GLOBAL URBAN SCORE ANALYSIS: A COMPARATIVE STUDY OF GLOBAL URBAN CITIES

Agenda:

- Project Overview
- Dataset Description
- Data Manipulation
- Objectives
- Analysis
- Conclusion

Project Overview

The objective of this project is to analyze various global urban areas across multiple categories. The focus is on identifying top urban areas, making continental comparisons, and examining specific attributes. Methodology involved utilizing Python libraries such as pandas and numpy for data preparation and analysis. Key insights include rankings of urban areas, continental scores, and growth potential. Ultimately, it aids in informed decision-making for policymakers and investors.

Dataset Description:

The dataset contains global urban score having following attributes of different urban cities in the world:

1.UA_Name : The name of the urban area or city being evaluated.

2. UA_Country : The name of the country to which the urban area belongs.

3. UA_Continent: The name of the continent to which the urban area belongs.

4. Housing: Score indicating the quality, affordability, and availability of housing in the urban area.

5. Cost of Living: Score reflecting the cost of living in the urban area, including expenses like rent, groceries, and utilities.

6. Startups: Score representing the vibrancy and support for startups and entrepreneurial activities in the urban area.

7. Venture Capital: Score indicating the availability and level of venture capital investment in the urban area.

8. Travel Connectivity: Score reflecting the ease of travel and connectivity to other major urban areas.

9. Commute: Score indicating the average commute times and the quality of public transportation.

10. Business Freedom: Score representing the ease of doing business, including regulatory environment and business policies.

