A web application to easily visualize adverse drug effect data

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# Abstract

# Adverse drug reactions (ADR) dataset is an FDA dataset started from ??? that make drug adverse reactions open to public. There has been a lot of development by the FDA in providing tools and apps using their API to query their ADR data. However, the FDA data is not standardized and so contains redundancy and ambiguity in their data (e.g. aspirin and aspirin 81mg). In this work, we deployed an novel web app, SafeDrug, that would be another community tool to possibly clarity representing ADR data and add to their online portfolio. One of the biggest challenge to make the app is how to put the big dataset (~10 GBs) into our server and interact with it rapidly. To do that, we split the dataset into multiple feather files that could be read by pandas and create relatively small data frames that will not consume too much RAM. More over, we set up a amazon web server with a distributed database to put the big dataset. For the user interface, we use Dash, which is a light-weighted web frame to create interactive web apps, to get data from ADR and generate informative figures with adverse drug reaction reports information based on the users’ requests. Our app is a novel online tools to retrieve data from ADR and provides plenty of realtime analysis tools that can be used to generate useful information for down stream studies.

# Keywords

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Insert introduction here. This section should provide context as to why the software tool was developed and what need it addresses

# Methods

Insert methods here, with the two required subsections as described below:

## Implementation

This section describes how the tool works and relevant technical details for implementation.

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