Language Understanding Intelligent Service

(LUIS)

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The LUIS App

LUIS, or language understanding intelligent service, is a cloud-based service that applies custom machine learning to a user's conversational, natural language text to predict overall meaning, and pull out relevant detailed information. As usual, it's exposed over simple REST APIs. In fact, you can even create, manage, and maintain a LUIS application completely through REST APIs, in effect creating a LUIS app that becomes better with time.
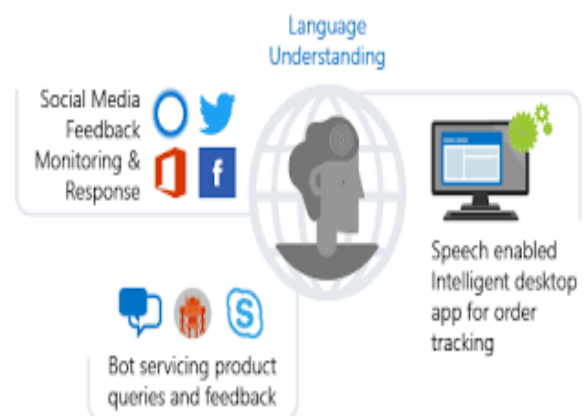
In LUIS, your application, or app, is a collection of machines learned models, built on the same data set, that works together to predict intents and entities for a scenario. Each application has a separate prediction endpoint. It is a program built on machine learning and complex algorithms that brings AI to apps so that computers and humans can speak with each other.If you are building an HR bot, you might have a set of intents, such as "Schedule leave time", "inquire about benefits" and "update personal information" and entities for each one of those intents that you group into a single application.

A LUIS app or LUIS model is defined by a developer for a specific application/domain. The output of a LUIS app is a web service with an HTTP endpoint that you reference from your client application to add natural language understanding to. The user utterance is the input. Intents and entities are returned to the client application. The client application can then take appropriate action based on the user intentions that LUIS recognizes.

CREATION OF A MODEL

In any AI application, the model is the "thing" you use to predict. This may be a model which, based on historical data, predicts house prices. Or a model that predicts the probability of an email being spam or not.
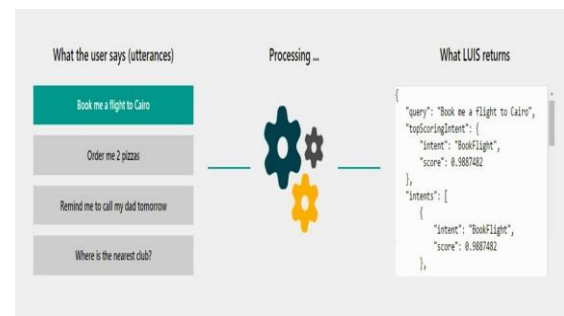
Similarly, in LUIS, you have a model, which is the "thing" that takes your input text and makes it meaningful,

something that a computer can understand. For instance, "Turn lights on," "make it brighter," or "let there be light," could mean the same thing: a command called "lights.on."

TERMINOLOGIES IN LUIS

- **Intents**

An **intent** is an action the user wants to perform. Natural language is extremely flexible; in fact, different languages and cultures make them less or more flexible. But what is the user's "intention?" It is the goal the user is trying to achieve. Maybe they want to turn the lights on. Maybe they want to schedule a calendar appointment. Maybe they want to book a flight. Whatever the intent may be, the user can express

themselves in a multitude of ways, but it always translates to one intent. LUIS understands utterances and converts them to one or more intents that you specify in your LUIS application.

- **Utterance**

An **utterance** is what the user speaks or types. In cases where the user speaks, you use speech-to-text to convert their words to text. For a LUIS app, an utterance is any text that comes from the user. In any LUIS application, you have one or more utterances. We must limit your LUIS application to a problem domain. For instance, one application could be about making travel plans and another application could be about home automation. By limiting the dictionary of possible utterances, you improve prediction. You can also improve prediction by actively learning endpoint utterances, phrase lists for domain word inclusion, and patterns that reduce the number of utterances needed.

- **Test the Model and getting random query**

Unexpected query prediction results are based on the state of the published model. To correct the model, you may need to change the model, train, and publish again.
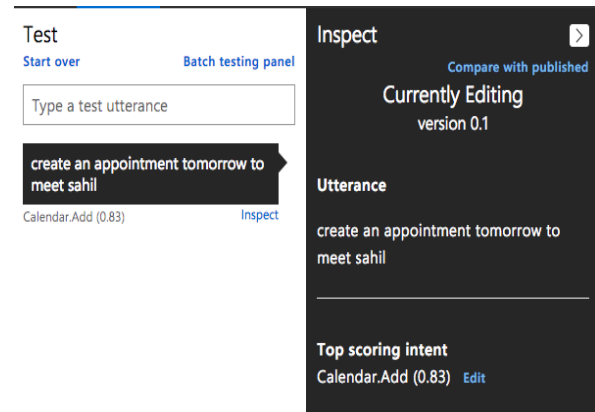
UNDERSTANDING DOMAIN OPTIONS

Language Understanding (**LUIS**) provides prebuilt domains, which are prebuilt sets of intents and entities that work together for domains or common categories of client applications. The prebuilt domains have been pre-trained and are ready for you to add to your **LUIS** app.

"YOU CAN'T USE THE MODEL UNLESS YOU TRAIN IT FIRST"