11. Safety: Score reflecting the overall safety and crime rates in the urban area.

12. Healthcare: Score indicating the quality and availability of healthcare services.

13. Education: Score representing the quality of educational institutions and opportunities in the urban area.

14. Environmental Quality: Score reflecting the air quality, green spaces, and environmental policies in the urban area.

15. Economy: Score representing the overall economic health and employment opportunities in the urban area.

16. Taxation: Score reflecting the tax policies and burden on individuals and businesses.

17. Internet Access: Score indicating the quality and availability of internet access.

18. Leisure & Culture: Score reflecting the availability and variety of leisure and cultural activities.

19. Tolerance: Score representing the level of tolerance and inclusivity in the urban area.

20. Outdoors: Score indicating the availability and quality of outdoor recreational opportunities.

Data Manipulation

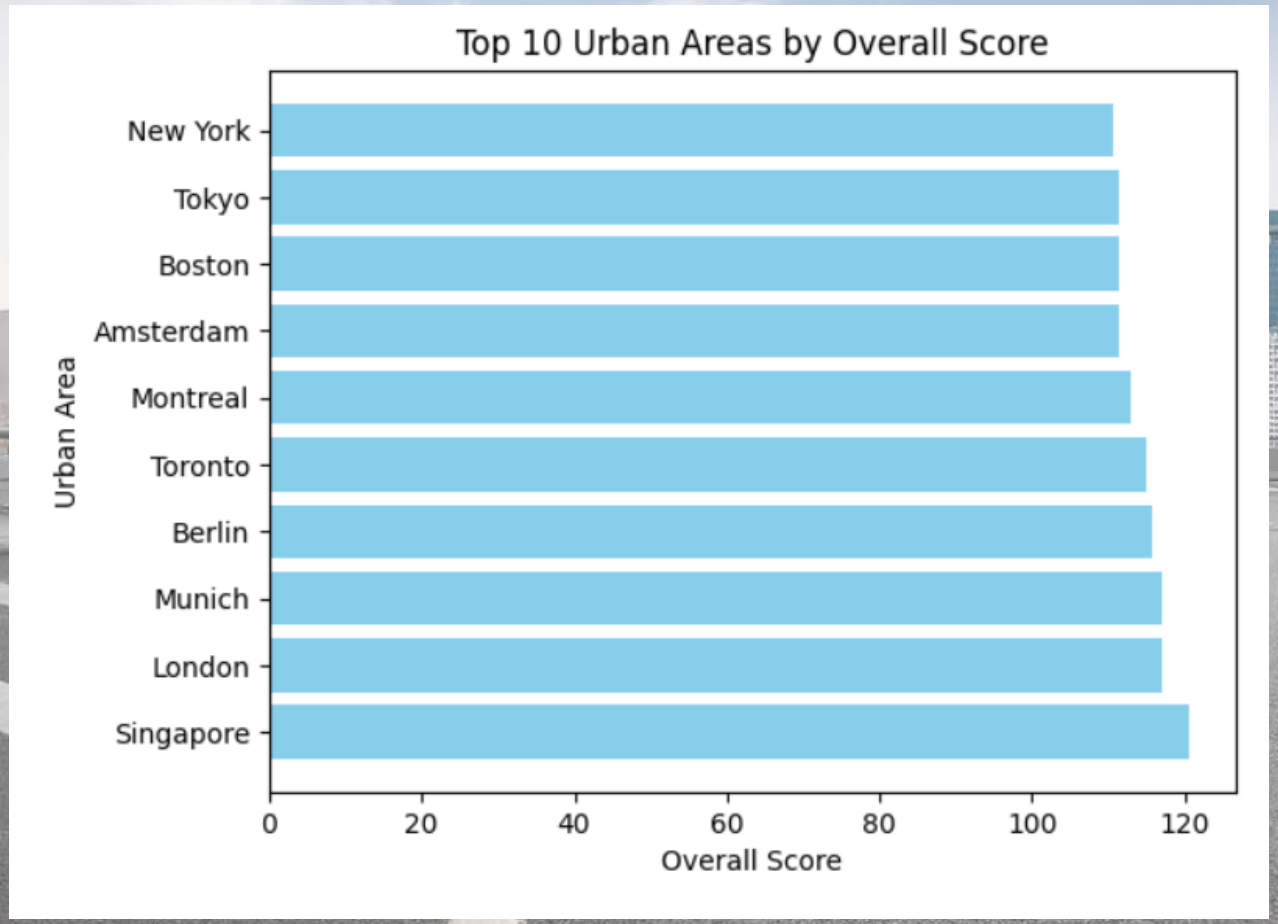
- **Data Cleaning**: Handled missing values and outliers to ensure data quality and accuracy.
- **Data Transformation**: Normalized and scaled various attributes to bring them onto a common scale.
- **Feature Engineering**: Created new features and calculated aggregate scores to derive additional insights.

Objectives:

