Graph Types Comparison Table

Graph Type	Directed?	Weighted?	Allows Multiple Edges?	Applications	Example
Simple Graph	Yes/No	Yes/No	No	Social networks, road maps	Nodes connected without loops
Multigraph	Yes/No	Yes/No	Yes	Transport networks, parallel routes	Multiple edges between nodes
Directed Graph (Digraph)	Yes	Yes/No	Yes/No	Web links, citation networks	Arrows show direction
Undirected Graph	No	Yes/No	Yes/No	Friendship networks	Edges without direction
Weighted Graph	Yes/No	Yes	Yes/No	Navigation systems, logistics	Edges have distances/weights
Dense Graph	Yes/No	Yes/No	Yes/No	Mesh networks	Many edges relative to nodes
Sparse Graph	Yes/No	Yes/No	Yes/No	Tree-like structures, road maps	Few edges
Complete Graph	Yes/No	Yes/No	No	Fully connected systems	Every node connected to all others
Bipartite Graph	Yes/No	Yes/No	Yes/No	Job assignment, matching problems	Nodes split into 2 sets
Tree	Yes (Hierarchy)	No	No	File systems, org charts	Root with child branches