```
from google.cloud import bigquery
from google.colab import auth
import matplotlib.pyplot as plt
import pandas as pd

auth.authenticate_service_account()
client = bigquery.Client()
project_name='weatherlink-404323'
```

```
Successfully saved credentials for pipelineauth@weatherlink-404323.iam.gservic
```

```
dataset = 'weatherlink-master'

# Define your SQL query
query = """
SELECT
  a.number_of_fatalities, a.geoid, a.year, a.timestamp_of_crash, a.hour_of_arriva
  c.income_per_capita, c.black_pop, c.total_pop, c.hispanic_pop, c.asian_pop, c.a
FROM
  `weatherlink-404323.weatherlink_master.census_master` c
JOIN
  `weatherlink-404323.weatherlink_master.accident_master` a
ON
  c.YEAR = a.YEAR AND c.geo_id = a.GEOID
"""

# Execute the query and store the results in a Pandas DataFrame
df = client.query(query).to_dataframe()
```

```
print(df)
```

```
     ---                          ---                          ---            ---
     122001                        99                           99             9
     122002                        99                           99             0
     122003                        99                           99            20
     122004                        99                           99            15
     122005                        99                           99            15

             minute_of_crash  hour_of_ems_arrival_at_hospital  \
```

```
0                   43                              3
1                   18                              0
2                   53                              1
3                   43                              1
4                   36                              0
...                ...                            ...
122001              13                             88
122002               0                             99
122003              30                             99
122004              23                             99
122005               0                             99

        minute_of_ems_arrival_at_hospital  hour_of_notification  \
0                                      13                    0
1                                      42                    0
2                                      35                    0
3                                       7                    0
4                                      48                    0
...                                   ...                  ...
122001                                 88                   99
122002                                 99                   99
122003                                 99                   99
122004                                 99                   99
122005                                 99                   99

        minute_of_notification  income_per_capita  black_pop  total_pop  \
0                           47            22926.0     2219.0   204737.0
1                           20            37894.0        NaN    65018.0
2                           45            27582.0        NaN   119980.0
3                           43            26971.0        NaN   253178.0
4                           37            28227.0    49780.0   633473.0
...                        ...                ...        ...        ...
122001                      99            29760.0   416126.0  2716940.0
122002                      99            34907.0    22202.0  1160437.0
122003                      99            32998.0   233317.0  1471968.0
122004                      99            16199.0      721.0    71887.0
122005                      99            34744.0   248228.0  4485414.0

        hispanic_pop  asian_pop  amerindian_pop
0            33111.0     2479.0          5440.0
1                NaN        NaN             NaN
2                NaN        NaN             NaN
3                NaN        NaN             NaN
4           134895.0    26050.0          2223.0
...              ...        ...             ...
122001     1886364.0    39907.0          2217.0
122002      218243.0    48128.0          7734.0
122003      436896.0    59534.0          2035.0
122004        4736.0      160.0         52536.0
122005     1408855.0   187233.0         76504.0
```

```
# Count the number of rows with null values in time-related columns
num_nulls = df[['hour_of_notification', 'minute_of_notification', 'hour_of_crash'

print(f"Number of Rows with Null Values: {num_nulls}")
```

```
    Number of Rows with Null Values: 0
```

```
# Create a function to convert hour and minute to total minutes
def time_to_minutes(hour, minute):
    return hour * 60 + minute

# Calculate how long until the notification came in
df['NotificationResponseTime'] = df.apply(lambda row: (time_to_minutes(row['hour_of

# Calculate response time for emergency services (from when the crash happened to w
df['EmsResponseTime'] = df.apply(lambda row: (time_to_minutes(row['hour_of_arrival_

# Calculate delivery time for emergency services (when they get to the hospital fro
df['EmsDeliveryTime'] = df.apply(lambda row: (time_to_minutes(row['hour_of_ems_arri

# Calculate total response time from when the crash happened to when they made it t
df['TotalResponseTime'] = df.apply(lambda row: (time_to_minutes(row['hour_of_ems_ar

# Print a few rows to verify the calculations
print("Sample Rows:")
print(df[['NotificationResponseTime','EmsResponseTime','EmsDeliveryTime', 'TotalRes


# Print averages
average_notification_response_time = df['NotificationResponseTime'].mean()
average_ems_response_time = df['EmsResponseTime'].mean()
average_ems_delivery_time = df['EmsDeliveryTime'].mean()
average_total_response_time = df['TotalResponseTime'].mean()

print("\nAverages:")
print(f"Notification Response Time: {average_notification_response_time:.2f} minute
print(f"EMS Response Time: {average_ems_response_time:.2f} minutes")
print(f"EMS Delivery Time: {average_ems_delivery_time:.2f} minutes")
print(f"Total Response Time: {average_total_response_time:.2f} minutes")
```

```
Sample Rows:
   NotificationResponseTime  EmsResponseTime  EmsDeliveryTime  \
0                         4               17              133
1                         2                8               16
2                      1432             1432               50
3                         0                6               18
4                         1                6                6

   TotalResponseTime
0                150
1                 24
2                 42
3                 24
4                 12

Averages:
Notification Response Time: 465.15 minutes
EMS Response Time: 398.20 minutes
EMS Delivery Time: 298.65 minutes
Total Response Time: 569.26 minutes
```

```
(time_to_minutes(0, 22) - time_to_minutes(23, 17)) % (24 * 60)
```

```
65
```

```
project_id = 'weatherlink-404323'
dataset_id = 'weatherlink_master'
table_id = 'accident_response_times'
table_ref = f'{project_id}.{dataset_id}.{table_id}'
```

```
# Calculate average response times for each county (GEOID)
average_response_times = df.groupby('geoid').agg({
    'TotalResponseTime': 'mean',
    'EmsResponseTime': 'mean',
    'EmsDeliveryTime': 'mean',
    'NotificationResponseTime': 'mean',
    # Add other columns as needed
}).reset_index()
```

average_response_times

	geoid	TotalResponseTime	EmsResponseTime	EmsDeliveryTime	NotificationRe
0	1003	670.807453	129.571429	621.732919	
1	1015	592.980000	88.020000	548.160000	
2	1043	572.055046	110.844037	527.266055	
3	1049	544.628205	79.294872	502.256410	
4	1051	664.050000	34.033333	654.016667	
...	...	...	...	...	
826	55133	456.188119	262.574257	307.673267	
827	55139	665.777778	322.644444	407.133333	
828	55141	617.282051	219.410256	397.871795	
829	56021	385.966102	50.745763	335.220339	
830	56025	352.595745	56.744681	326.489362	

831 rows × 5 columns

```
from io import StringIO
from pandas_gbq import to_gbq
from pandas_gbq.schema import generate_bq_schema

# Define the schema for the new table
schema = [
    bigquery.SchemaField('geoid', 'STRING', mode='REQUIRED'),
    bigquery.SchemaField('TotalResponseTime', 'FLOAT', mode='REQUIRED'),
    bigquery.SchemaField('EmsResponseTime', 'FLOAT', mode='REQUIRED'),
    bigquery.SchemaField('EmsDeliveryTime', 'FLOAT', mode='REQUIRED'),
    bigquery.SchemaField('NotificationResponseTime', 'FLOAT', mode='REQUIRED'),
    # Add other columns as needed
]

# This is a weird work around to get the dataframe acceptable for upload
# temporarily store the dataframe as a csv in a string variable
temp_csv_string = average_response_times.to_csv(sep=";", index=False)
temp_csv_string_IO = StringIO(temp_csv_string)
# create new dataframe from string variable
new_df = pd.read_csv(temp_csv_string_IO, sep=";")

to_gbq(new_df, f"{dataset_id}.{table_id}", project_id=project_id, if_exists='repl

print(f"New table created: {table_ref}")
```

```
     100%|██████████| 1/1 [00:00<00:00, 5322.72it/s]New table created: weatherlink-
```

