Information Extraction (IE) is a crucial task in the field of Natural Language Processing (NLP) that involves automatically extracting structured information from unstructured and/or semi-structured textual data. This process enables the transformation of text into a more structured format that is easier for machines to understand, manipulate, and use for various applications. The goal of information extraction is to identify specific pieces of data, such as entities, relationships between entities, and attributes of these entities, from a corpus of texts.

Key components and tasks within Information Extraction include:

1. **Named Entity Recognition (NER):** Identifies and classifies named entities (e.g., persons, organizations, locations, dates, products) mentioned in the text into predefined categories.

2. **Entity Linking (EL) or Named Entity Disambiguation (NED):** Involves linking identified entities to entities in a knowledge base, resolving ambiguities (e.g., distinguishing between a city named "Paris" and "Paris" as a person's name).

3. **Relationship Extraction (RE):** Identifies relationships between entities within the text. For example, in the sentence "Bill Gates founded Microsoft," a relationship extraction system would identify "Bill Gates" and "Microsoft" as entities and "founded" as the relationship between them.

4. **Event Extraction:** Involves identifying events (occurrences or actions) described in the text and extracting relevant details about these events, such as the participants, time, and location.

5. **Coreference Resolution:** Identifies all expressions in the text that refer to the same entity. For instance, recognizing that "he," "the CEO," and "John" in a text all refer to the same person.

6. **Attribute Extraction:** Focuses on extracting attributes or properties of entities, such as a person's age, a product's price, or a company's revenue.

Information extraction is applied in various domains, including but not limited to, web search, content recommendation, sentiment analysis, document summarization, question answering systems, and knowledge base population. By extracting structured information from text, IE systems support the aggregation, analysis, and synthesis of data for better decision-making, automation, and insights across numerous applications.