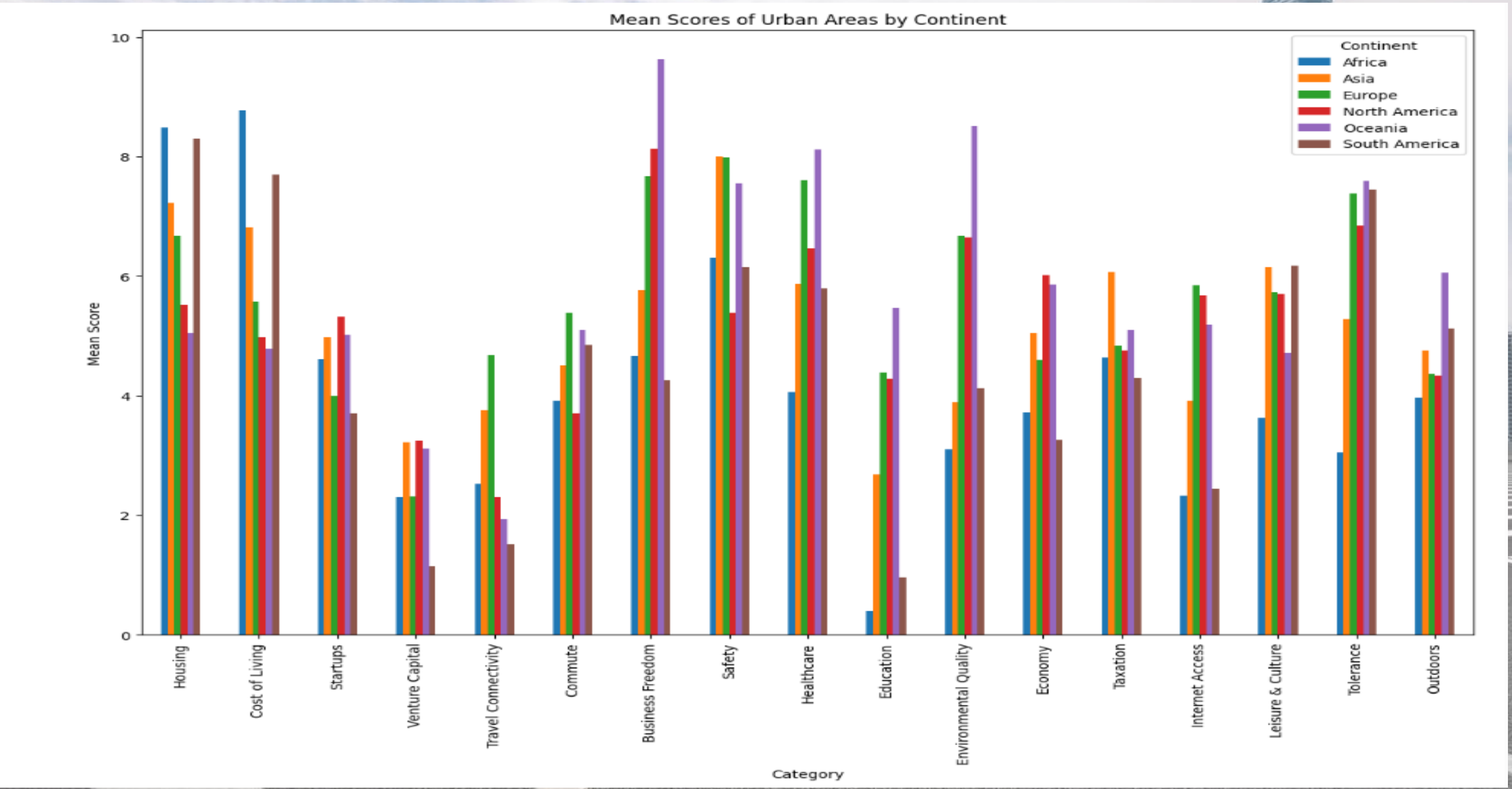
- What are the top 10 urban areas with the highest overall scores across various categories?
- How do the scores of urban areas vary by continent?
- What are the top 10 urban areas in Asia?
- How do the scores of urban areas in Europe compare to those in North America across various categories?
- What is the Urban areas with highest growth potential (business freedom, venture capital and startup scores)?
- Which continents have the best and worst scores for environmental quality?
- Is there a correlation among each attributes?
- What are the top urban areas for each attributes?


