SLIDE 1:

I will be presenting my findings on the product availability of Divvy Bikeshare with an emphasis on public safety.

So for context, Divvy Bikes is a bike sharing program owned by Chicago's Department of Transportation and is managed and operated by Lyft.

SLIDE 2:

Regarding public safety: Chicago is often seen as one of the more dangerous cities in the US. According to data obtained by the FBI, **Chicago's violent crime rate is** 164% above the national average.

SLIDE 3:

In regards to the data being used, we'll be taking the existing divvy data from 2016 to 2019 and combining it with updated Divvy data from 2020 to 2022.

We will also be looking crime data provided by the City of Chicago to assist in making recommendations

SLIDE 4:

So we've talked about the problem and the focus. My hypothesis revolves around relocation and redistribution. By looking at current ridership and crime data, we can see a resurgence of ridership in Chicago's inner city opposed to the surrounding suburban areas as a result of the pandemic. I am expecting to make recommendations to redistribute bikes back into the more metropolitan areas but plan to make suggestions to relocate stations to safer areas

SLIDE 5:

A little bit about the data:
For limitations:
All staff rides were omitted: The data has been processed to remove trips that are taken by staff as they service and inspect the system.
All trips below 60 seconds in length were also removed
As for station ID's, there were many station ID's in our trips data that don't exist in the reference tables so we will be removing those for our analysis.
The crime classifications are based on preliminary findings and may be changed due to further investigation or human error.

The types were also just filtered to crimes that are relevant to bike share riders. And the crime data shows when crimes were reported, not when the crimes occurred.

As for assumptions
Many of the trips were rounded to the nearest minute, so I rounded all other trips to the nearest minute as well for consistency sake
Most importantly, this is all under the presumption that the stations are needing to be and can be freely relocated as per historical knowledge of the Divvy company relocating and adding stations

SLIDE 6:
I will be attempting to answer the following questions:
What are the most popular routes and bike stations around the city?
How have crime rates and locations changed overtime?
How have ride demand and crime changed based on different time spans
For this, I'll be looking at a number of time ranges including time of day, day of week, time of month, and time of year
And finally Where can we relocate our stations while keeping rider safety in mind.

SLIDE 7:
The first step to exploring these questions was to identify any notable patterns. Here, the data shows that the majority of the crimes occur in areas frequented by Divvy riders such as sidewalks, streets, and alleyways, and many of these reports do not result in arrests indicated by the blue portions of the bars.

SLIDE 8:
The goods news is, if you look at the top table, it appears that these crimes are trending downwards over the past several years but it's too soon to tell if this trend is a result of the pandemic or if the city is becoming less dangerous. It will be important to continue monitoring these trends to understand the underlying causes and take appropriate measures to ensure the safety of both bikers and the general public.
We can also see a rise in ridership over the years in the second table. This trend of increasing ridership could indicate that the city is becoming more bike-friendly by promoting alternative modes of transportation.

SLIDE 9:
Seeing these patterns allowed me to take a more targeted approach and when looking at specific areas in downtown Chicago, a notable concentration of crime was found along a particular stretch of North Michigan Avenue known as the Magnificent Mile. The Mag Mile is a prominent shopping destination, home to several famous landmarks drawing both residents and visitors alike.

SLIDE 10:
Concurrently, upon inspection of a bike lane and route map the city provides, it is clear that there are no Divvy bike stations located along the Mag Mile, despite it being a high-traffic commercial area.

SLIDE 11:
Another concern is that the Mag Mile currently lacks dedicated bike lane. Creating dedicated bike lanes would be beneficial to improve the safety of riders, drivers and pedestrians.

SLIDE 12:
While the original intention was to look into seasonality, taking a more wholistic approach seems to have brought other issues to light. Instead of moving the existing stations, perhaps strategically adding new stations would be a more effective solution to meet the ongoing demand of bike sharing. The addition of bike stations would make it safer by providing more convenient and accessible locations to borrow bikes.

SLIDE 13:
As for recommendations, one potential location for the station could be along the Chicago Riverwalk near the Columbus Drive bridge, as it is a well-known tourist spot, indicated by the red sign at the bottom of the slide. This location was chosen over the Michigan Ave bridge due to the lack of bike accessibility on that bridge. This station would provide easy access from the Riverwalk to other popular areas on or around the Mag Mile.
Another location to consider would be on the northern end of the Mag Mile, near several restaurants and large shopping districts.
Both of these would reduce the need for riders to travel far by foot and by having the stations placed in high-traffic areas, it may also assist in deterring crime due to an increased level of visibility.

SLIDE 14:

Lastly, to help achieve rider safety, we could consider implementing alternative measures such as

• Avoiding routes that pass through high-crime areas

• Allowing and encouraging riders to report emergencies directly through the Divvy app. Now I understand that there are several legal implications to this, so we would want to do some additional research before pursuing this option.

• Recommending safer routes through the app, even if they may take longer to reach certain destinations.

• Recommending lock boxes for riders to store their valuables to help deter theft

These steps will not only help to improve the overall experience for bike share riders but also promote the sustainable and safe use of bike sharing services.

SLIDE 15:

With that, I want to thank you for giving me the opportunity to present my findings with you. I hope you found this information useful and let me know if you have any questions.