It looks lke some of those are erronously large, so we need to clean the data

```
# Count the number of rows with null values in time-related columns
num_nulls = df[['hour_of_notification', 'minute_of_notification', 'hour_of_crash'

print(f"Number of Rows with Null Values: {num_nulls}")
```

```
     Number of Rows with Null Values: 0
```

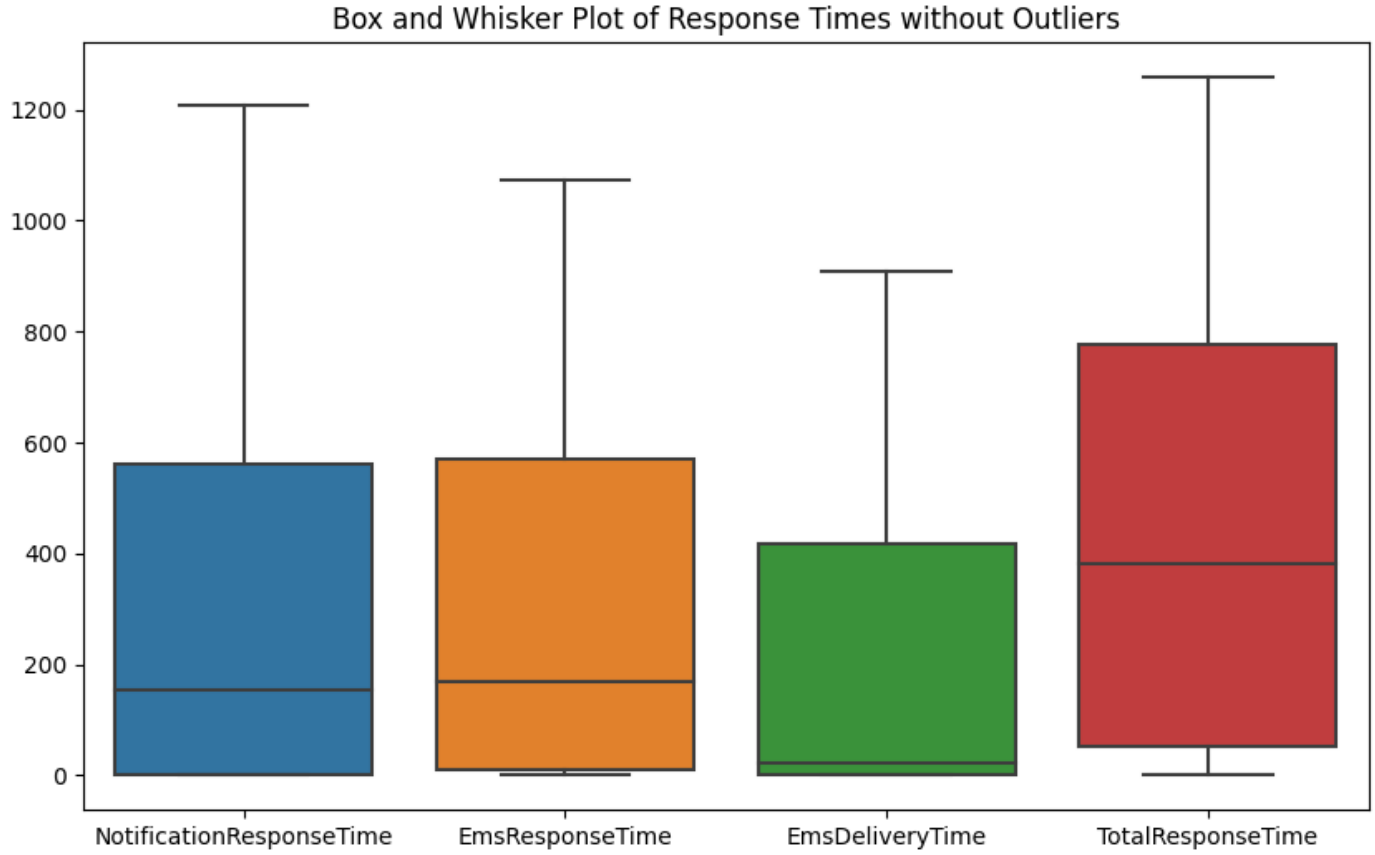
Wow it looks like there are no null values. So lets remove any huge outliers

```
# Count NaN values for each column
nan_counts = df[['NotificationResponseTime', 'EmsResponseTime', 'EmsDeliveryTime'

print("NaN Counts:")
print(nan_counts)

# Count NaN values for each column
nan_counts = df[['NotificationResponseTime', 'EmsResponseTime', 'EmsDeliveryTime'

print("Null Counts:")
print(nan_counts)
```

```
    NaN Counts:
    NotificationResponseTime    0
    EmsResponseTime             0
    EmsDeliveryTime             0
    TotalResponseTime           0
    dtype: int64
    Null Counts:
    NotificationResponseTime    0
    EmsResponseTime             0
    EmsDeliveryTime             0
    TotalResponseTime           0
    dtype: int64
```

```
import seaborn as sns
import matplotlib.pyplot as plt

# Convert relevant columns to numeric
df[['NotificationResponseTime', 'EmsResponseTime', 'EmsDeliveryTime', 'TotalRespons

# Calculate z-scores for all rows
z_scores_all = stats.zscore(df[['NotificationResponseTime', 'EmsResponseTime', 'Ems

# Set a z-score threshold for outliers (e.g., 2 standard deviations)
z_threshold = 2

# Create mask for outliers
outliers_mask = (z_scores_all >= z_threshold) | (z_scores_all <= -z_threshold)

# Apply any() along the columns to create a 1D mask
any_outliers_mask = outliers_mask.any(axis=1)

# Filter the DataFrame based on the outliers mask
df_filtered = df.loc[~any_outliers_mask]

# Explicitly select the columns of interest after filtering
columns_of_interest = ['NotificationResponseTime', 'EmsResponseTime', 'EmsDeliveryT
```

```
# Create a box and whisker plot with the filtered data
plt.figure(figsize=(10, 6))
sns.boxplot(data=df_filtered[columns_of_interest])
plt.title('Box and Whisker Plot of Response Times without Outliers')
plt.show()

# Calculate the number of rows filtered out
num_filtered = df.shape[0] - df.loc[~any_outliers_mask].shape[0]

# Summary stats about the cleaning process
print(f"Using a z score of {z_threshold} you filtered out {num_filtered} values ")

# Recalculate averages for the cleaned data
average_notification_response_time_cleaned = df['NotificationResponseTime'].mean()
average_ems_response_time_cleaned = df['EmsResponseTime'].mean()
average_ems_delivery_time_cleaned = df['EmsDeliveryTime'].mean()
average_total_response_time_cleaned = df['TotalResponseTime'].mean()

print("\nAverages (UnCleaned Data):")
print(f"Notification Response Time: {average_notification_response_time_cleaned:.2f
print(f"EMS Response Time: {average_ems_response_time_cleaned:.2f} minutes")
print(f"EMS Delivery Time: {average_ems_delivery_time_cleaned:.2f} minutes")
print(f"Total Response Time: {average_total_response_time_cleaned:.2f} minutes")

average_notification_response_time_cleaned = df_filtered['NotificationResponseTime'
average_ems_response_time_cleaned = df_filtered['EmsResponseTime'].mean()
average_ems_delivery_time_cleaned = df_filtered['EmsDeliveryTime'].mean()
average_total_response_time_cleaned = df_filtered['TotalResponseTime'].mean()

print("\nAverages (Cleaned Data):")
print(f"Notification Response Time: {average_notification_response_time_cleaned:.2f
print(f"EMS Response Time: {average_ems_response_time_cleaned:.2f} minutes")
print(f"EMS Delivery Time: {average_ems_delivery_time_cleaned:.2f} minutes")
print(f"Total Response Time: {average_total_response_time_cleaned:.2f} minutes")
```




```
Using a z score of 1.5 you filtered out 32576 values

Averages (UnCleaned Data):
Notification Response Time: 465.15 minutes
EMS Response Time: 398.20 minutes
EMS Delivery Time: 298.65 minutes
Total Response Time: 569.26 minutes

Averages (Cleaned Data):
Notification Response Time: 299.08 minutes
EMS Response Time: 307.20 minutes
EMS Delivery Time: 204.60 minutes
Total Response Time: 440.25 minutes
```

```
# Create new columns for percentage calculations
df_filtered['BlackPercentage'] = (df_filtered['black_pop'] / df_filtered['total_p
df_filtered['HispanicPercentage'] = (df_filtered['hispanic_pop'] / df_filtered['t
df_filtered['AsianPercentage'] = (df_filtered['asian_pop'] / df_filtered['total_p
df_filtered['AmerindianPercentage'] = (df_filtered['amerindian_pop'] / df_filtere

# If needed, you can drop the intermediate columns used for calculation
# df = df.drop(['black_pop', 'hispanic_pop', 'asian_pop', 'amerindian_pop'], axis
```

