## **PROBLEM STATEMENT**

The COVID-19 pandemic has brought significant changes to the way we live our lives, including the way we connect and form relationships. Dating apps have emerged as a critical tool for people to maintain their social lives while adhering to social distancing measures. However, as dating apps have become more widely used, so too have concerns about the quality of the user experience. To address these concerns, analyzing Google app reviews of dating apps can be a valuable tool for identifying common issues and trends. By doing so, app developers can gain a deeper understanding of user needs and preferences and make targeted improvements to enhance the overall user experience. This can lead to higher levels of satisfaction, increased success rates, and improved safety measures for users of dating apps during the pandemic and beyond. In short, analyzing Google app reviews is a crucial step in ensuring that dating apps continue to meet the evolving needs of their users, and remain a reliable and valuable tool for fostering meaningful connections.

## **GOAL**

The aim of this project is to analyze the performance of four dating apps - Bumble, Hinge, Match, and Tinder - during the COVID-19 pandemic by conducting a sentiment analysis of their Google app reviews. By analyzing the user feedback, we can gain valuable insights into the common issues and trends experienced by users and identify their needs and preferences. Moreover, we will visualize the app's ratings over time, before, during, and after the pandemic, to determine any significant changes in user behavior and preferences. While we have used word cloud and Vader sentimental analysis to evaluate each app's sentiment, we can draw meaningful conclusions from our analysis and provide app developers with the necessary information to improve their app's user experience, safety measures, and success rates. This project serves as an important tool for app developers to ensure that their apps continue to meet the evolving needs of their users and foster meaningful connections.

## **DATA COLLECTION**

The data web scrapped from Google Play Store using Beautiful Soup.

## **PREPROCESSING**

In this project, we used various natural language processing (NLP) techniques to analyze the user reviews of the dating apps. These includes:

* **Tokenization:** We used tokenization to break down the user reviews into individual words or tokens, making it easier to analyze the text.
* **Stop word removal:** Stop words are common words such as "the," "and," and "is" that do not provide any meaningful information for analysis. We removed these stop words to improve the accuracy of our analysis.
* **Stemming:** We used stemming to reduce words to their root form, so that variations of the same word could be treated as a single term. This allowed us to identify patterns in the text more easily.

## **TECHNIQUES USED**

We adopted several techniques including:

* **Vader Sentiment Analysis:** We used the VADER (Valence Aware Dictionary and sEntiment Reasoner) system, a pre-trained sentiment analysis tool, to analyze the sentiment of the user reviews. It assigns a sentiment score ranging from -1 (negative) to 1 (positive) to each review, allowing us to determine the overall sentiment expressed by users.
* **Word Clouds:** We used word clouds to visually represent the most frequently occurring words in the user reviews for each of the dating apps. This helped us to identify the most common themes and sentiments expressed by users and gain insights into their experiences with the app.
* **Visualization using Plotly:** We used Plotly, a data visualization library, to create interactive and dynamic visualizations of the user ratings over time. This allowed us to compare the app's performance before, during, and after the pandemic and identify any significant changes in user behavior and preferences over time. The visualizations provided a more intuitive and insightful way to analyze the data and gain insights into user behavior.

## **FINDINGS**

#### **WORD CLOUDS**

Now! Lets see the common theme and sentiments of the users.