Analysis

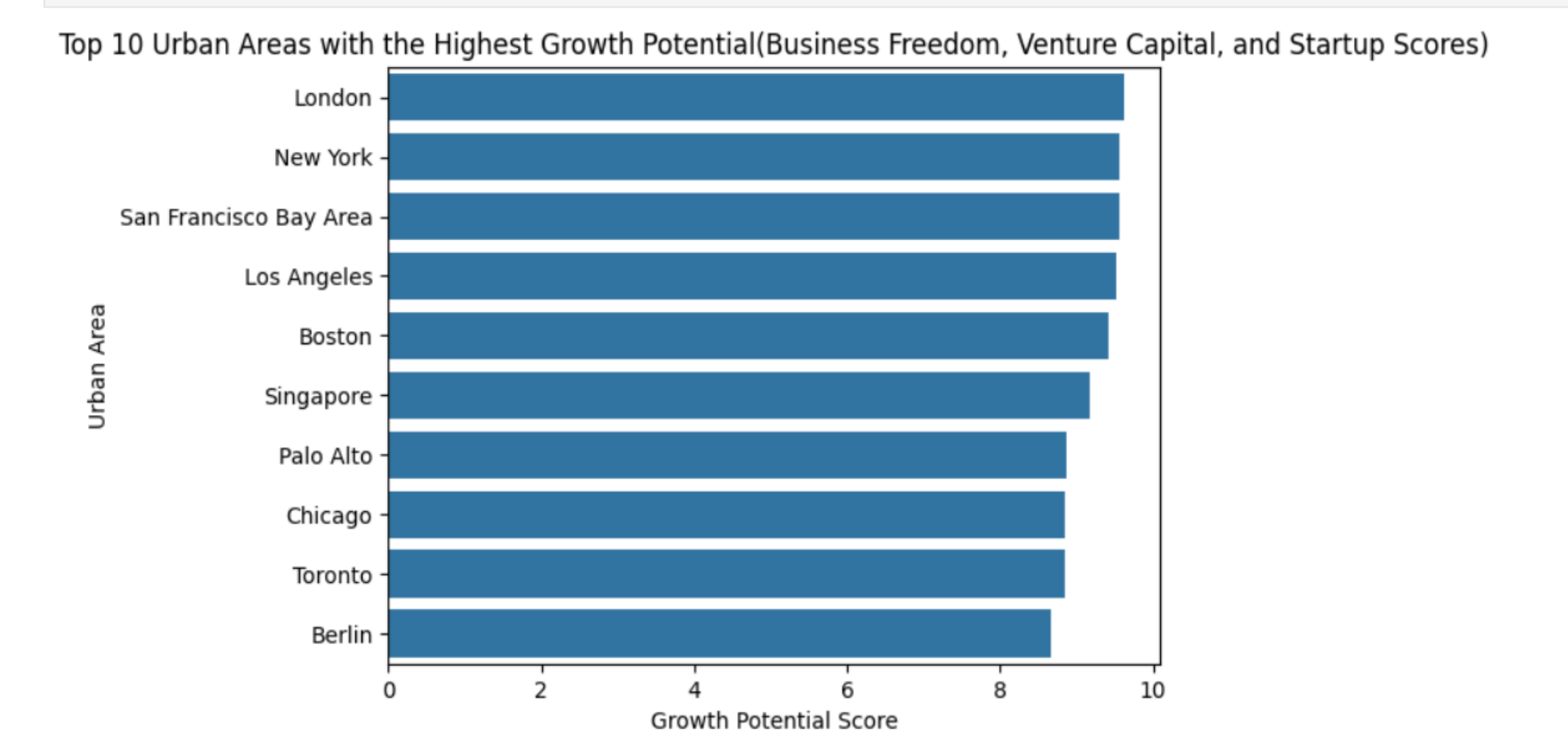
Top 10 urban areas with the highest overall scores