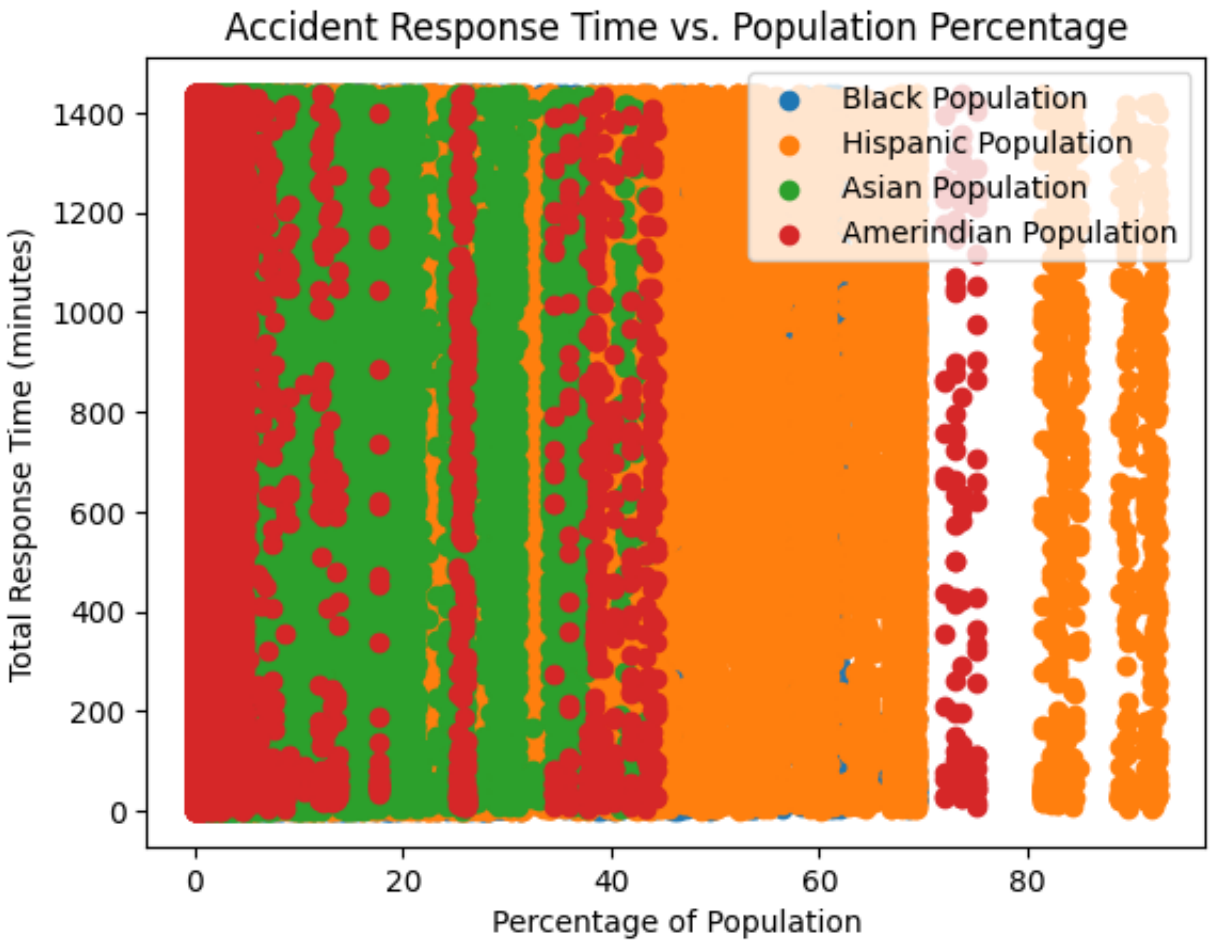
```
<ipython-input-83-104f4fed2c84>:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/st
  df_filtered['BlackPercentage'] = (df_filtered['black_pop'] / df_filtered['to
<ipython-input-83-104f4fed2c84>:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/st
  df_filtered['HispanicPercentage'] = (df_filtered['hispanic_pop'] / df_filter
<ipython-input-83-104f4fed2c84>:4: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/st
  df_filtered['AsianPercentage'] = (df_filtered['asian_pop'] / df_filtered['to
<ipython-input-83-104f4fed2c84>:5: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/st
  df_filtered['AmerindianPercentage'] = (df_filtered['amerindian_pop'] / df_fi
```

```
# Print a few rows
print("Sample Rows:")
print(df_filtered[['BlackPercentage', 'HispanicPercentage', 'AsianPercentage', 'A

# Calculate and print the average
average_percentages = df_filtered[['BlackPercentage', 'HispanicPercentage', 'Asia
print("\nAverage Percentages:")
print(average_percentages)
```

```
Sample Rows:
   BlackPercentage  HispanicPercentage  AsianPercentage  AmerindianPercentage
0         1.083829           16.172455         1.210822              2.657067
1              NaN                 NaN              NaN                   NaN
3              NaN                 NaN              NaN                   NaN
4         7.858267           21.294515         4.112251              0.350923
6        29.334279           55.118644         3.609689              0.204130

Average Percentages:
BlackPercentage         13.900822
HispanicPercentage      23.627632
AsianPercentage          6.019564
AmerindianPercentage     0.734391
dtype: float64
```

