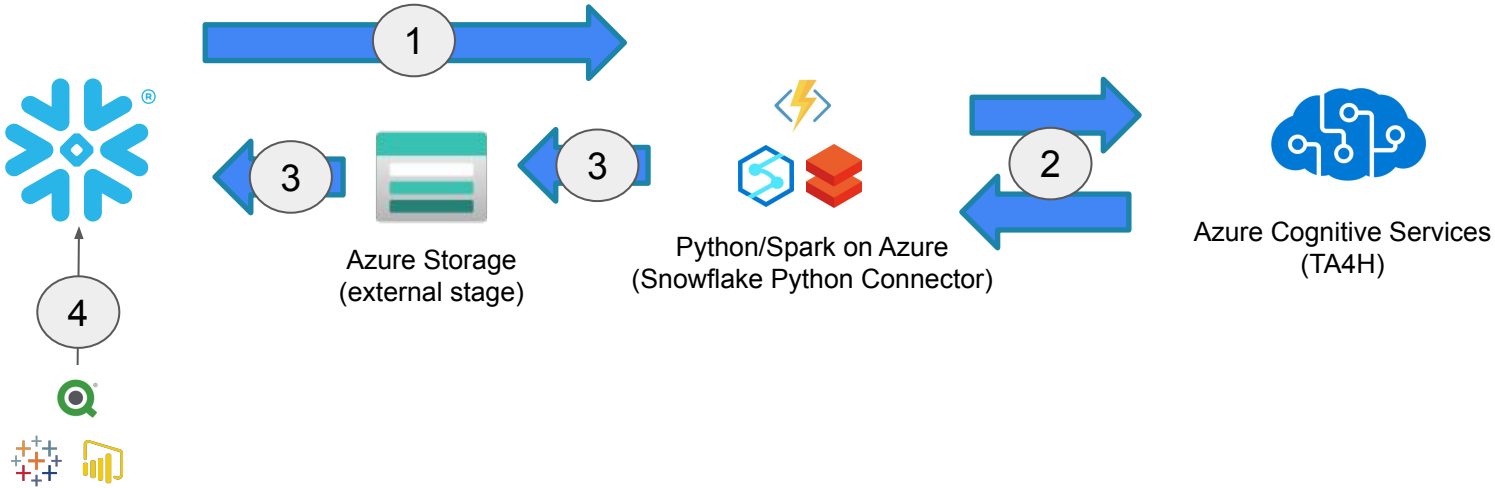
Snowflake & Azure Cognitive Services

TEXT ANALYTICS FOR HEALTH

Business Case

- Free text physician’s notes are rich with details on cases and patients, however it takes time to extract the information from the notes, appropriately label the extracted text and present them for insights.
- Text Analytics for Health is a cognitive service from Microsoft Azure that extracts and labels relevant medical information from unstructured texts such as doctor's notes, discharge summaries, clinical documents, and electronic health records.
- Getting started with text analytics for health is as simple as creating a language resource in Azure and making a REST API call to pass the unstructured data to the resource and retrieve insights.
- https://docs.microsoft.com/en-us/azure/cognitive-services/language-service/text-analytics-for-health/overview?tabs=ner

Snowflake Cognitive Services Integration



1. Using the Python Snowflake Python connector read data from Snowflake into notebook, parse data.
2. Pass data to cognitive services for insights Transform insights into a data frame.
3. Write to Azure Storage Stage where it's automatically copied to Snowflake table.
4. Create dashboard on results data.

