PENNSYLVANIA PREPAREDNESS LEVEL FOR COVID-19 PANDEMIC
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1   INTRODUCTION

The COVID-19 Pandemic is one of the biggest global health crisis that has gripped the world currently and has spread across the globe with alarmingly high number of confirmed cases in the United States of America. At the time of writing this report, the global number of confirmed COVID-19 cases were over 2,400,000 with around 165,000 deaths and Pennsylvania had over 31000 confirmed cases and more than 1000 deaths. Governments across the world are working hard to impede the spread of the virus by providing robust testing and medical services to patients, deploying travel restrictions, stay at home orders, and cancelling large gatherings such as sporting events, concerts, and school sessions.

Through this project, we will be evaluating the preparedness level among the different counties and municipalities in Pennsylvania to handle a health crisis of such scale. We will analyze the hospital utilization across different counties and municipalities to understand the areas that are better equipped with adequate medical services. Also, we will use K-means clustering to visualize and identify the clusters having different levels of medical services (hospital beds per given population). This analysis would help the audience to gauge the level of preparedness in each PA county and would help the government to identify the regions that require critical attention in terms of medical services.

2   DATA

In order to perform the required analysis, we would need to use four different datasets. The analysis would require identifying the hospital utilization across the counties in Pennsylvania. For this, we would need the population & location data of all the PA Counties, and the number of available hospital beds across PA.

1. Pennsylvania data that contains **counties** and **Municipalities** along with their **latitudes** and **longitudes**.
   <u>Data source</u>: PA County Location, PA County Municipalities
2. Pennsylvania County and Municipality **population** data from online database and Web Scraping (Wikipedia).
   <u>Data source</u>: PA County Population, PA Municipality Population
3. Information on available hospitals in PA Municipalities from Foursquare API.
   <u>Data source</u>: Foursquare API
4. Hospital utilization information from **PA Health Data**.
   <u>Data source</u>: PA Hospital Utilization