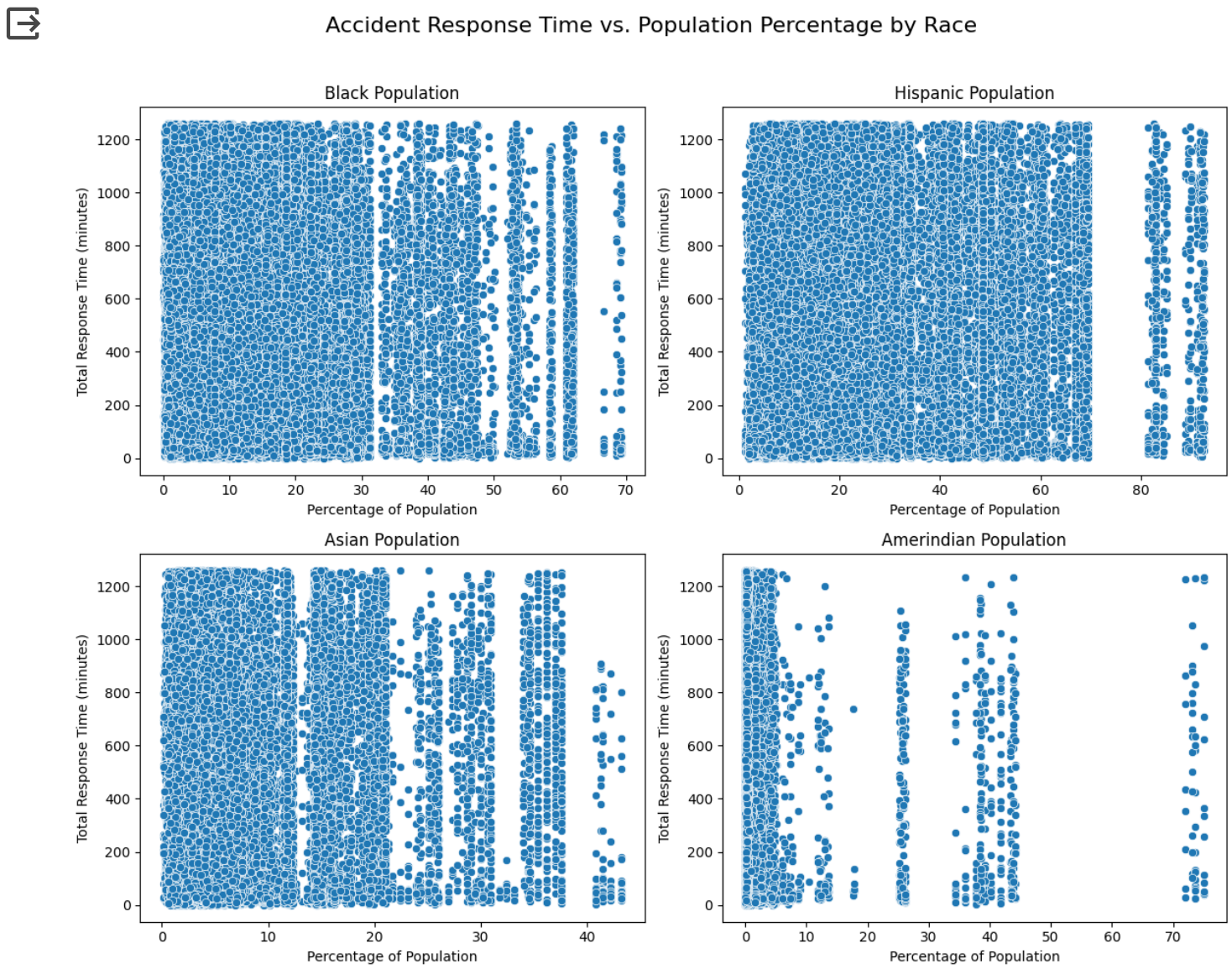
```
import pandas as pd
import matplotlib.pyplot as plt

# Assuming you have a DataFrame named 'df' with the relevant columns
# ...

# Scatterplot for Black Population
plt.scatter(df['BlackPercentage'], df['TotalResponseTime'], label='Black Populati

# Scatterplot for Hispanic Population
plt.scatter(df['HispanicPercentage'], df['TotalResponseTime'], label='Hispanic Po

# Scatterplot for Asian Population
plt.scatter(df['AsianPercentage'], df['TotalResponseTime'], label='Asian Populati

# Scatterplot for Amerindian Population
plt.scatter(df['AmerindianPercentage'], df['TotalResponseTime'], label='Amerindia

# Add labels and legend
plt.xlabel('Percentage of Population')
plt.ylabel('Total Response Time (minutes)')
plt.title('Accident Response Time vs. Population Percentage')
plt.legend()
plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/IPython/core/pylabtools.py:151: UserWa
  fig.canvas.print_figure(bytes_io, **kw)
```

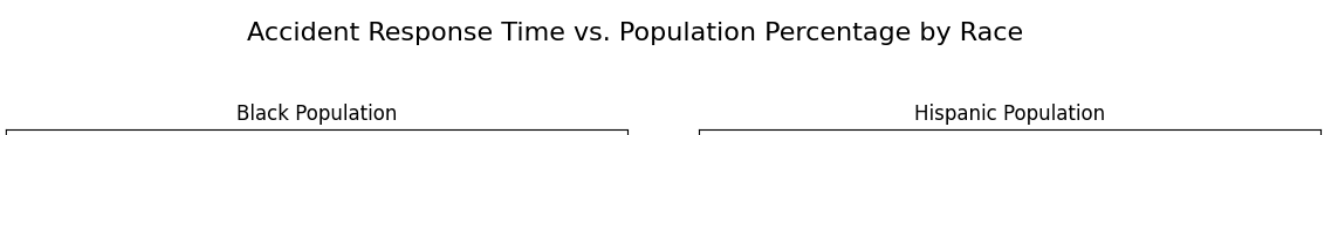


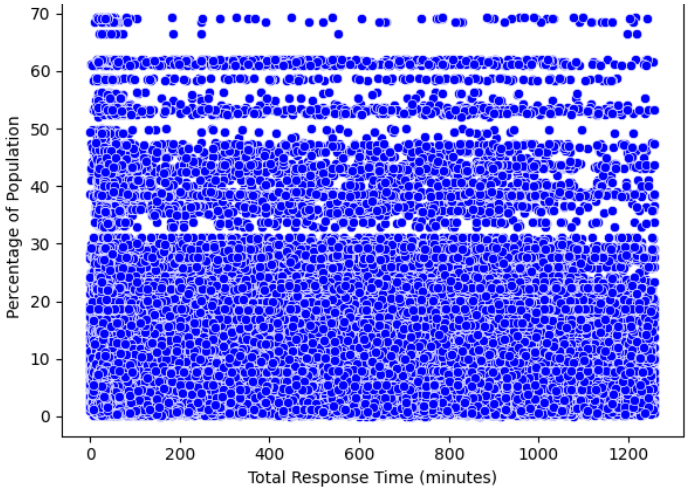

```
# Assuming you have a DataFrame named 'df_filtered' with the relevant columns

# Define the races to plot
races = ['Black', 'Hispanic', 'Asian', 'Amerindian']

# Create a grid layout for the subplots
fig, axes = plt.subplots(nrows=2, ncols=2, figsize=(12, 10))
fig.suptitle('Accident Response Time vs. Population Percentage by Race', fontsize

# Flatten the axes for easier indexing
axes = axes.flatten()

# Plot each race on a separate subplot
for i, race in enumerate(races):
    sns.scatterplot(data=df_filtered, x=f'{race}Percentage', y='TotalResponseTime
    axes[i].set_title(f'{race} Population')

# Set common labels
for ax in axes:
    ax.set_xlabel('Percentage of Population')
```

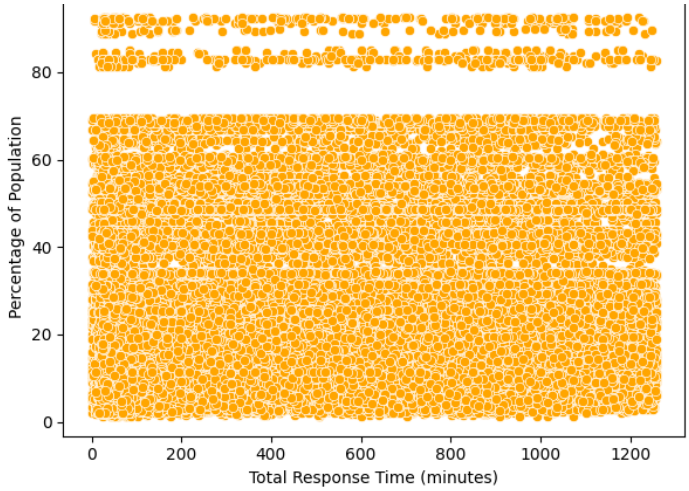
```
    ax.set_ylabel('Total Response Time (minutes)')

# Adjust layout
plt.tight_layout(rect=[0, 0, 1, 0.96])  # Add space for the title
plt.show()
```