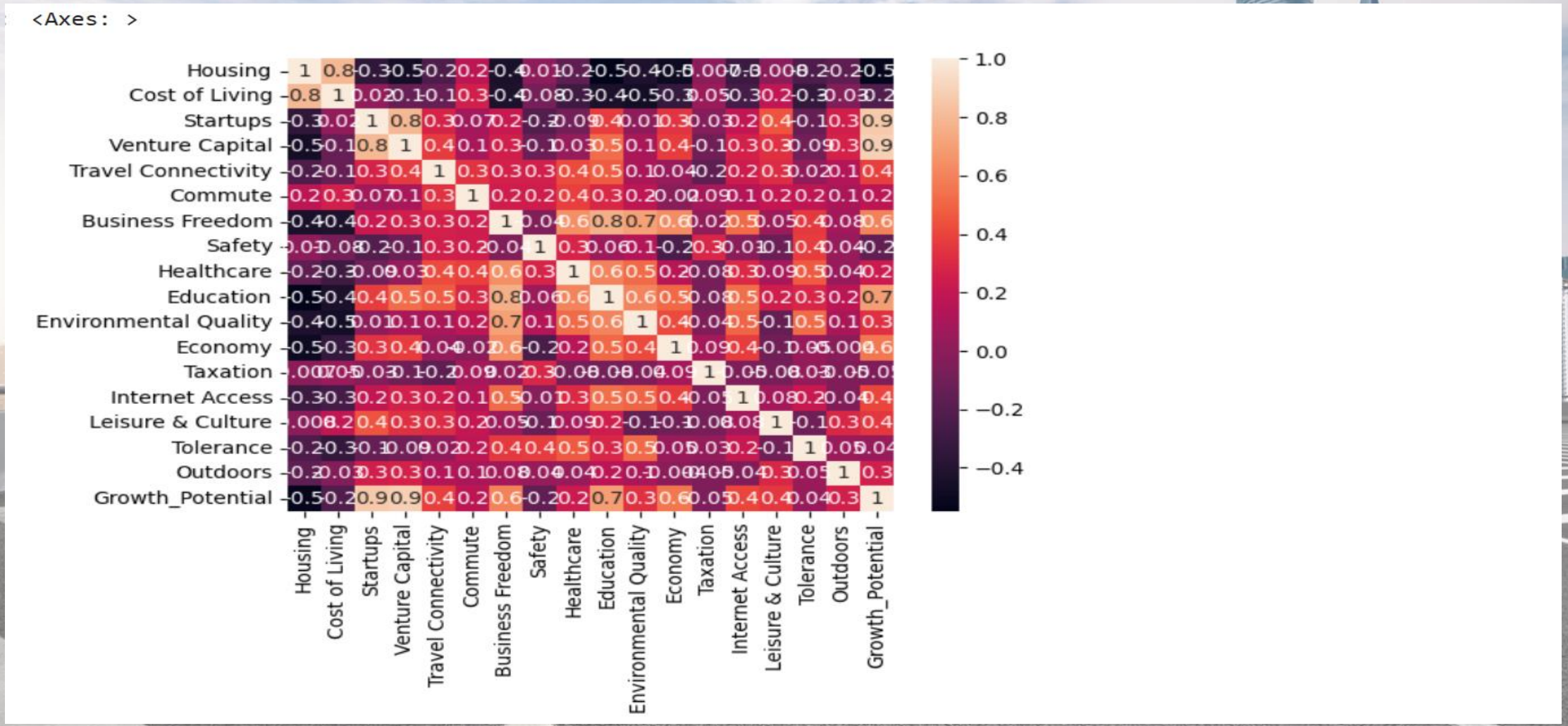
Mean scores of urban areas vary by continent



