Data and information are closely related but distinct concepts in the realm of computing and information systems. Here's a breakdown of each:

1. Data:
   - Definition: Data refers to raw facts, symbols, or statistics that have no inherent meaning on their own.
   - Representation: Data can be represented in various forms, including numbers, text, images, audio, and video.
   - Characteristics:
     - Data is objective and measurable.
     - It lacks context and interpretation until it is processed.
     - It can be structured or unstructured.
   - Examples:
     - Numbers (e.g., 10, 3.14)
     - Text (e.g., words, sentences)
     - Images (e.g., pixels, color values)
     - Audio (e.g., waveforms, frequencies)
     - Video (e.g., frames, pixels)
2. Information:
   - Definition: Information is processed data that has been organized, interpreted, and given context, making it meaningful and useful for decision-making or understanding.
   - Generation: Information is derived from data through processing, analysis, and interpretation.
   - Characteristics:
     - Information is subjective and contextual.
     - It provides insights, knowledge, or understanding.
     - It helps in making informed decisions or taking actions.
   - Examples:
     - A weather report summarizing temperature, humidity, and precipitation data for a specific location.
     - Financial statements prepared from raw accounting data, providing insights into a company's financial health.
     - A medical diagnosis derived from patient symptoms, test results, and medical history.

Relationship between Data and Information:

- Data is the raw material from which information is derived.
- Information adds value to data by providing context, interpretation, and relevance.

- Data becomes information when it is processed, analyzed, and presented in a meaningful way that enables understanding or decision-making.

In summary, while data represents raw facts and figures, information transforms data into meaningful insights and knowledge that can be used for various purposes, including decision-making, communication, and problem-solving.