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New Search Interfaces

• SERPs are now able to include more complex informational and interactive items
• Knowledge-graph items are prevalent and designed to provide direct answers
Example Use Cases

**Book table Dishdash Sunnyvale**

- **Actions**
  - CALL
  - DIRECTIONS
  - WEBSITE

- **Entity attributes**
  - Hearty Middle Eastern dishes served in a bustling & colorful room with regional art on the walls.
  - 190 S Murphy Ave, Sunnyvale, CA 94086, United States
  - Open today 11am–2:30pm, 5–9:30pm
  - Menu

**Brad Pitt / Spouse**

- **Actions**
  - IMAGES
  - NEWS
  - VIDEOS
  - MAPS

- **Entity attributes**
  - Angelina Jolie (m. 2014)
  - Jennifer Aniston (m. 2000–2005)

**Thomas Jefferson**

- **Actions**
  - Images
  - More images

- **Entity attributes**
  - 3rd U.S. President
  - Thomas Jefferson was an American Founding Father, the principal author of the Declaration of Independence, and the third President of the United States. [Wikipedia]
  - Born: April 13, 1743, Shadwell, VA
  - Died: July 4, 1826, Charlottesville, VA
  - Presidential term: March 4, 1801 – March 4, 1809
  - Spouse: Martha Jefferson (m. 1772–1782)
  - Party: Democratic-Republican Party
  - Awards: AIA Gold Medal

**People also search for**

- John Adams
- George Washington
- Benjamin Franklin
- James Madison
- Alexander Hamilton
Knowledge Graphs
Subtasks

1. **Action Mining (AM):** For a given entity type and instance find potential actions that can be taken (possibly using external resources).
   - Similar to open information extraction
   - Allows us to accumulate a comprehensive set of actions that are related to a given entity type

2. **Actionable Knowledge Graph Generation (AKGG):** For a given entity, entity type, and action, rank entity properties based on their relevance to the query
   - The query (input) will be ambiguous as well as realistic search queries
   - Properties to be returned will be fixed
Thank you!

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