

After analyzing the data using my data visualization tool, I have come to the conclusion that, given my chosen locations for restaurants, events, and a conference, the most convenient coworking space is the The Speak Easy, located at 5255 Winthrop Ave #110, Indianapolis, IN 46220. I created a program using Python that determined mathematically that this is the most optimal location for a coworking space. Using pandas, I read in my data frame as an excel file. Using geopy and ArcGIS, I converted the addresses in my data frame to latitude and longitude values. Then, I looped through each of the five possible locations for a coworking space. I used a distance function to calculate the distance from each coworking space to the housing location, conference location, and each of the restaurant and event locations. I added all of these distances to find the total distance that must be traveled to get from the coworking space to each of these locations. I determined that the coworking space with the minimum total distance traveled to each of these locations is the most convenient space.

I used folium to create a map centered around Indianapolis, Indiana. On this map, I plotted all of the locations for the conference, events, and restaurants in blue. I plotted all of the potential coworking spaces in green, and I plotted what my program determined to be the most convenient coworking space in red. As the map shows, many of the locations for the activities are clustered together in downtown Indianapolis. There are also two potential coworking locations in this area. However, there are also a significant number of activity locations spread across the northern region of the city, including the other three potential coworking locations. As apparent in the map, the coworking space that is just north of downtown Indianapolis, outside of the cluster, is determined to be the most optimal. This is because it lies in between the cluster of activities downtown and the rest of activities spread throughout the northern region of the city.

The output of my code is shown below. (Note that to run my code, the file path must be changed, as it currently reflects the file path on my computer).

The most convenient coworking space is The Speak Easy at 5255 Winthrop Ave #110, Indianapolis, IN 46220

All restaurants, events, and conference locations are shown in blue. Possible coworking locations are shown in green. The most convenient coworking space is shown in red.

