POLICY PANDAS

Improve Mental Health using Data to drive Policy Changes

April 28, 2022

Final Review

Koushik Subramani | kmsubram

Pawanjeet Singh| pawanjes

Kelly McManus| kellymcm

Sudheeshna Sampath| sudheess

Ryosuke Nakashima| rnakashi

Agenda

- **Project Goals**

- Product Journey

- User POV

- Key Learnings & Future Scope

Project Objective

Product Goal

Develop a self-service tool that policymakers and health agencies can use to identify factors that are affecting mental health in their county/state
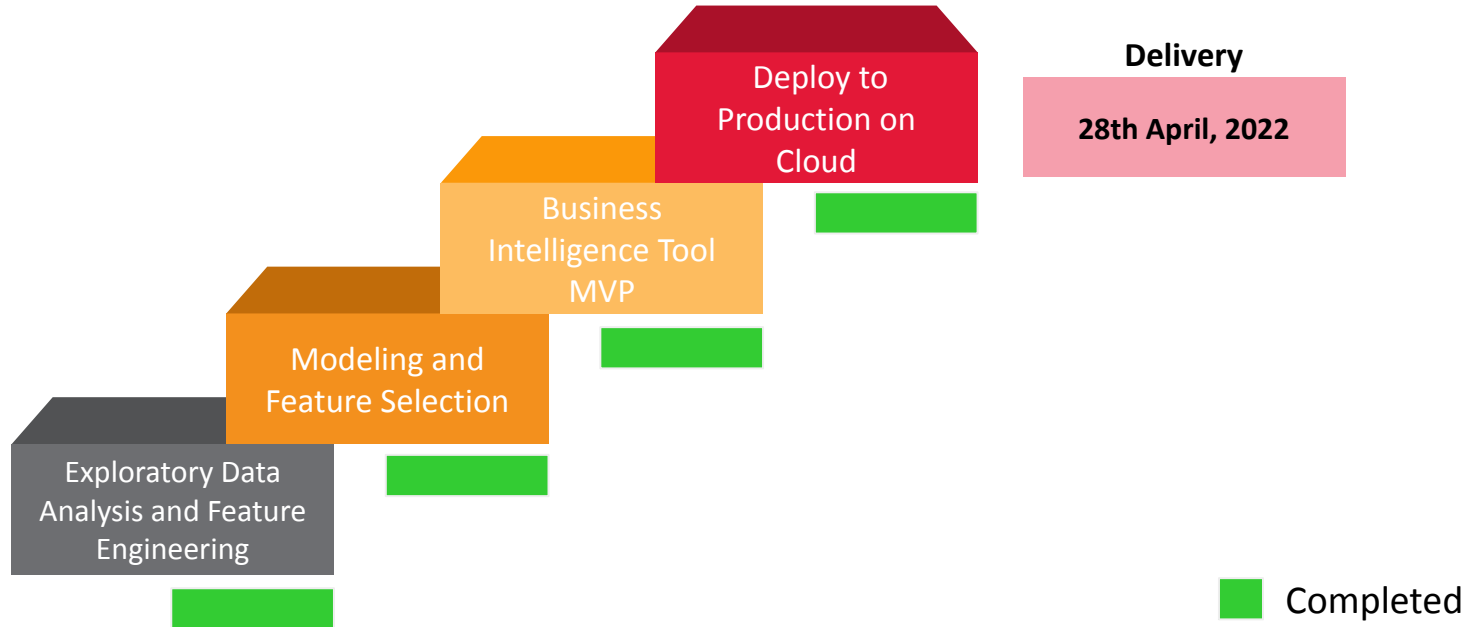
Value Addition

