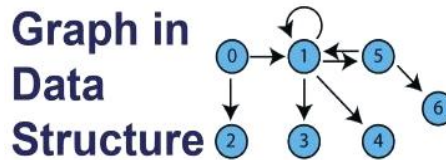# REAL WORLD APPLICATIONS OF GRAPHS IN DATA STRUCTURES

Q- Write the 5 real world applications of graphs in data structures.

<u>**What is Graph?**</u>

Graphs are strong data structures that describe real-world entity relationships. From social networks to Google maps and the internet to blockchains and neural networks, graphs are everywhere.

<u>**Applications Of Graph:**</u>

Graphs, as a data structure, find applications in various real-world scenarios due to their ability to model relationships and connections between entities. Here are five real-world applications of graphs:

1. <u>Social Networks</u>

Application: Social media platforms like Facebook, LinkedIn, and Twitter.

Description: Nodes represent users, and edges represent connections or friendships between users. Graphs help in suggesting friends, analyzing social structures, and delivering personalized content.

2<u>. Network Routing</u>

Application: Internet and telecommunication networks.

Description: Nodes represent routers or switches, and edges represent communication links. Graph algorithms help in finding the most efficient routes for data transmission, minimizing delays, and optimizing network traffic.

3. <u>Transportation Networks</u>

Application: Road, rail, and air transportation systems.

Description: Nodes represent locations, and edges represent the transportation links between them. Graphs model traffic flow, guide navigation systems, and optimize routes for logistics and delivery services.

4. <u>Recommendation Systems</u>

Application: Movie, music, and product recommendation platforms.

Description: Nodes represent users or items, and edges represent preferences, views, or purchases. Graph-based algorithms analyze user behavior and preferences to suggest relevant content or products.

5. <u>Epidemiology and Disease Spread</u>

Application: Modeling the spread of diseases in populations.

Description: Nodes represent individuals, and edges represent interactions or proximity. Graphs help simulate and analyze the spread of diseases, identify key influencers, and optimize vaccination strategies.

<u>Conclusion:</u>

These applications showcase the versatility of graphs in representing and solving complex problems across different domains.