



WALTER TYRNA | METIS

NEW PSYCHOACTIVE SUBSTANCE MONITOR: ENGINEERING AN AUTOMATED DASHBOARD

OVERVIEW

- Revisit New Psychoactive Substances (NPS) problem set
- Review data selection and pipeline
- Explore web application
- Future work

DEFINING THE PROBLEM

What are NPS?

UNODC uses the term “new psychoactive substances (NPS)” which are defined as “substances of abuse, either in a pure form or a preparation, that are not controlled (...) but which may pose a public health threat - United Nations Office on Drugs and Crime (UNODC)

A fast-evolving threat:

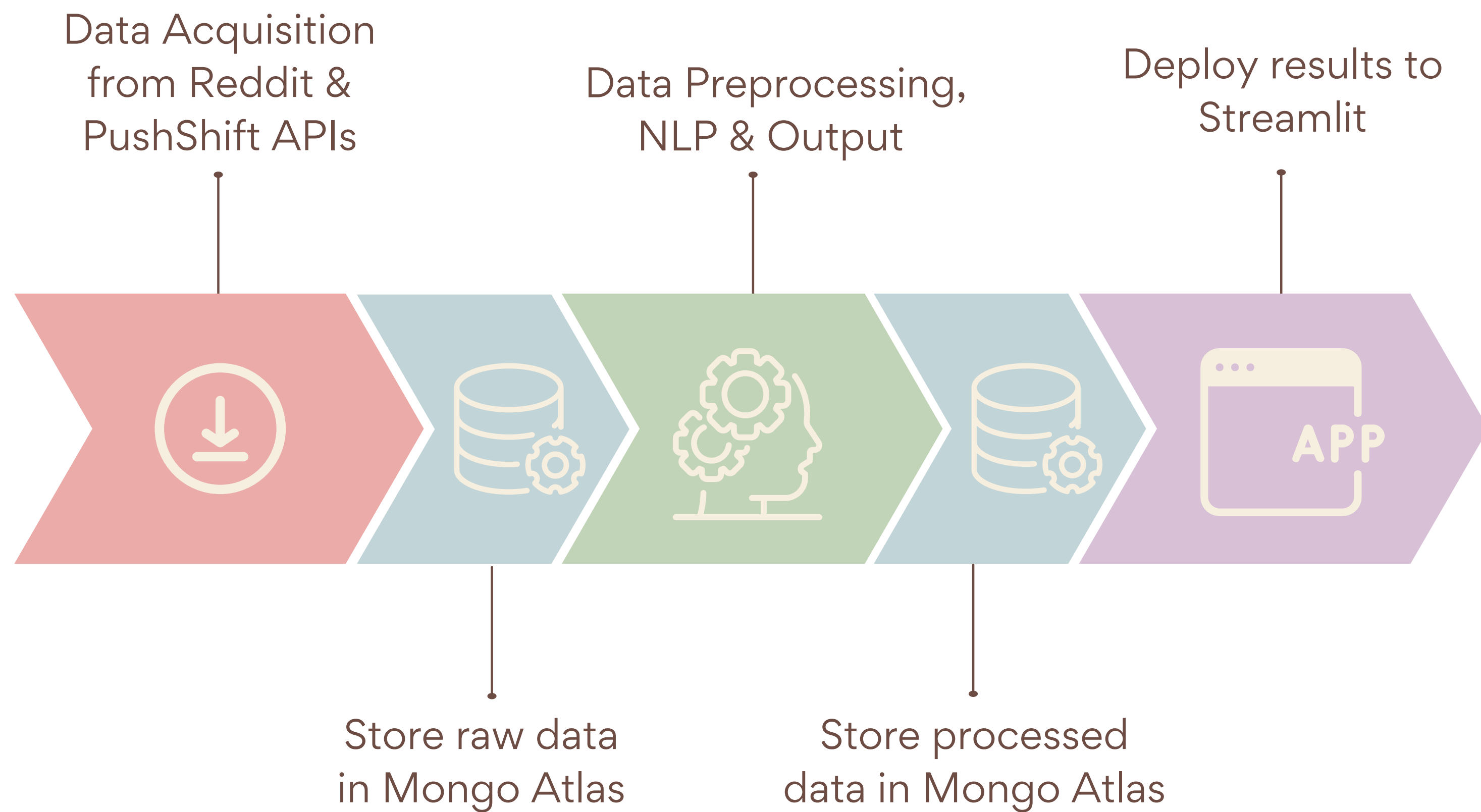
New opioids, more powerful than fentanyl, are discovered in D.C. amid deadly wave of overdoses (November 29, 2021, Washington Post)



NPS are often sold as “legal highs” and are often experimental chemical compounds.

**HOW CAN WE USE DATA SCIENCE
TOOLS TO GET AHEAD OF THE THREAT?**

DATA SELECTION & PIPELINE



Data:

Research Chemicals subreddit:

PushShift API:

- One year of posts & comments:
 - +80k documents

Reddit API:

- Daily pull (cron) of posts & comments

Model:

Latent Dirichlet Allocation Model:

- Tag posts by topic category:
 - Dangerous, Negative, Euphoric, Psychedelic

WEB APPLICATION



Live Demo: Novel Psychoactive Substance Monitoring Dashboard

FUTURE WORK

- Improve NLP model to better tag different drug types
- Create algorithm to identify new drugs in corpus
- Include more interactive features in web application





DISCUSSION