Help county officials adopt a data-driven approach towards implementing new policies and allocating funding/resources
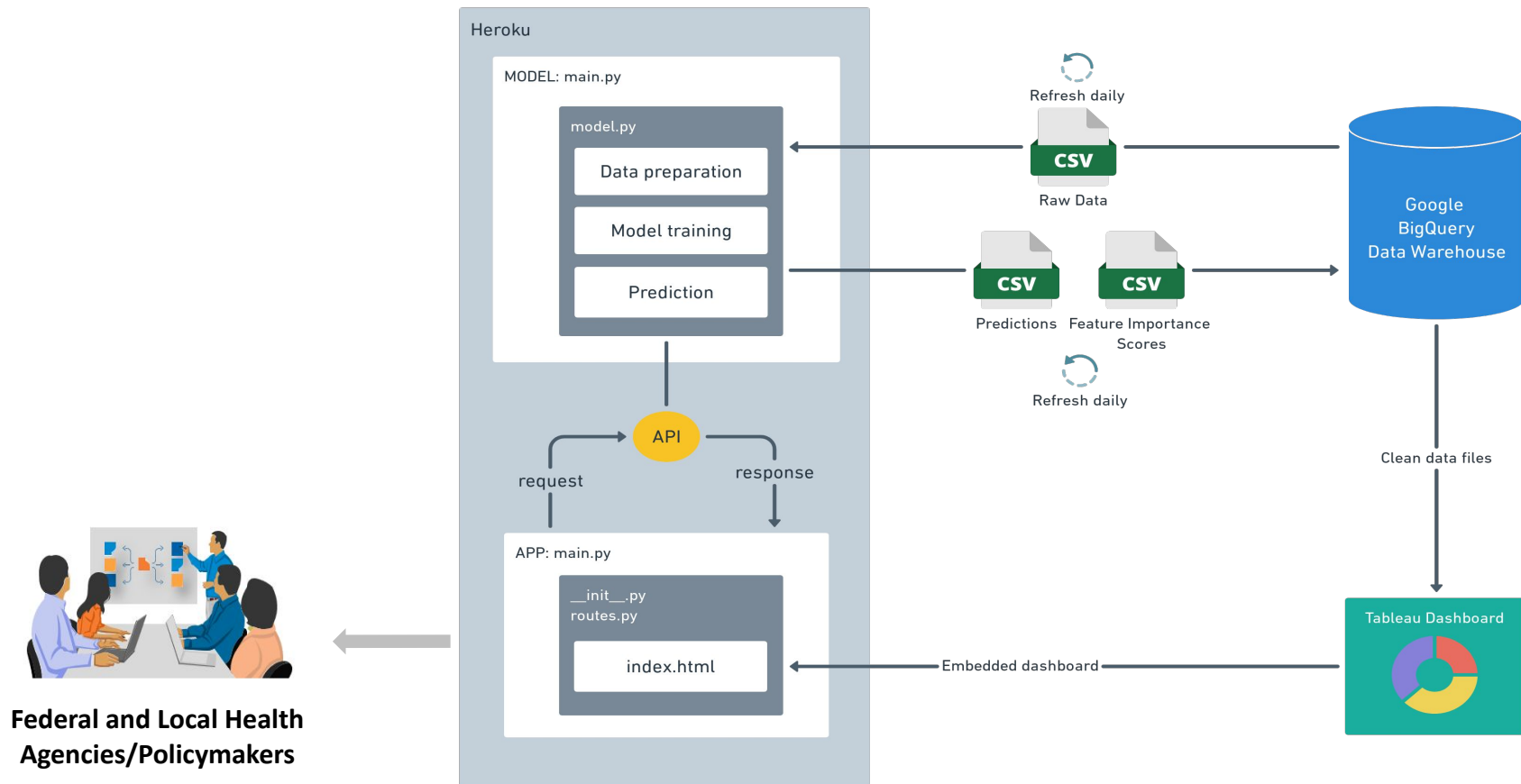
Agenda

