Graph Type	Description	Applications
Undirected Graph	• Edges have no direction • Degree = number of edges per vertex	• Social networks (friendship) • Road maps (two-way streets)
Directed Graph	• Edges have direction ($u \rightarrow v$) • Has in-degree & out-degree	• Web links • Task dependencies
Weighted Graph	• Each edge has a weight (cost, distance, time)	• GPS routing • Airline networks
Simple Graph	• No self-loops • No multiple edges between vertices	• Basic network modeling
Multigraph	• Allows multiple edges between same vertices	• Transport routes with alternatives
Dense Graph	• Number of edges $\approx$ maximum possible edges	• Fully connected systems
Sparse Graph	• Few edges compared to maximum possible	• Road networks in large areas
Complete Graph	• Every vertex connected to every other vertex	• Full-mesh networks