Siri's Natural Language Processing.

Vivek from apple explains that users interact with text either through Natural language input (referring to instances where the user types text through their keyboard inside an app, talks to a device through voice) or through Natural language output (where the app presents text/speech to the user for consumption).

He confirms that natural language is important to draw actionable intelligence from raw text and this has caused Apple to introduce the Natural Language Framework.

"The Natural Language Framework is the NLP workhorse for all things across all Apple platforms" (VIVEK, 2019)

It comprises of some fundamental building block that includes language identification, tokenization, parts of speech tagging, lemmatization and named-entity recognition.

Apple have text classification APIs and word tagging APIs under this framework that allows them analyse sentences, paragraphs or even a whole speech, assigning labels to text and words/tokens. These labels maybe sentiment labels, topic labels etcetera, and they help the computer understand the context and provide meaning to texts.

An Apple Inc product that utilizes these APIs for natural language processing is Siri. Siri is an AI/machine learning based application that receives text input inform of spoken words or typed text and gives output in these formats or even broader formats including music, videos, web search etc. A very interesting feature of this technology is its ability to read emotions/sentiments, and one way this is made possible is through sentiment analysis.

Sentiment analysis is a text classification API that helps applications like Siri analyse speech or text by assigning them a sentiment score on a scale of -1 to+1, with +1 being a very strong positive emotions/sentiment and -1 being a very strong negative emotion/sentiment. The sentiment score is then calibrated backend and this enables Siri give an appropriate response to text inputs. For instance if we say *"Hey Siri, I don't feel good today",* Siri can respond with "*Sorry about that. Have you tried going to the movies or going on an holiday?"*.

References.

Advances in Natural language framework, WWDC (2019) Vivek.
Advances in Natural Language Framework - WWDC19 - Videos - Apple Developer