- Project Goals

- **Product Journey**

- User POV

- Key Learnings & Future Scope

Steps Taken

Deploy to Production on Cloud

Business Intelligence Tool MVP

Modeling and Feature Selection

Exploratory Data Analysis and Feature Engineering

Delivery

28th April, 2022

Completed
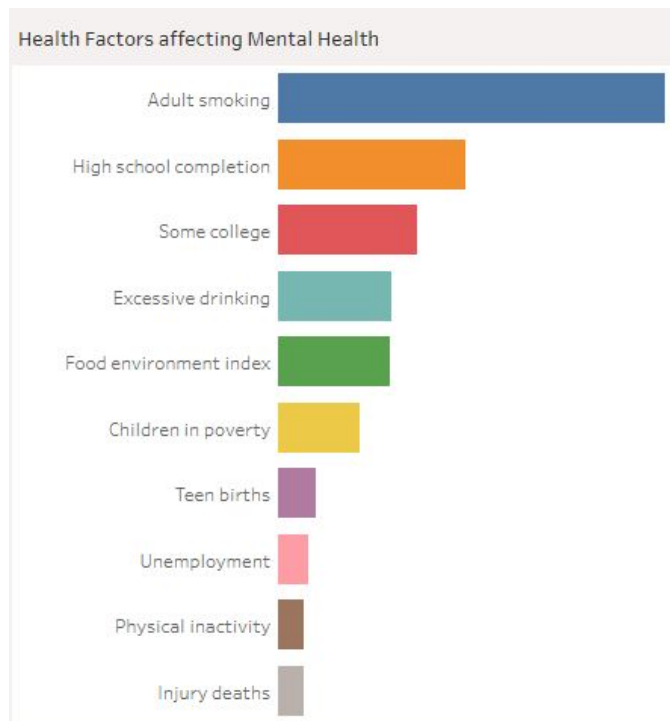
Revised Solution Architecture

Agenda

- Project Goals

- Product Journey

- **User POV**

- Key Learnings & Future Scope
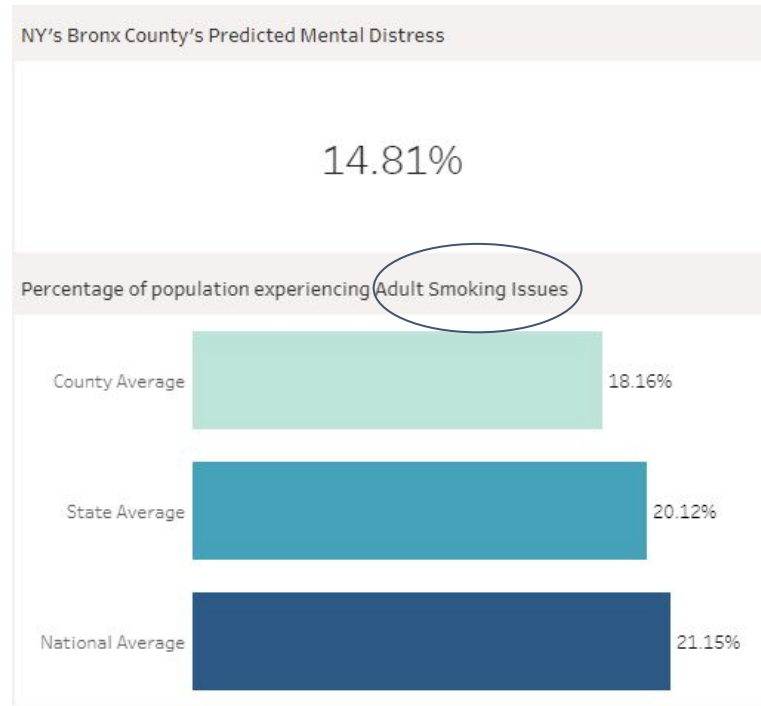
Mental Health Dashboard - User POV

Public Health Officials - Bronx County, New York City

Health Factors affecting Mental Health
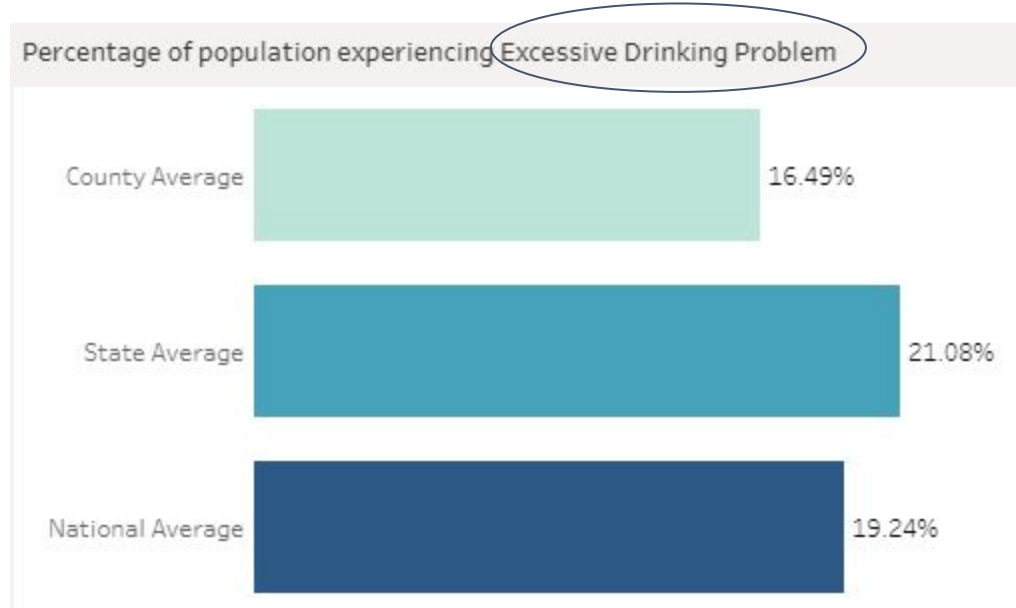
- Adult smoking
- High school completion
- Some college
- Excessive drinking
- Food environment index
- Children in poverty
- Teen births
- Unemployment
- Physical inactivity
- Injury deaths

