**"Semantic"** means relating to the meaning of words, phrases, or data. It's about understanding what something means or represents. For example, in language, semantics is about understanding the meanings of words and sentences. In data science, semantics involves recognizing the meaning and relationships between different pieces of data.

A **semantic embedding** is a representation of data objects (such as words, images, or users) in a continuous vector space that captures the meaning, relationships, and contextual similarities between these objects. In this space, similar objects are placed closer together, reflecting their semantic similarity. This allows algorithms to understand and process the data based on their meanings and relationships rather than just their raw form.

In the context of embeddings and vectors in data science, **semantic** refers to the meaning or the underlying relationships between the objects being represented. Semantic embeddings capture and reflect the inherent meanings, contexts, and relationships of the objects within the vector space.

For example

- **Words:** Semantic embeddings of words (like word vectors) represent words such that words with similar meanings or used in similar contexts are closer together in the vector space. For instance, king and queen would be closer to each other than king and apple.

- **Images:** Semantic embeddings of images represent visual features such that similar images (like pictures of cats) are closer together than dissimilar images (like a cat and a car).

- **Users:** In a recommendation system, user embeddings can represent user preferences such that users with similar preferences have similar embeddings.

By using semantic embeddings, data science models can better understand and process complex data by focusing on the meaning and relationships rather than just raw data points.