Information retrieval (IR) is the process of searching, accessing, and retrieving relevant information from large collections of unstructured or semi-structured data, such as documents, webpages, images, or multimedia files. Instead of manually going through vast amounts of information, IR systems use algorithms to match a user's query with the most relevant content. Search engines like Google are the most common examples—they index billions of pages, analyze keywords, understand context, and rank results so users can quickly find what they need. The core goal of IR is to maximize relevance while minimizing the time and effort required to locate information.

Modern information retrieval goes far beyond simple keyword matching. With advancements in machine learning, natural language processing, and semantic understanding, IR systems can now interpret meaning, detect relationships between concepts, and personalize results based on user behavior. Techniques such as vector embeddings, ranking algorithms, and relevance feedback allow IR systems to deliver more accurate and context-aware outputs. As data continues to grow exponentially, IR plays a crucial role in research, search engines, recommendation systems, academic tools, and enterprise knowledge management—making it essential for transforming raw data into usable knowledge.