

```

import heapq

class Graph:

    def __init__(self, vertices):
        self.V = vertices
        self.graph = [] # For Kruskal's algorithm (edge list)
        self.adj_list = {i: [] for i in range(vertices)} # For Prim's algorithm

    def add_edge(self, u, v, w):
        self.graph.append((w, u, v)) # Edge list for Kruskal
        self.adj_list[u].append((v, w)) # Adjacency list for Prim
        self.adj_list[v].append((u, w)) # Undirected graph

    # Kruskal's Algorithm

    def kruskal_mst(self):
        # Helper functions for Union-Find

        def find(parent, i):
            if parent[i] == i:
                return i
            return find(parent, parent[i])

        def union(parent, rank, x, y):
            xroot = find(parent, x)
            yroot = find(parent, y)
            if rank[xroot] < rank[yroot]:
                parent[xroot] = yroot
            elif rank[xroot] > rank[yroot]:
                parent[yroot] = xroot
            else:
                parent[yroot] = xroot
                rank[xroot] += 1

```

```

# Kruskal's algorithm implementation

self.graph.sort() # Sort edges by weight

parent = []
rank = []
mst = []

for node in range(self.V):
    parent.append(node)
    rank.append(0)

for edge in self.graph:
    w, u, v = edge
    x = find(parent, u)
    y = find(parent, v)
    if x != y:
        mst.append(edge)
        union(parent, rank, x, y)

print("Kruskal's MST:")
for w, u, v in mst:
    print(f"{u} -- {v} == {w}")

# Prim's Algorithm

def prim_mst(self):
    visited = [False] * self.V
    min_heap = [(0, 0)] # (weight, vertex)
    mst = []

    while min_heap:
        weight, u = heapq.heappop(min_heap)
        if visited[u]:
            continue
        visited[u] = True
        mst.append((u, weight))
        for v, w in self.graph[u]:
            if not visited[v]:
                heapq.heappush(min_heap, (w, v))

    return mst

```

```

        continue

visited[u] = True

mst.append((u, weight))

for v, w in self.adj_list[u]:
    if not visited[v]:
        heapq.heappush(min_heap, (w, v))

print("Prim's MST:")

for u, weight in mst[1:]:
    print(f"{u} -- {weight}")

```

```

# Example usage

# Nodes: 0 - Admin, 1 - Library, 2 - CSE Dept, 3 - ECE Dept, 4 - Hostel

g = Graph(5)

g.add_edge(0, 1, 10)
g.add_edge(0, 2, 20)
g.add_edge(1, 2, 5)
g.add_edge(1, 3, 15)
g.add_edge(2, 3, 30)
g.add_edge(3, 4, 10)
g.add_edge(2, 4, 25)

# Find MST using Kruskal's algorithm

g.kruskal_mst()

```

```

# Find MST using Prim's algorithm

g.prim_mst()

```