Experiment NO: 9 Find Minimum Cost Spanning Tree of a given connected undirected graph using Prim's algorithm.

```
import java.util.*;
public class prims {

	public static void main(String[] args) {
	int cost[][]= new int[10][10];
	int sol[]= new int[10];
	int i,j,k=1,n,u=0,v=0,s,min,sum=0;
	Scanner sc= new Scanner(System.in);
	System.out.println("enter the number of vertices");
	n= sc.nextInt();
	System.out.println("enter the cost matrix put 999 when there is no edge");
	for(i=1;i<=n;i++)
	{
		for(j=1;j<=n;j++)
			cost[i][j]=sc.nextInt();
	}
	System.out.println("the cost matrix is ");
		for(i=1;i<=n;i++)
	{
		for(j=1;j<=n;j++)
			System.out.print(cost[i][j] +"\t");
		System.out.println();
	}
		for(i=1;i<=n;i++)
			sol[i]=0;
		System.out.println("enter the source vertic");
		s=sc.nextInt();
		sol[s]=1;
		while(k<=n-1)
	{
		min=999;
		for(i=1;i<=n;i++)
		{
			for(j=1;j<=n;j++)
			{
				if(sol[i]==1 &&sol[j]==0)
				{
					if(i!=j&&min>cost[i][j])
					{
						min = cost[i][j];
						u=i;
						v=j;
					}
				}
			}
		}
		sol[v]=1;
		sum=sum+min;
		k++;
		System.out.println(u+"->"+v+"=" +min);
	}
		System.out.println("The minimum cost is " +sum);

		}

}
```

```
enter the number of vertices
5
enter the cost matrix put 999 when there is no edge
0 5 15 10 999
5 0 999 25 30
15 999 0 20 999
10 25 20 0 35
999 30 999 35 0
the cost matrix is
0      5      15     10     999
5      0      999    25     30
15     999    0      20     999
10     25     20     0      35
999    30     999    35     0
enter the source vertex
1
1->2=5
1->4=10
1->3=15
2->5=30
The minimum cost is 60
```