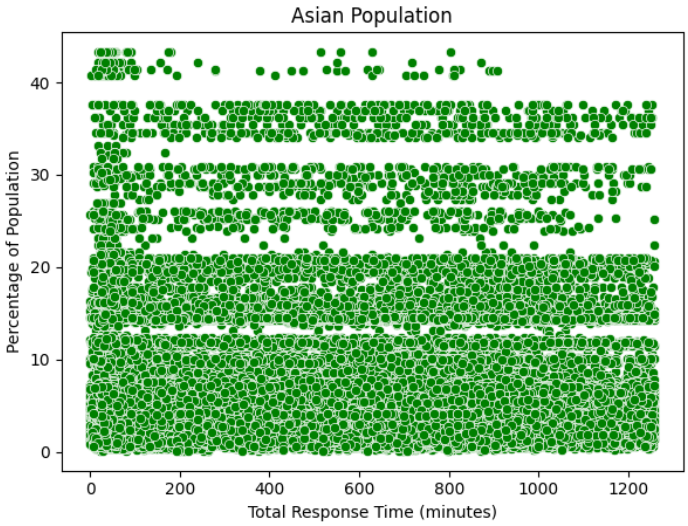


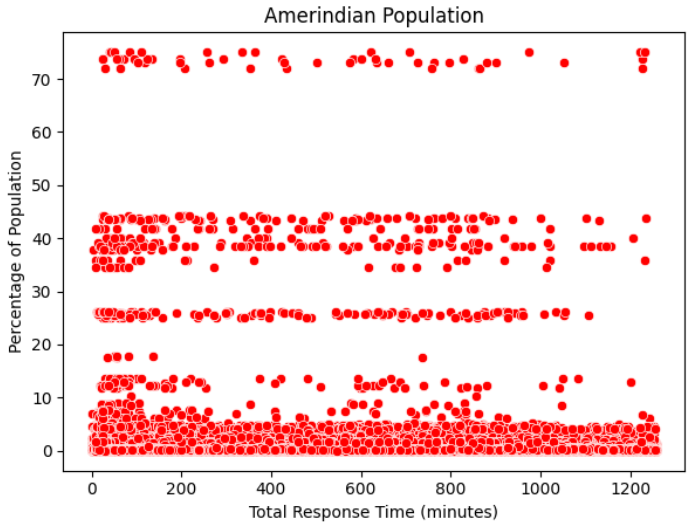
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Assuming you have a DataFrame named 'df_filtered' with the relevant columns

# Define the races to plot
races = ['Black', 'Hispanic', 'Asian', 'Amerindian']

# Create a grid layout for the subplots
fig, axes = plt.subplots(nrows=2, ncols=2, figsize=(12, 10))
fig.suptitle('Accident Response Time vs. Population Percentage by Race', fontsize=1

# Flatten the axes for easier indexing
axes = axes.flatten()

# Define colors for each race
colors = ['blue', 'orange', 'green', 'red']

# Plot each race on a separate subplot with flipped axes and different colors
for i, (race, color) in enumerate(zip(races, colors)):
    sns.scatterplot(data=df_filtered, x='TotalResponseTime', y=f'{race}Percentage',
    axes[i].set_title(f'{race} Population')

# Set common labels
for ax in axes:
    ax.set_xlabel('Total Response Time (minutes)')
    ax.set_ylabel('Percentage of Population')

# Adjust layout
plt.tight_layout(rect=[0, 0, 1, 0.96])  # Add space for the title
plt.show()
```



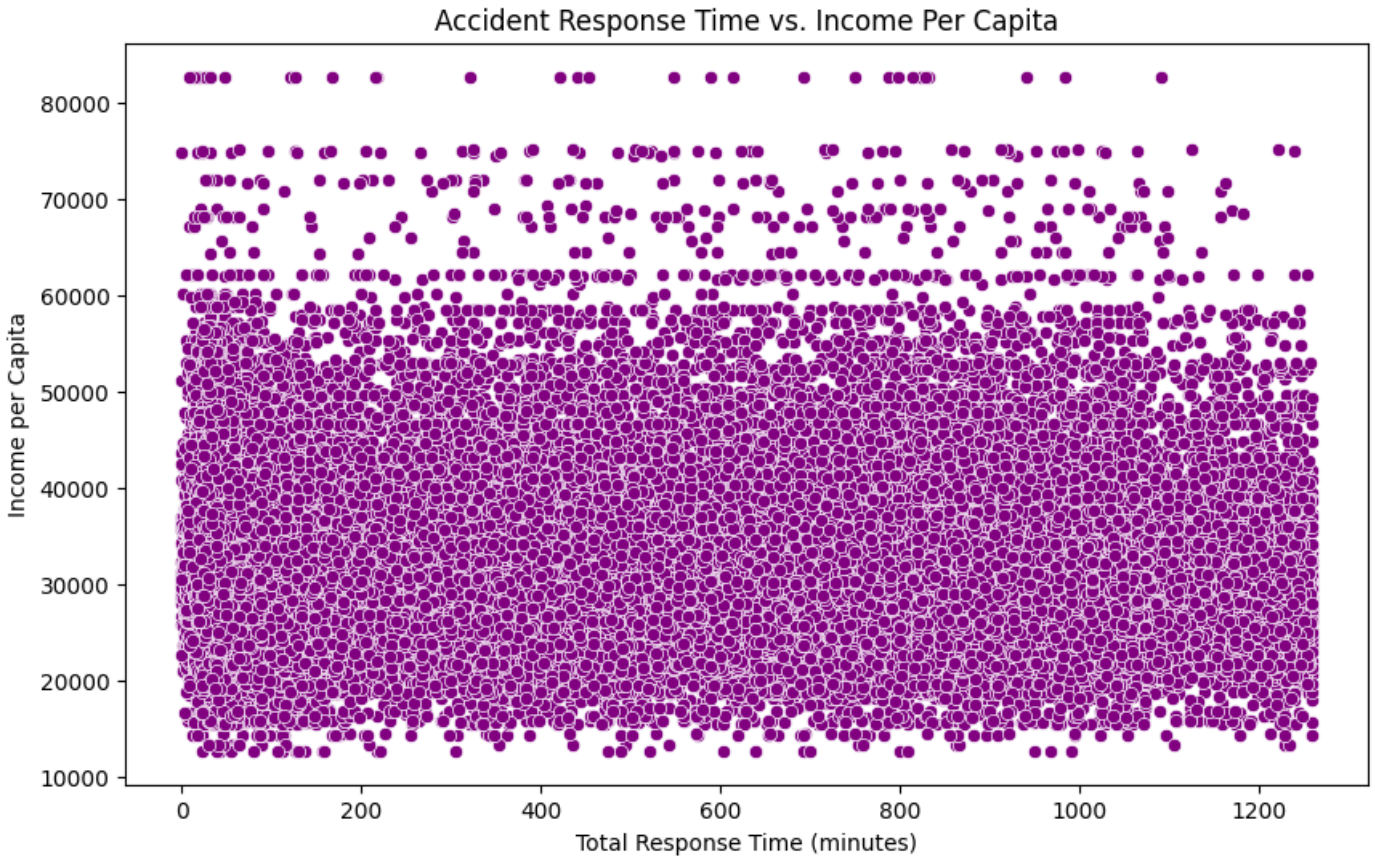

Percentage of Population
Total Response Time (minutes)


Percentage of Population
Total Response Time (minutes)


Asian Population
Percentage of Population
Total Response Time (minutes)

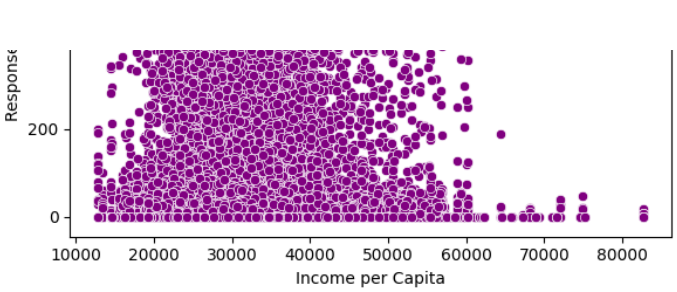

Amerindian Population
Percentage of Population
Total Response Time (minutes)

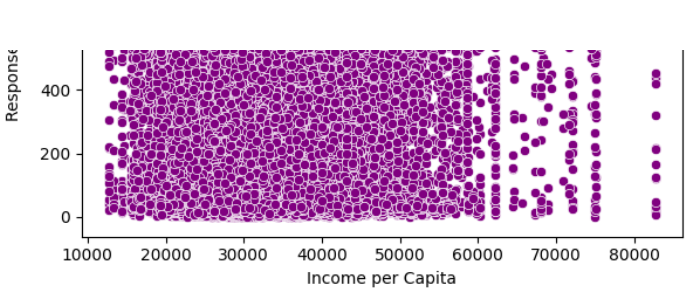
```
# Assuming you have a DataFrame named 'df_filtered' with the relevant columns

