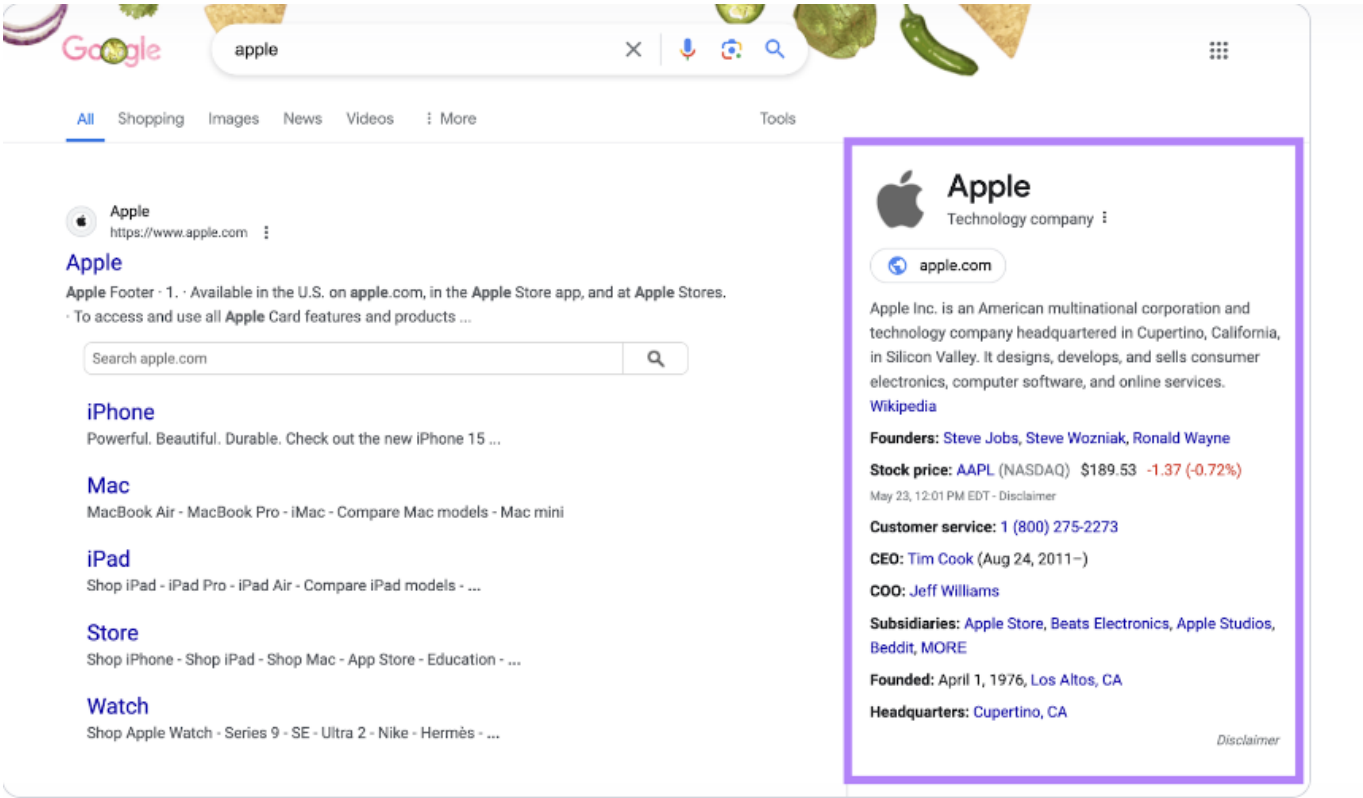
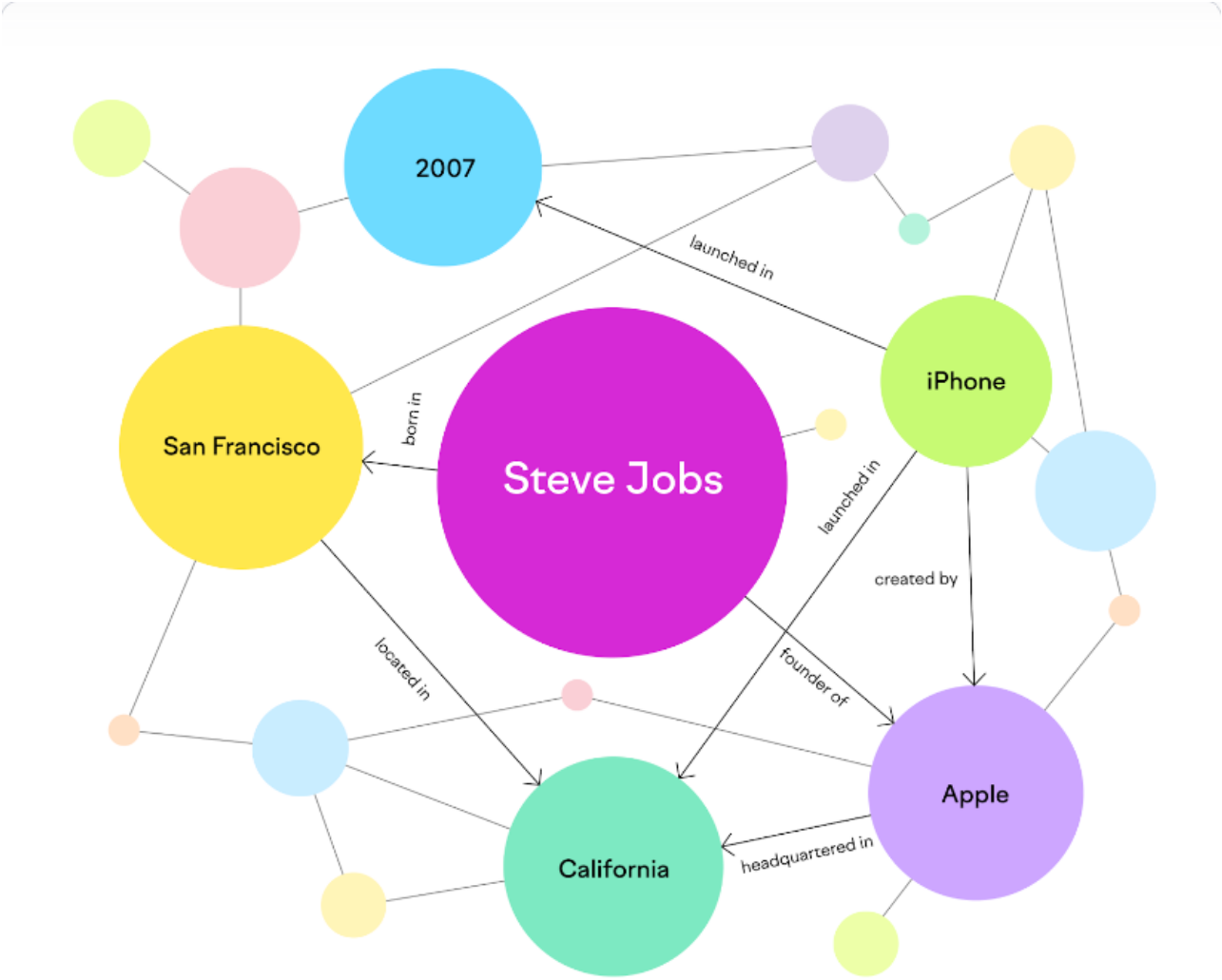
Google Knowledge Graph

