Minimum Spanning Tree (MST)

An MST spans all vertices, minimizes edge weights, and avoids cycles. Using Kruskal's Algorithm:

- Sorted edges: (E, C), (B, C), (D, F), (D, B), (E, D), (A, B), (A, D), (E, F).
- MST: (E, C), (B, C), (D, F), (D, B), (E, D).
- Total Weight: 15.
  The MST isn't unique due to duplicate edge weights.

Shortest Paths with Dijkstra's Algorithm

Dijkstra's calculates shortest paths from A:

- Final distances: A=0,B=4,C=7,D=10,E=8,F=13A=0, B=4, C=7, D=10, E=8, F=13A=0,B=4,C=7,D=10,E=8,F=13.

Critical Edges and Articulation Points

- **Critical Edges:** None, as multiple paths connect all vertices.
- **Articulation Points:** None, as no vertex disconnects the graph.

Path from A to E with Blocked C

If C is blocked, an alternate path exists: A→D→EA \to D \to EA→D→E.

Graph Robustness

The graph is robust due to:

- No critical edges or articulation points.
- Multiple independent paths between vertices.

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