

```
// Prim's Algorithm
```

```
#include<stdio.h>
```

```
#include<stdbool.h>
```

```
#define INF 9999999
```

```
#define V 5
```

```
int G[V][V] = {  
    {0, 9, 75, 0, 0},  
    {9, 0, 95, 19, 42},  
    {75, 95, 0, 51, 66},  
    {0, 19, 51, 0, 31},  
    {0, 42, 66, 31, 0}};
```

```
int main() {  
    int no_edge;  
    int selected[V];  
  
    memset(selected, false, sizeof(selected));  
  
    no_edge = 0;  
  
    selected[0] = true;  
  
    int x;  
    int y;  
    int cost=0;
```

```
printf("Edge : Weight\n");
```

```
while (no_edge < V - 1) {
```

```
    int min = INF;
```

```
    x = 0;
```

```
    y = 0;
```

```
    for (int i = 0; i < V; i++) {
```

```
        if (selected[i]) {
```

```
            for (int j = 0; j < V; j++) {
```

```
                if (!selected[j] && G[i][j]) {
```

```
                    if (min > G[i][j]) {
```

```
                        min = G[i][j];
```

```
        x = i;
        y = j;
    }
}
}
}
}
}
printf(" %d - %d : %d\n", x, y, G[x][y]);
int Per_cost = cost + G[x][y];
selected[y] = true;
no_edge++;
cost = cost + G[x][y];
printf("Cost = %d\n",Per_cost);
}
printf("So, Total Cost = %d\n", cost);
int Number_of_Edge = no_edge;
```

```
printf("Number of Edge =  
%d\n",Number_of_Edge);
```

```
return 0;  
}
```

Output:

```
Edge : Weight  
0 - 1 : 9  
Cost = 9  
1 - 3 : 19  
Cost = 28  
3 - 4 : 31  
Cost = 59  
3 - 2 : 51  
Cost = 110  
So, Total Cost = 110  
Number of Edge = 4  
  
Process returned 0 (0x0)   execution time : 0.019 s  
Press any key to continue.
```

Time Complexity: $O(n^2)$