Mental Health Dashboard - User POV

Public Health Officials - Bronx County, New York City

NY's Bronx County's Predicted Mental Distress

14.81%

Percentage of population experiencing Adult Smoking Issues

County Average	18.16%
State Average	20.12%
National Average	21.15%

Mental Health Dashboard - User POV

Public Health Officials - Bronx County, New York City

Percentage of population experiencing Excessive Drinking Problem

County Average	16.49%
State Average	21.08%
National Average	19.24%

Mental Health Dashboard - User POV

Public Health Officials - Bronx County, New York City

Percentage of population experiencing High School Completion

County Average	72.76%
State Average	89.14%
National Average	87.45%

Mental Health Dashboard - User POV

Public Health Officials - Bronx County, New York City

Percentage of population experiencing Some College

County Average	51.93%
State Average	63.04%
National Average	58.84%

Inputs for Policy Formulation

Public Health Officials - Bronx County, New York City

On factors affecting Mental Health

Key Findings
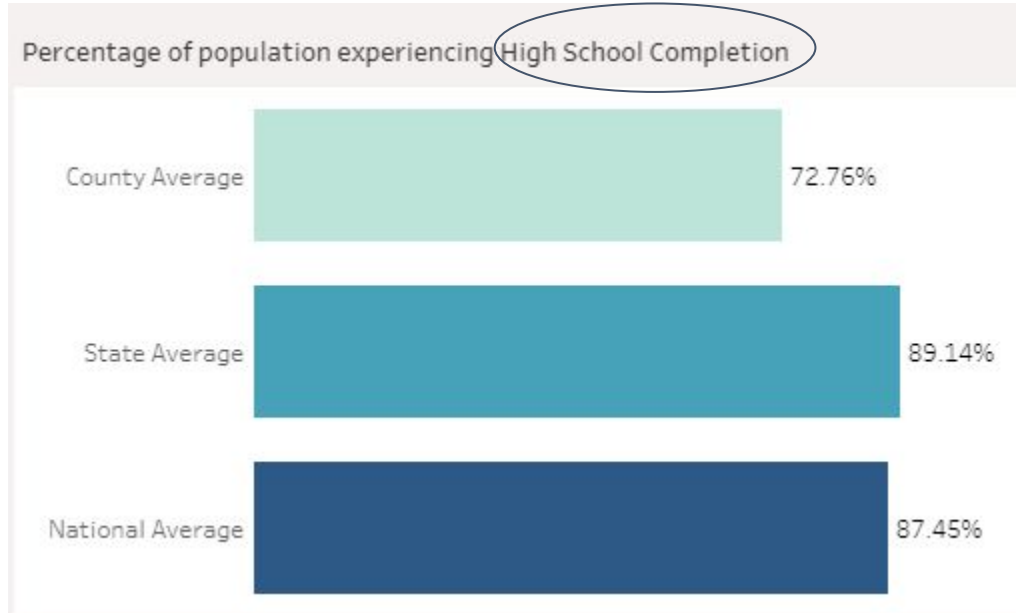
Smoking & Drinking indices well-below national and state averages

High-School & College Finishing indices alarmingly lower than national/state averages

Inputs for Policy Formulation

Public Health Officials - Bronx County, New York City

On factors affecting Mental Health

High-School & College Finishing indices much lower than national/state averages

Possible Actions

Policies for successful intervention?

- Re-evaluate investments in public schools?
- Compare high-school dropout rates between genders?
- **Dropout prevention programs -** Clearer pathway to Vocational Schools?