Google's Knowledge Graph is a knowledge base that Google uses to provide factual information in search results pages. It basically allows users to get useful information without having to click a result.



Explain how your assigned example uses web semantics and linked data:

- Web semantics:
    - data becomes interpretable, not only for humans, but also by machines;
    - This is allowed by the use of structured data and metadata, that allows machines to recognize search terms as entities, and not only simple Keywords. So, its core purpose is basically to define relationships between data on the web as a way machines can understand, by using, for example, RDF's, that allow to represent the relationships by triplets.
- Linked data:
    - In what concerns to linked data, it is basically what enables the actual connection of disparate data sources across the web into a single nsetwork of entities. This is the reason why, when we search a term, for example, "Paris", suggested searches related to it, like "Eiffel Tower" are presented.



Reflect on potential challenges in implementing linked data, like interoperability or data consistency:

- Only individual matching entities;
- This implies:
  - Missing entity Relationships;
  - Need for making multiple requests => manual entity linking;
  - Reduced Semantinc Inference

How does this application use structured data?

- It uses the JSON-LD format, which is compatible with schema.org schemes. This allows the data to be structured in a way that is easily readable by machines, and also allows for the data to be easily linked to other data sources.

Field name	Type	Description
`@id`	`string`	The canonical URI for the entity.
`name`	`string`	The name of the entity.
`@type`	`array`	The list of supported schema.org types that match the entity.
`description`	`string`	A short description of the entity.
`image`	URL	An image to help identify the entity.
`detailedDescription`	`string`	A detailed description of the entity.
`url`	URL	The official website URL of the entity, if available.
`identifier`	`array`	A list of other linked ids. e.g. WikidataQID.

JSON-LD keywords

Refer to the JSON-LD specification for JSON-LD keywords such as:

- `@context`
- `@vocab`
- `@type`
- `@id`

What are the main benefits of using web semantics or linked data in this context?

- Incorporates data for multiple sources;
- Entity-Centric Knowledge, giving a more meaningful representation of relationships between entities;

What role do LLMs play?

- Large Language Models are used to interpret/solve complex queries and queries based on complex contexts.