**IBM HACK CHALLENGE 2020**

**Problem Statement: - Sentiment Analysis of COVID-19 Tweets.**

**General Description**

**Abstract**

**The main goal of this Sentiment Analysis project is to extract human emotions from their comments on Twitter during this COVID-19 lockdown period. With the help of various Machine Learning algorithms we predicts the reactions of any particular person from their replies. We proposed a system to process the data’s and to predict human reaction and provide results.**

**Introduction**

**The Corona Virus endangers our physical health indeed, but also the social distancing poses a threat to our emotional stability. Thus, it is crucial to understand public sentiments under this COVID-19 pandemic. To analyze these, we formed up a team of 4 students (Pritam Das, Prithijeet Saha, Diwakar and Gourab Sarkar) from RCC Institute Of Information Technology, ECE (3rd Year) and going to participate on IBM Hackathon 2020 Challenge. We deployed Sentiment Analysis on Tweets and Topic Modeling on news to aid the understanding of sentiment trends. Based on this we built a Dashboards as a daily sentiment monitor product to present the results of the human emotions what they are debating about this COVID-19 situation.**

**Novelty/Uniqueness**

**The world has been grappling with COVID-19 disease ever since news about it and the increasing of the positive cases for this disease. The impact of the outbreak has been so huge. The scare around this outbreak has traversed across the globe affecting millions of people either through infection or through disruption, stress, worry and fear. At this time, governments have implemented many measures like social distancing and isolation to prevent the spread of this virus. Also the extension of lockdown affecting on people either economically or physically. For this, Social media have become a significant interface to share vital information around the globe. The pandemic has been the most trending and talked about issue now. So we are going to develop a Sentiment Analysis over Twitter tweets as it is one of the world’s biggest social network platforms and will show a result about people’s reaction about this COVID-19 pandemic and the extension of lockdown. How they are showing their opinions about govt. extended the lockdown, is it right or wrong? Etc.**

**Business/Social Impact**

**\*\*Impact on People about Lockdown**

**This is definitely an uncertain period for all of us. Over the past months the lockdown brought on by the COVID-19 have struck people as a painfully long period of isolation. Social distancing seems to be hitting people even more than the scare of the deadly virus. Being isolated from family, friends, colleagues can be unbalancing and traumatic for most of the people and can result in short or even long term psychological and physical health problems. The middle class families and below middle class having big trouble in this lockdown period. Some of the people lost their job or gets fired. In this lockdown period all these people’s getting runs out of money and foods. Social media like twitter abuzz with reactions, opinion, debating about the ongoing extension of lockdown and although people understand that the extension is for their own good in order to stop the spread of COVID-19. But still in social media lots of hashtags are getting trends like if the lockdown will extend or not. In this case to know about the opinion about this lockdown extend we are deploying a Sentiment Analysis on Twitter to gathering the data’s and analyze them and provide the result in Dashboard about what opinions are they sharing in social media (Twitter).**

**\*\*Impact on Business**

**COVID-19 is changed the way the world works; just like the Great Depression, dot-com bubble, and the 2008 financial crash did in the past. The question’s on everyone’s mind is, ‘When things go normal?’ I have been thinking, like many have what fundamental changes will take place on people, businesses, economies function. The transformation of the COVID-19 outbreak into a pandemic has brought about significant shifts in business processes and market needs. Due to this many companies are forced to scale down operations to balance the financial impact of the crisis. The next coming years will be very difficult. Many jobs are getting lost or fired. Many businesses will struggle, some may even die. In this case if the client wanted to understand the social sentiment of their customers, this Sentiment Analysis will help to know about what will be the opinion of individual customers. This Sentiment Analysis will help you to understand the implications of COVID-19 and more importantly best position your business to be resilient in the future by reviewing the latest thinking and opinion and trending insights on twitter from the customers and non-customers around the world.**

**Technology Stack**

**\*\*Analysis Process**

**To study public sentiments, we choose Twitter as our target field. As one of the world’s biggest social network platforms, Twitter hosts abundant user-generated posts, which closely reflect the public’s reactions towards this COVID-19 pandemic with low latency. By deploying Natural Language Processing (NLP) methods on it, we are going able to extract and quantify the public sentiments over time. The tools we are using are IBM Watson Studio, IBM Cloud for Deployment, Python 3.**

**\*\*Data Source**

**The data sources we are going to use for the analysis are Tweets and News of links provided by project authorities.**

**Scope of Work**

**Besides the analysis on opinion of lockdown extended on Twitter, Sentiment Analysis provides exciting opportunities across many fields, from business to politics. Due to heavy load of the big amount of data increasing day by day, it will become difficult to analyze this huge amount of data to know peoples opinion, that’s why Sentiment Analysis came into picture.**

**\*\*In Business**

**Imagine this scenario: you are the owner of a small delivery business and you receive about 100 responses in every week, you could read these small data by yourself and perform your analysis. Now imagine you receiving 70000 responses in every week, then it will be difficult to analyze these huge amount of data with your own. That’s why Sentiment analysis is important and useful for any companies to assure that their brand being perceived positively.**

**\*\*Social Media Monitoring**

**Online reputation is one of the most precious assets for brands. A bad review on social media can be costly to a company if it’s not handled properly and swiftly. About 70% of customers get advice on products from Social Media. Twitter Sentiment analysis allows you to keep track of what’s being said about your product or services on social media and can help you to detect angry customer’s mentions before they turn into a major crisis. At the same time Twitter SA can provide interesting insights to understand customer’s feedback.**

**\*\*Customer Service**

**Twitter has become an essential channel for customer’s service. In fact, a growing number of companies have specific teams in charge of delivering customers support via this social media. About 60% of customers that complains on social media expect a response within hour. But how can you evaluate the performance of your customer support on Twitter? So here Twitter Sentiment Analysis comes in light. It allows you to track and analyze all the interactions between your brand and your customers. This can be very useful to analyze customers satisfaction based on the type of feedback you received.**

**\*\*Market Research**

**Twitter is a major source of customer insight. In fact, people use it to express all sorts of feelings, observations, beliefs, and opinions about a variety of topics. By performing Twitter Sentiment Analysis, we can unleash the power of this data and use it as a valuable assets.**

**\*\*Brand Monitoring**

**Whether you are launching a new feature on your platform, a site redesign, or a new marketing campaign, you may want to track the reactions to that in social media – a great opportunity for performing Sentiment Analysis on Twitter. After all, you will still have time to take action and make changes or improvements along the way.**

**\*\*Political Campaigns**

**A huge part of Twitter conversation revolves around news and politics. That makes it an excellent place to measure public opinion, especially during election campaigns. Twitter Sentiment Analysis can provide interesting insights on how people feel about a specific candidate.**