# Create a scatter plot for 'income_per_capita' against 'TotalResponseTime'
plt.figure(figsize=(10, 6))
sns.scatterplot(data=df_filtered, x='TotalResponseTime', y='income_per_capita', c
plt.title('Accident Response Time vs. Income Per Capita')
plt.xlabel('Total Response Time (minutes)')
plt.ylabel('Income per Capita')
plt.show()
```



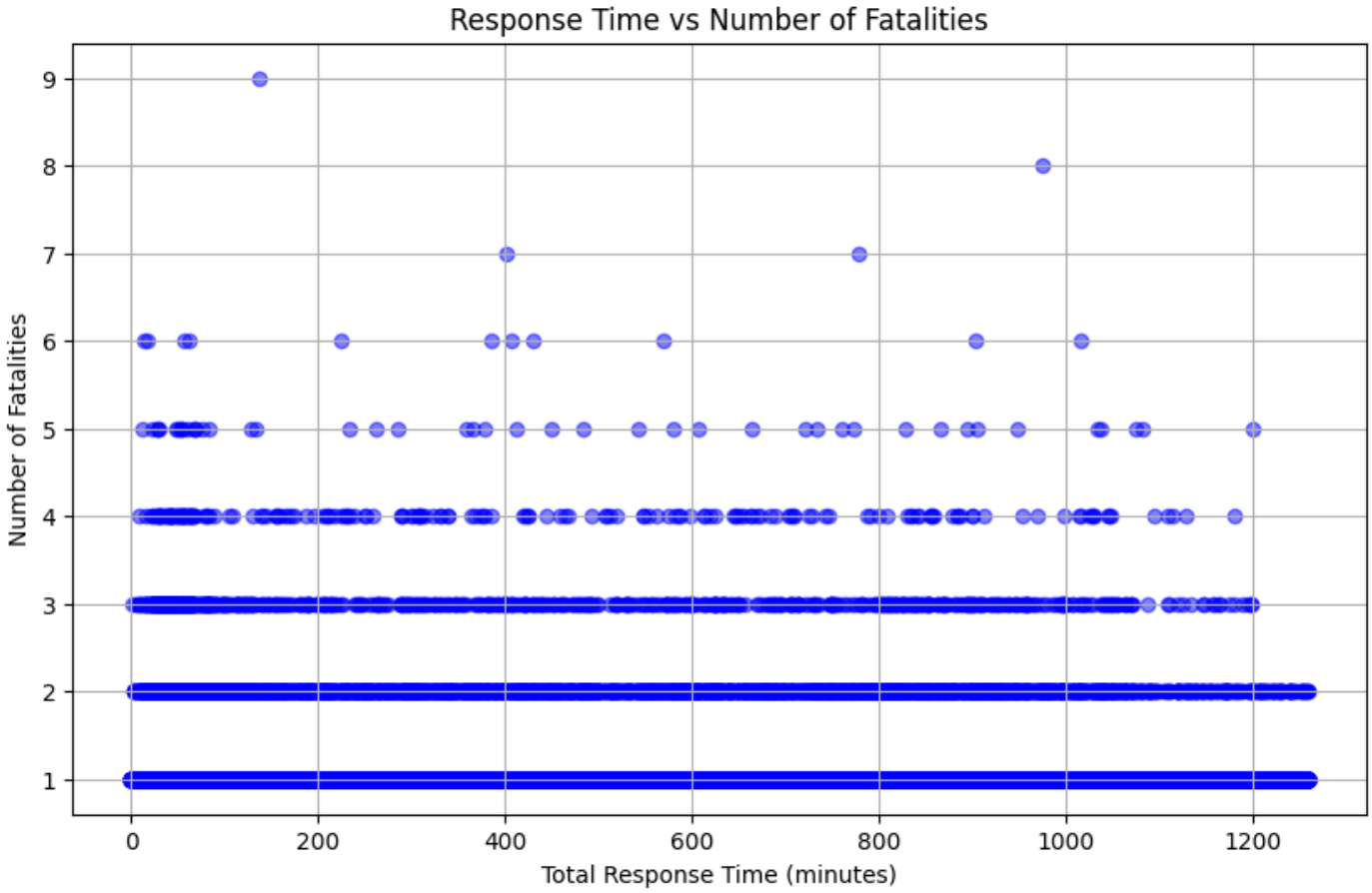

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Assuming you have a DataFrame named 'df_filtered' with the relevant columns
```

```
# Create a grid layout for the subplots
fig, axes = plt.subplots(nrows=2, ncols=2, figsize=(12, 10))
fig.suptitle('Income Per Capita vs. Different Response Times', fontsize=16)

# Flatten the axes for easier indexing
axes = axes.flatten()

# Define response time columns
response_time_columns = ['NotificationResponseTime', 'EmsResponseTime', 'EmsDeliv

# Plot each response time on a separate subplot
for i, response_time in enumerate(response_time_columns):
    sns.scatterplot(data=df_filtered, x='income_per_capita', y=response_time, ax=
    axes[i].set_title(f'{response_time} vs. Income Per Capita')

# Set common labels
for ax in axes:
    ax.set_xlabel('Income per Capita')
    ax.set_ylabel('Response Time (minutes)')

# Adjust layout
plt.tight_layout(rect=[0, 0, 1, 0.96])  # Add space for the title
plt.show()
```


200
0
10000
20000
30000
40000
50000
60000
70000
80000
Income per Capita

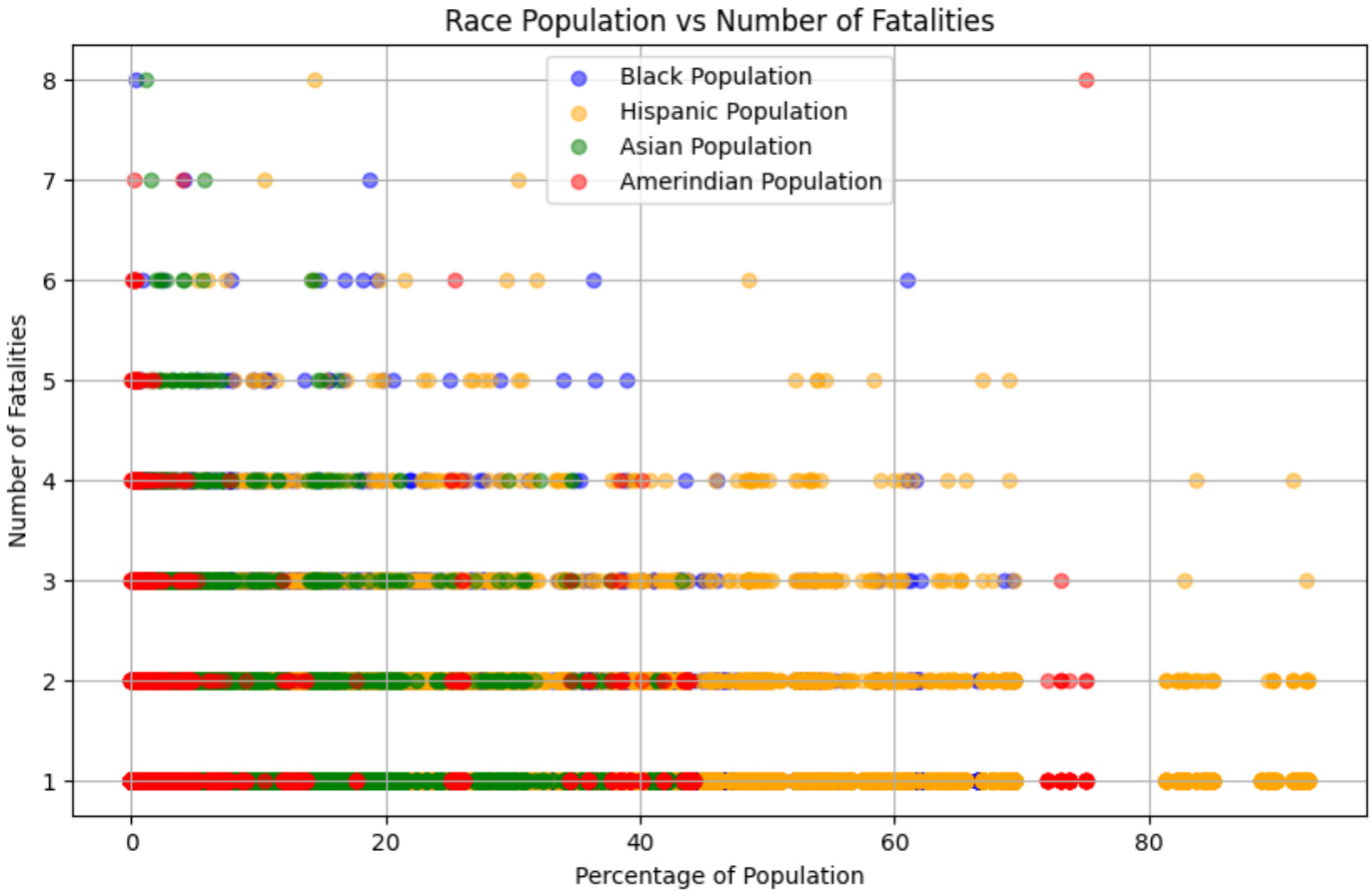

400
200
0
10000
20000
30000
40000
50000
60000
70000
80000
Income per Capita

```
# Create a scatter plot
plt.figure(figsize=(10, 6))
plt.scatter(df_filtered['TotalResponseTime'], df_filtered['number_of_fatalities']
plt.title('Response Time vs Number of Fatalities')
plt.xlabel('Total Response Time (minutes)')
plt.ylabel('Number of Fatalities')
plt.grid(True)
plt.show()
```



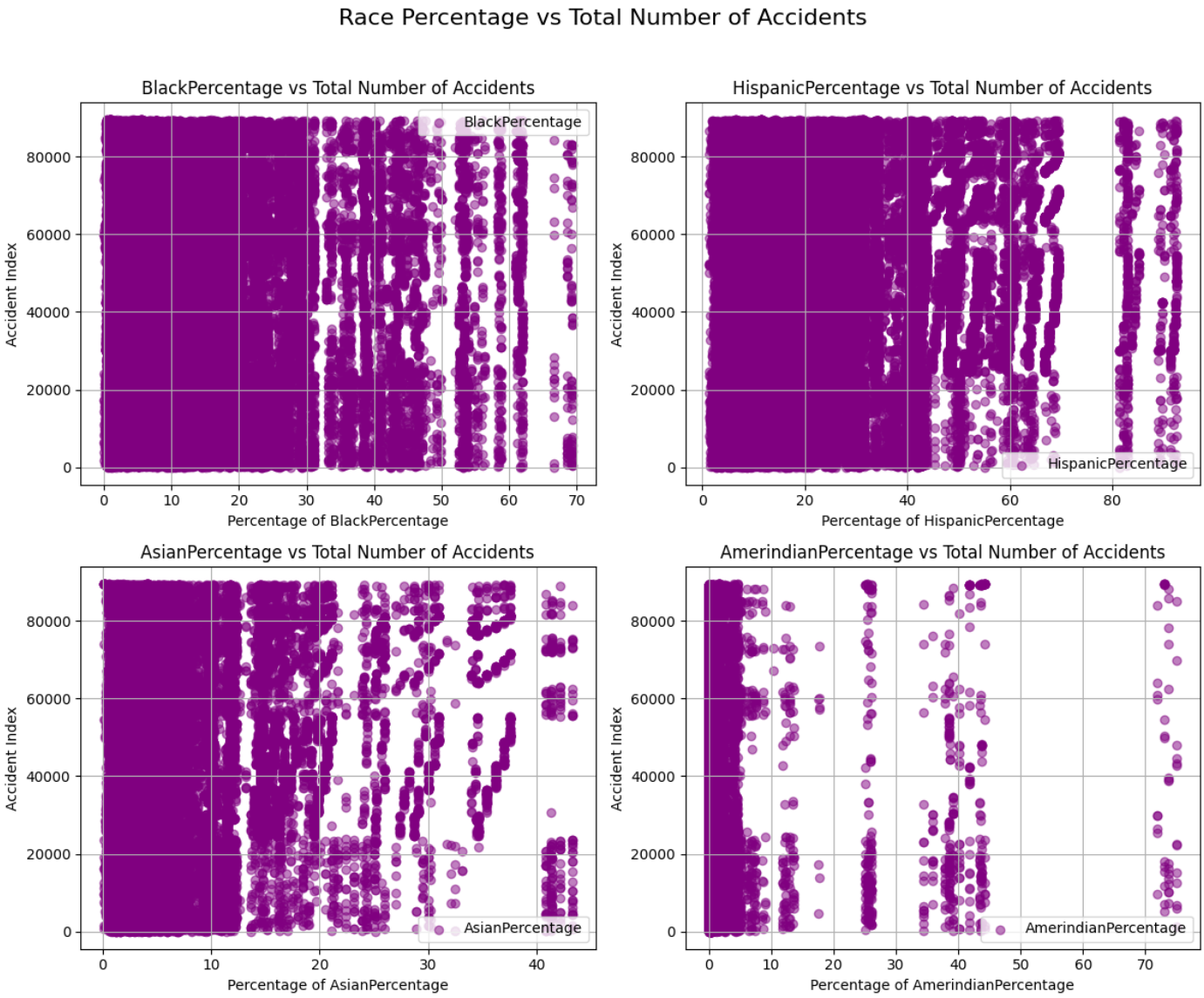

```
# Create a scatter plot for Black Population vs Number of Fatalities
plt.figure(figsize=(10, 6))
plt.scatter(df_filtered['BlackPercentage'], df_filtered['number_of_fatalities'],

# Create a scatter plot for Hispanic Population vs Number of Fatalities
plt.scatter(df_filtered['HispanicPercentage'], df_filtered['number_of_fatalities'
```

```
# Create a scatter plot for Asian Population vs Number of Fatalities
plt.scatter(df_filtered['AsianPercentage'], df_filtered['number_of_fatalities'],

# Create a scatter plot for Amerindian Population vs Number of Fatalities
plt.scatter(df_filtered['AmerindianPercentage'], df_filtered['number_of_fatalitie

# Add labels and legend
plt.title('Race Population vs Number of Fatalities')
plt.xlabel('Percentage of Population')
plt.ylabel('Number of Fatalities')
plt.legend()
plt.grid(True)
plt.show()
```

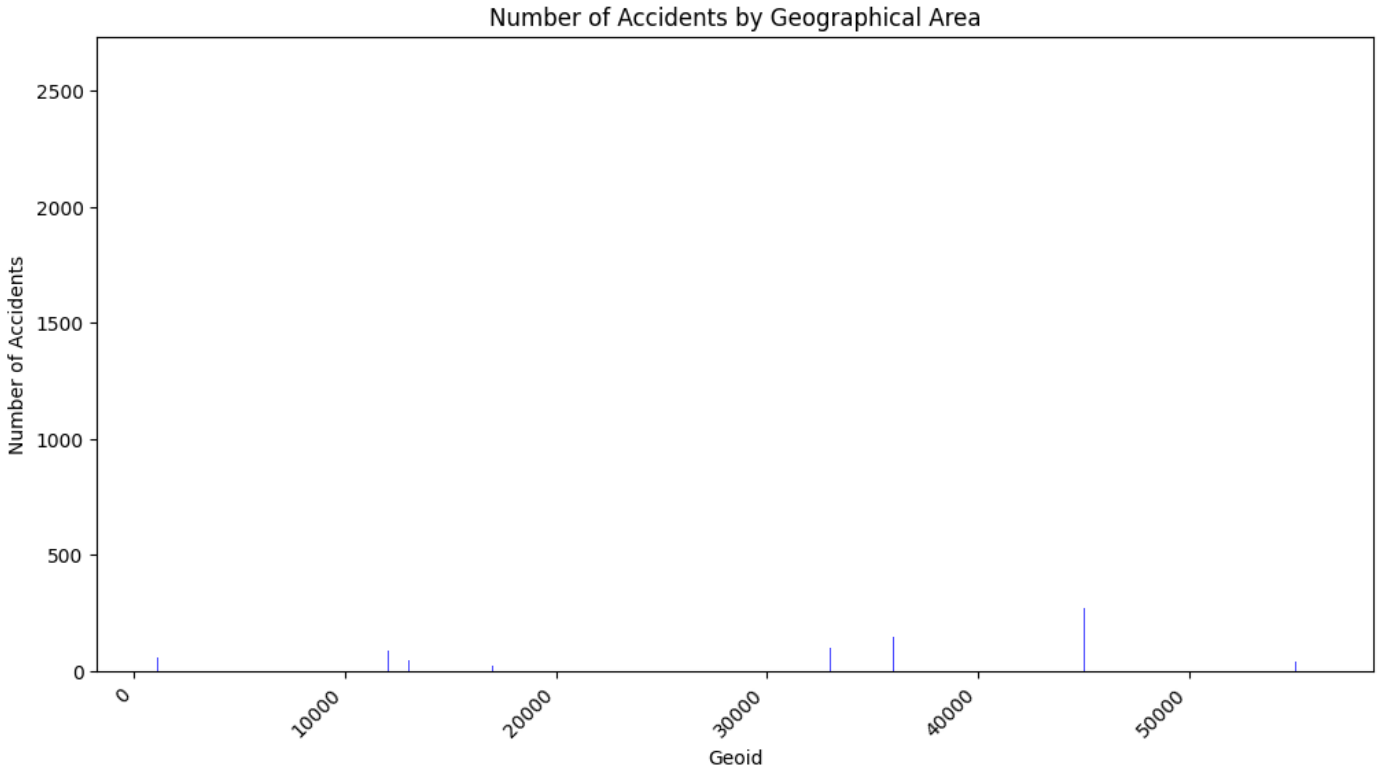



```
# Create a grid layout for the subplots
fig, axes = plt.subplots(nrows=2, ncols=2, figsize=(12, 10))
fig.suptitle('Race Percentage vs Total Number of Accidents', fontsize=16)
```

```
# Flatten the axes for easier indexing
axes = axes.flatten()

# Define race columns
race_columns = ['BlackPercentage', 'HispanicPercentage', 'AsianPercentage', 'Amer

# Plot each race percentage on a separate subplot
for i, race_column in enumerate(race_columns):
    axes[i].scatter(df_filtered[race_column], range(len(df_filtered)), label=race
    axes[i].set_title(f'{race_column} vs Total Number of Accidents')
    axes[i].set_xlabel(f'Percentage of {race_column}')
    axes[i].set_ylabel('Accident Index')
    axes[i].grid(True)
    axes[i].legend()

# Adjust layout
plt.tight_layout(rect=[0, 0, 1, 0.96])  # Add space for the title
plt.show()
```



```
# Group by 'geoid' and count the number of accidents in each geographical area
accidents_by_geoid = df_filtered.groupby('geoid')['number_of_fatalities'].count()

# Create a bar chart
plt.figure(figsize=(12, 6))
plt.bar(accidents_by_geoid['geoid'], accidents_by_geoid['number_of_fatalities'],
plt.title('Number of Accidents by Geographical Area')
plt.xlabel('Geoid')
plt.ylabel('Number of Accidents')
plt.xticks(rotation=45, ha='right')  # Rotate x-axis labels for better readabilit
plt.show()
```



```
distinct_geoIDs_count = df_filtered['geoid'].nunique()

print(f"Distinct Number of geoIDs: {distinct_geoIDs_count}")
```

```
Distinct Number of geoIDs: 831
```

```
!pip install pydeck
```

```
Collecting pydeck
  Downloading pydeck-0.8.0-py2.py3-none-any.whl (4.7 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 4.7/4.7 MB 32.0 MB/s eta 0:00:00
Requirement already satisfied: jinja2>=2.10.1 in /usr/local/lib/python3.10/dis
Requirement already satisfied: numpy>=1.16.4 in /usr/local/lib/python3.10/dist
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/di
Installing collected packages: pydeck
Successfully installed pydeck-0.8.0
```

```
import pydeck as pdk

# Replace 'YOUR_MAPBOX_TOKEN' with your actual Mapbox API token
MAPBOX_TOKEN = 'pk.eyJ1IjoibXdpbmNoZXN0ZXIyIiwiYSI6ImNscHVteDVwbTBsZjgya282MDd6c2

# Sample data (replace this with your data)
data = [
    {'latitude': 37.7749, 'longitude': -122.4194, 'weight': 10},
    {'latitude': 40.7128, 'longitude': -74.0060, 'weight': 5},
    # Add more data points as needed
]

# Create a PyDeck layer for the heatmap
heatmap_layer = pdk.Layer(
    'HeatmapLayer',
    data,
    get_position='[longitude, latitude]',
    get_weight='weight',
)

# Set the initial view state for the map
view_state = pdk.ViewState(
    latitude=37.7749,
    longitude=-122.4194,
    zoom=3,
    pitch=0,
)

# Create a PyDeck deck
```

```
deck = pdk.Deck(
    layers=[heatmap_layer],
    initial_view_state=view_state,
    map_style='mapbox://styles/mapbox/dark-v10'
)

# Use the to_html() method to get the HTML code
html_code = deck.to_html()

# Display the HTML code in Colab
from IPython.core.display import HTML

HTML(html_code)
```