

John Snow Labs - Medical Language Models

John Snow Labs Inc



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This product is designed to help organizations extract insights from unstructured documents and enable faster, more accurate data analysis. It provides a ready to use Jupyter Hub deployment that can be used to run John Snow Labs Python library for Healthcare Language Understanding and Visual Language Understanding. The software is designed for data scientists, software developers, and researchers who need to understand unstructured text such as clinical notes, radiology reports, research papers, clinical trial protocols, voice-of-the-patient surveys, lab or sequencing reports - with state-of-the-art accuracy. There is no limit on the number of documents, models, or pipelines that can be used with this subscription: the software is licensed on a pay-as-you-go basis.

What is included :

- John Snow Labs Healthcare Language Understanding Python library, including access to 2,000+ healthcare-specific models covering common tasks like entity recognition, relation extraction, resolving entities to medical terminologies, de-identification, text summarization, question answering, spelling & grammar correction, assertion status detection, embedding calculation, and more.
- John Snow Labs Visual Document Understanding Python library, which provides the ability to read PDF, DOCX, DICOM, and various image file formats and automatically extract text, tables, charts, and key-value pairs from forms, using state-of-the-art multimodal models.
- Full access to all models and pipelines published on the NLP Models Hub (currently 1,200+ healthcare-specific models and 17,500+ general models).
- 30+ Ready-to-use Jupyter notebooks that will help you get started with text and image analysis on all major NLP tasks such as text classification, sentiment analysis, named entity recognition, relation extraction, assertion status, entity linking, de-identification, translation, summarization, question answering, spelling and grammar.
- Support directly by the data scientists and medical doctors who build the software, as well as access to all new software releases, model updates, and documentation during the subscription period.

Key Features:

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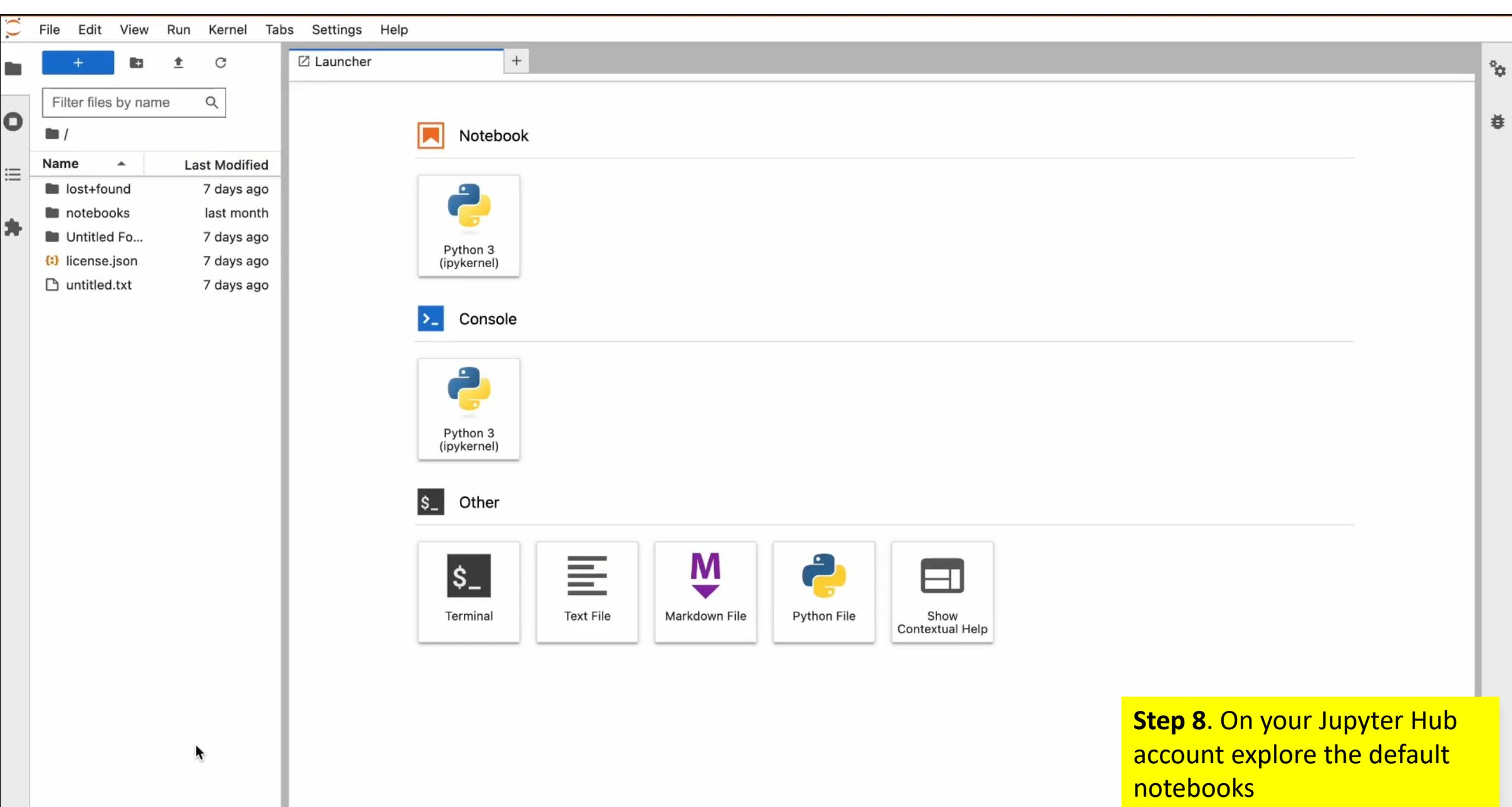
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Step 8. On your Jupyter Hub account explore the default notebooks

Filter files by name

/ notebooks / finance /

Name	Last Modified
01.Tokeniz...	last month
02.Embed...	last month
03.Text_CI...	last month
04.NER_a...	last month
05.Relatio...	last month
06.Asserti...	last month
07.EntityR...	last month
08.Data_A...	last month
09.Deiden...	last month
10.Table_Q...	last month
11.Training...	last month
12.Training...	last month
13.Training...	last month



Financial Word and Sentence Embeddings

Finance Word and Sentence Embeddings visualization using PCA (Principal Component Analysis)

Modern NLP models work with a numerical representation of texts and their meaning. For token classification problems (inferring a class for a token, for example Name Entity Recognition) Word Embeddings are required. For sentences, paragraph, document classification - we use Sentence Embeddings.

In this notebook, we got token embeddings using Spark NLP Finance Word Embeddings(**bert_embeddings_sec_bert_base**) and using these token embeddings we got sentence embeddings by sparknlp annotator SentenceEmbeddings to get those numerical representations of the semantics of the texts. The result is a 768 embeddings matrix, impossible to process by the human eye.

There are many techniques we can use to visualize those embeddings. We are using one of them - Principal Component Analysis, a dimensionality reduction process, carried out by Spark MLlib. Both embeddings have 768 dimensions, so we will reduced this dimensions from **768** to **3** (X, Y, Z) and will use a color for the word / sentence legend.

Setup

```
[ ]: from johnsnowlabs import *

import json
import os

spark = nlp.start()
```

Step 9. Pick a notebook and run it to start experimenting with the library and models