Agenda

- Project Goals

- Product Journey

- User POV

- **Key Learnings & Future Scope**

Key Learnings

Deliver Value Early through Minimum Viable Models/Products

Proof of Concept ⇨ **Proof of Scale**

Future Scope

Further develop CI/CD pipeline and add Quality Control mechanism

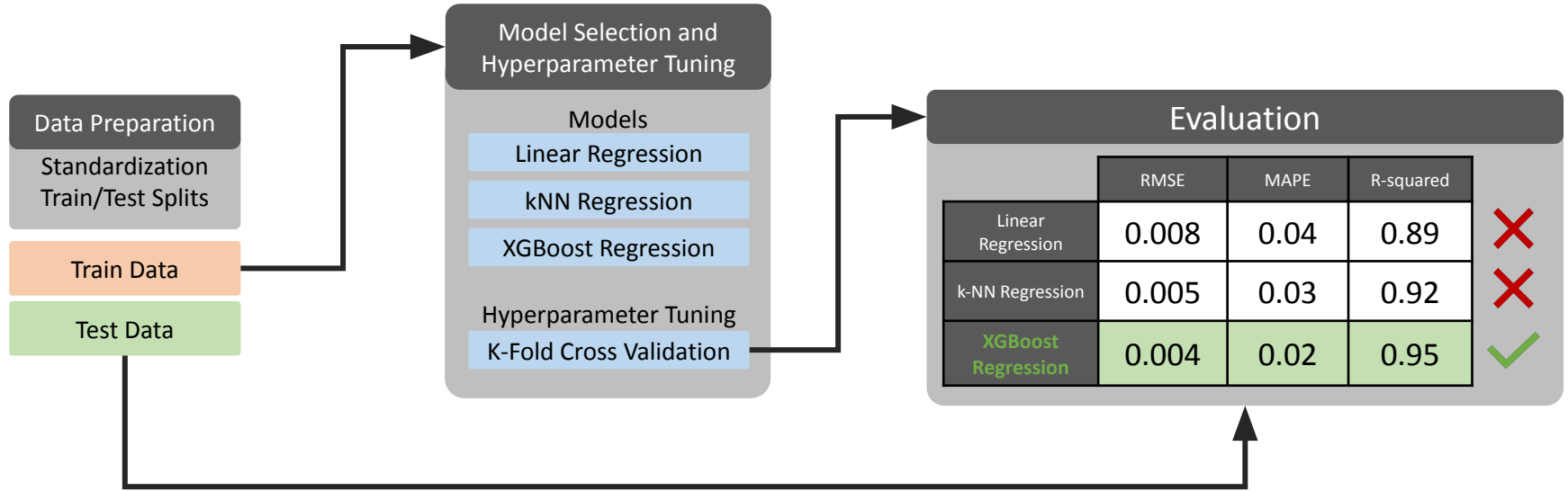**Ship product to select counties & gather customer feedback for future iterations**

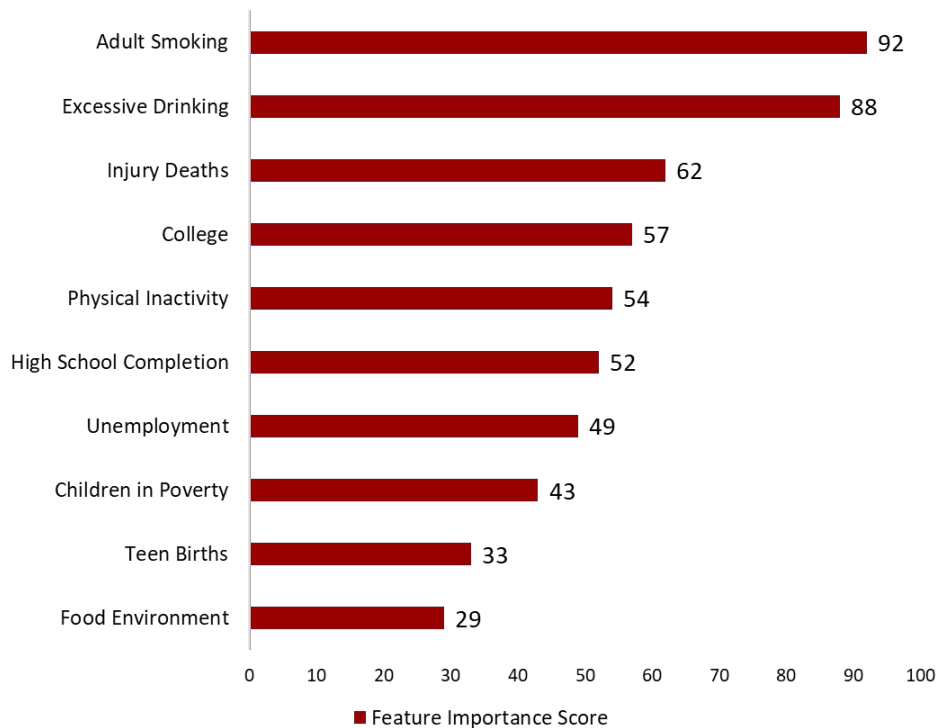**Extend to other use-cases like Environmental or Transportation challenges**

Demo

https://policy-pandas-web-app.herokuapp.com/

Thank You!

Modeling and Evaluation

XGBoost Regression has the best fit on the data and was utilized as the prediction algorithm

Development Architecture