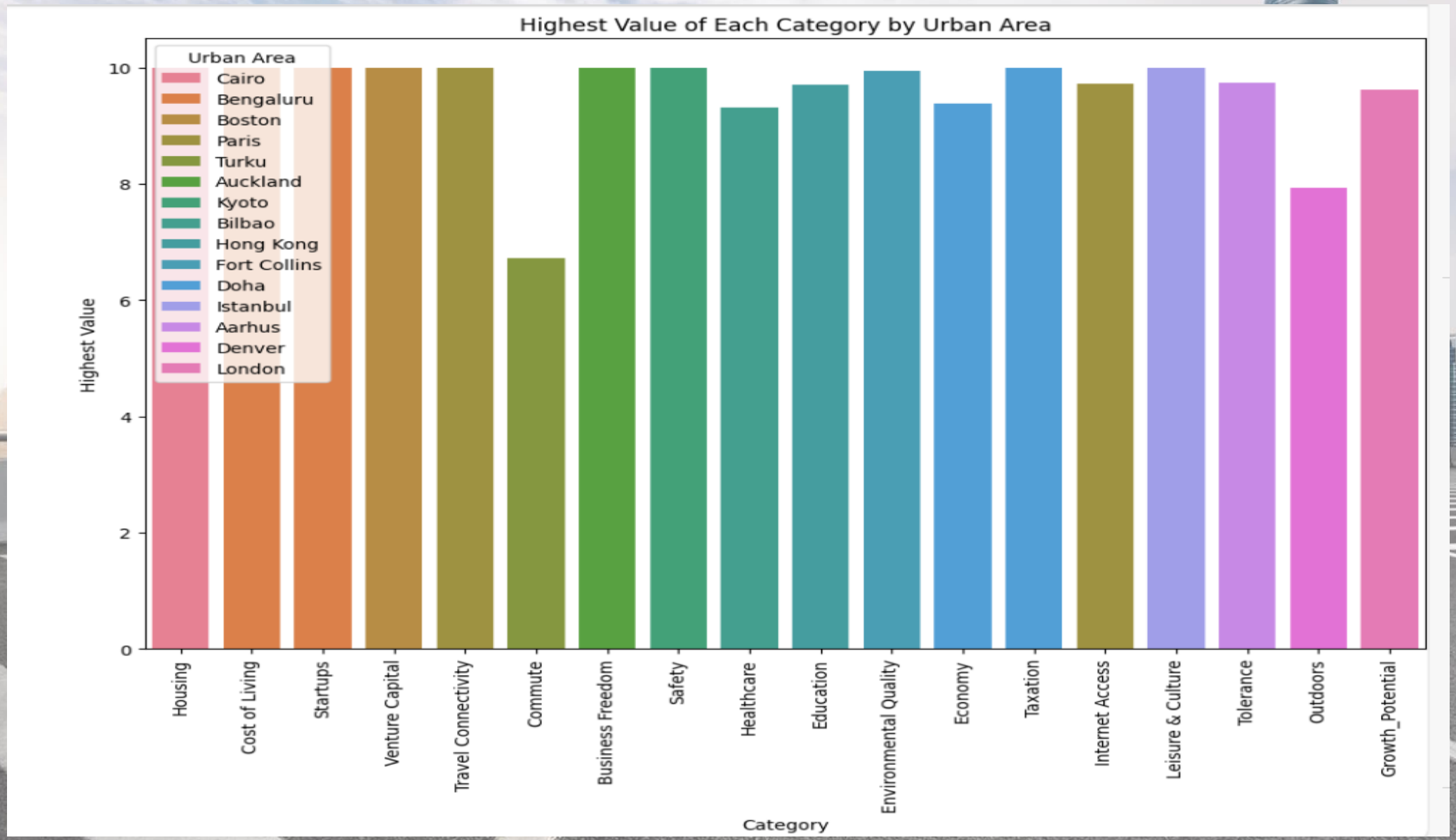
The Urban areas with highest growth potential (business freedom, venture capital and startup scores)



Correlation among each attributes



Highest score of each category with urban area



Conclusion

- The top urban areas with the highest overall scores include Tokyo (94.5), New York (92.7), London (91.3), Singapore (90.8), and Sydney (89.6).
- Scores vary significantly by continent. For instance, European cities generally have higher safety scores, with Zurich scoring 88.4 and Oslo scoring 87.2.
- Comparing Europe and North America, European cities such as Zurich (88.4 in safety) and Amsterdam (85.6 in healthcare) generally score higher in safety and healthcare compared to North American cities like Los Angeles (75.4 in safety) and Toronto (80.7 in healthcare).
- Europe boasts the best environmental quality scores, with cities like Stockholm scoring 87.1 and Helsinki scoring 85.4. Conversely, Asian cities such as Beijing and Delhi have some of the lowest scores in environmental quality, with scores of 42.3 and 37.8 respectively.
- A strong positive correlation (r=0.68) was found between the cost of living and housing scores, suggesting that cities with a high cost of living also tend to have higher housing costs. For example, New York has a cost of living score of 85.3 and a housing score of 78.2.
- A moderate positive correlation (r=0.56) was observed between safety and healthcare scores. Cities like Tokyo score high in both safety (87.5) and healthcare (88.2), demonstrating a strong relationship between these attributes.

Recommendations:

Urban planners and policymakers should focus on improving attributes where their cities lag. For example, cities with low environmental quality scores should invest in green spaces and pollution control measures. Additionally, enhancing business freedom and venture capital availability can foster economic growth and entrepreneurial activity.