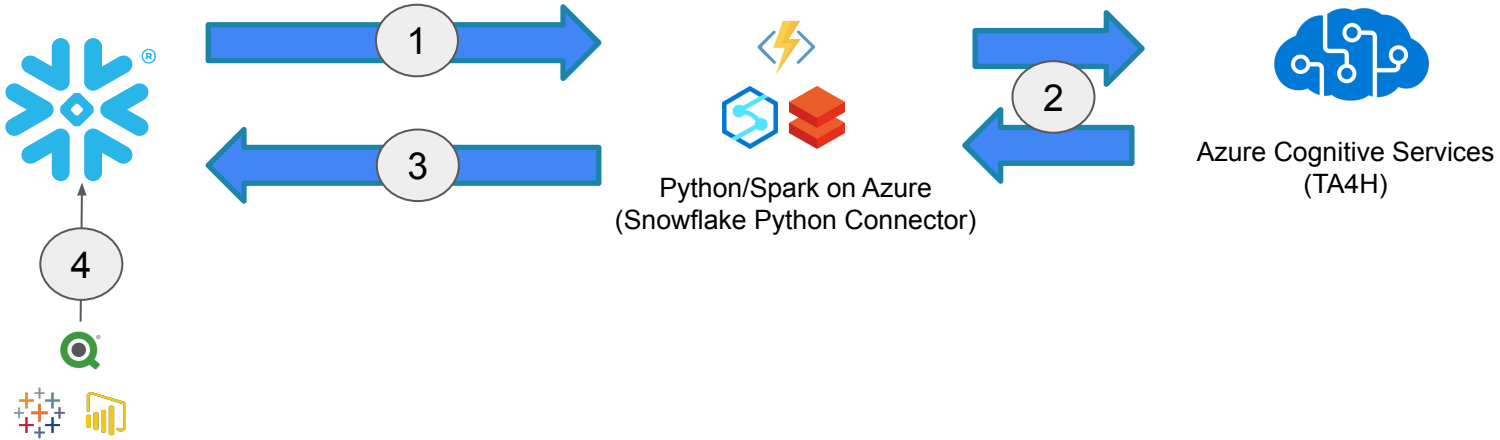
Results

DOC_ID	ENTITY	CATEGORY	NORMALIZED_TEXT	PAT_ID	NOTES
0	pink eye	SymptomOrSign	Conjunctivitis	123456	Patient is presenting with pink eye
1	severe	ConditionQualifier	null	234567	Patient has severe back pain and needs Tylenol
1	back pain	SymptomOrSign	Back Pain	234567	Patient has severe back pain and needs Tylenol
1	Tylenol	MedicationName	Tylenol	234567	Patient has severe back pain and needs Tylenol
2	broke her knee	SymptomOrSign	null	345678	Patient broke her knee
3	hip replacement	TreatmentName	Hip Replacement Arthroplasty (procedure)	456789	Patient needs a hip replacement
4	flu	SymptomOrSign	Influenza	567890	Patient has the flu and vomits with frequency
4	vomits	SymptomOrSign	Vomiting	567890	Patient has the flu and vomits with frequency
5	sever	ConditionQualifier	null	678901	Patient has a sever migraine
5	migraine	Diagnosis	Migraine Disorders	678901	Patient has a sever migraine
6	diabetes	Diagnosis	Diabetes Mellitus	789012	Patient has diabetes and needs more insulin
6	insulin	MedicationName	Insulin	789012	Patient has diabetes and needs more insulin
7	neck injury	Diagnosis	Neck Injuries	890123	Patient has a neck injury and covid
7	covid	Diagnosis	null	890123	Patient has a neck injury and covid
8	fractured	Diagnosis	Fracture	901234	Patient fractured his toe and finger

Physician notes are parsed into things like “symptomorsign” and “diagnosis” allowing for better use of rich free text data.

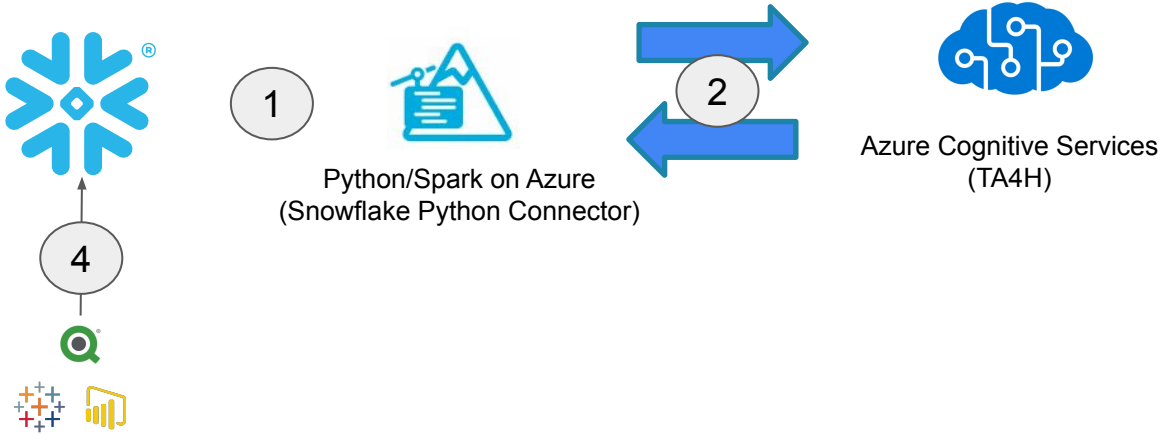
Appendix

Snowflake Cognitive Services Integration



1. Use the Snowflake Python connector to query data from Snowflake into Spark.
2. Pass data to cognitive services for insights and flatten the results into a data frame.
3. Write dataframe to results table in Snowflake.
4. Create dashboard on results data.

Snowflake Cognitive Services Integration



1. Use the Snowflake Python connector to query data from Snowflake.
2. Pass data to cognitive services for insights and flatten the results into a data frame.
3. Write dataframe to results table in Snowflake.
4. Create dashboard on results data.