=4);
        return 0;
}
```

OUTPUT:-

==========PRIM'S ALGORITHM==========

1.INPUT

2.DISPLAY

3.MINIMUM

Enter your choice :

1

INPUT YOUR VALUES

Enter the no. of branches: 2

Enter the no. of connections: 3

Enter the end branches of connections:

34

45

Enter the phone company charges for this connection: 1234

Enter the end branches of connections:

56

67

Enter the phone company charges for this connection: 1456

Enter the end branches of connections:

45

67

Enter the phone company charges for this connection: 1586

==========PRIM'S ALGORITHM==========

1.INPUT

2.DISPLAY

3.MINIMUM

Enter your choice :
2
DISPLAY THE CONTENTS*
Adjacency matrix:
999   999

999   999
==========PRIM'S ALGORITHM==================

1.INPUT

2.DISPLAY

3.MINIMUM

Enter your choice :
3
****MINIMUM*****
Minimum cost connection is1 -> 1 with charge : 999
The minimum total cost of connections of all branches is: 999
==========PRIM'S ALGORITHM==================

1.INPUT

2.DISPLAY

3.MINIMUM

Enter your choice: