**Project Overview:**

For this project we had decided to pick 10 cities from the US to move to and settle down. Our goal is to determine which of the 10 cities we selected is the best option for us. The cities that we picked out were Atlanta, Austin, Boston, Chicago, Denver, Los Angeles, Nashville, New York, San Diego, and Tampa. We are going to use some of the data sets we found from Kaggle to create number of different Bar and scatter plots along with regression to visualize our analysis. Our regression statistics will be calculated based on population growth compared to all our other variables for each city. As a team we are going to work divide our project into 4 different sections and each team member is going to work on their individual potion of the project.

**Analysis:**

Our group project goal was to see which city in our top 10 that we chose as a group is the most livable city based on our data sets that we have chosen. The results are based off the data sets of population, urban connectivity, crime per city, and cost of living.

This report compares several key metrics across 10 selected cities: New York, Chicago, Boston, Nashville, Atlanta, Tampa, Austin, and others. The focus areas include population, urban connectivity (walk, transit, and bike scores), crime rates, and cost of living. These metrics provide insights into the livability and desirability of each city in terms of accessibility, safety, and affordability.

The first data set focuses on population. Among the 10 cities, New York ranks as the most populated city with an estimated population of 8.09 million. New York’s massive population underscores its role as a global hub for business, culture, and tourism. Conversely, Tampa is the least populated city, with approximately 408,510 residents, highlighting its comparatively smaller size and lower density. These population figures set the stage for understanding how urban infrastructure, safety, and cost of living interact with the size of the population.

A graph with blue and orange squares

Description automatically generated

From the bar graph that shows the population of the cities in 2020 and 2024. We can see that New York has the most populous city and yet it has the most amount of change in the population from 2020 to 2024. Also, you can see that population that has increase were Tampa and Austin even though their population were listed as some of the least populous cities.

Urban connectivity is a key indicator of how well a city enables movement via walking, biking, and public transit. In this analysis, we broke down the urban connectivity into three categories: walk score, transit score, and bike score.

The walk score shows that New York scored a 10/10, indicating a highly walkable city where most errands can be completed on foot. This makes sense for a densely populated and well-planned city like New York, with a concentration of amenities and workspaces. On the opposite end, Nashville scored a mere 1/10, suggesting a heavy reliance on cars due to poor walkability and a lack of pedestrian-friendly infrastructure.

A graph of a city

Description automatically generated

A white background with black text

Description automatically generated

Transit Score is like its performance in walkability, New York again ranked the highest with a 10/10. This reflects its comprehensive public transportation network, including subways, buses, and regional trains. Nashville, once again, ranked the lowest with a 1/10, likely due to its limited public transportation options, making it heavily car dependent.

A graph of blue bars with white text

Description automatically generated

A white background with black text

Description automatically generated

For bike Score Chicago took the top spot for biking infrastructure, scoring a 10/10, thanks to its extensive network of bike lanes and bike-sharing systems. Conversely, Nashville remained at the bottom with a 1/10, indicating poor biking infrastructure and limited accessibility for cyclists.

A graph of a city bike score

Description automatically generated

A white background with black text

Description automatically generated

When looking at the overall urban connectivity, New York emerges as the top performer across the board, making it one of the most accessible cities, particularly for those who prefer walking or using public transit. Chicago and Boston also score highly across walkability, transit, and biking, positioning them as strong contenders in terms of urban mobility. On the other hand, Nashville consistently ranks at the bottom across all three categories, indicating limited urban connectivity and a car-dependent lifestyle.

A graph of a city

Description automatically generated

Our urban connectivity scores were used against the 2024 city population. We wanted to determine if cities with bigger populations were easier or more difficult to get around in and interact with. Pearsons R correlation was the main statistic we used to determine these factors. Our results for our three different categories came in mixed. Our transit score came in with the highest R value of .74. This is a very good indication that more populated cities have better public transportation systems. Conversely our bike score r vale came in quite low at only .36. This is a relatively weak correlation meaning that population size is not a great indicator of how well a city ranks for biking. One reason for this may be the more populated a city the less room there is for things that may be considered luxury or non-essential perks such as bike lanes and bike paths. The walk score correlation was closet to our total urban score calculation. The walk score came in at .65 and the total urban score r value came in at .61. These values are both moderately strong indications that more populated cities are easier to get around on foot and overall are better for moving around and interacting with a particular city. From an urban connectivity standpoint, the more populated cities are more desirable.

The next category in the analysis is crime rates. Atlanta ranked as the city with the highest crime rates among the 10 cities, making it the most dangerous in terms of overall crime. This could be due to various factors, including socioeconomic conditions, urban planning, and policing strategies. On the flip side, New York ranked as the safest city, which may come as a surprise considering its large population and reputation for being a bustling metropolis. However, over the past decades, New York has significantly reduced its crime rates, especially in comparison to other major cities.

These findings highlight that while Atlanta may offer certain economic opportunities and cultural attractions, its high crime rates may make it a less appealing option for residents concerned with safety. New York, despite being the most populated city, provides a relatively safer environment, which adds to its overall livability score.

A screenshot of a data

Description automatically generated

Looking at the data frame table we collected above we can that:

* Atlanta is ranked at number 1 being the worst crime rated city at 5,727.52 total crimes per 514,465 total population.
* At bottom we have New York ranked number 10 as the lowest crime rated city at 1,987.49 total crimes per 8.097 million total population.

A better representation of this data frame is the bar graph below:

A graph of blue bars with white text

Description automatically generated

What we can take away from the data frame, the table, bar graph, and the numbers is:

* New York is the safest city out of the 10 cities we have chosen for this project while also having the largest population.
* Meanwhile can see that Atlanta is the most dangerous city from the 10 cities we have chosen while being second smallest city in table.

Finally, we examine the cost of living across the cities. In this category, cities were ranked based on a total cost index that includes housing, groceries, transportation, and other living expenses. Austin emerged as the city with the most affordable cost of living among the 10 cities, making it a top choice for individuals or families looking for a more cost-effective place to live. Nashville followed closely behind, indicating that despite its poor scores in walkability, transit, and biking, it remains an attractive option for its affordability. On the other hand, New York ranked as the most expensive city in terms of cost of living. This finding aligns with its status as a global financial hub and a high-demand market for real estate. While New York offers unparalleled access to job opportunities, culture, and urban connectivity, its high cost of living may be a significant deterrent for many people considering relocation.

A graph of a number of living states

Description automatically generated with medium confidence

What we can see is that Cost of living in New York is the highest as it has been the most populous state. Although the one city that was really stood out was Boston. As Boston had one of the least amounts of population, yet it has one of the highest cost of living.

When synthesizing the data across these four major categories—population, urban connectivity, crime, and cost of living—it becomes clear that each city offers distinct advantages and disadvantages.

* New York stands out for its high population, excellent urban connectivity, and safety, but it comes with a significantly high cost of living.
* Chicago and Boston offer strong alternatives in terms of urban connectivity, with slightly lower living costs than New York, making them appealing choices for people who prioritize walking, biking, or public transit.
* Austin and Nashville may be more attractive to people looking for affordability, though both cities face challenges in terms of urban mobility and, in the case of Nashville, very low walkability and transit scores.
* Atlanta’s high crime rate may overshadow some of its other qualities, making it a less attractive option for those prioritizing safety.