1. **T-Mobile**
2. **Verizon**
3. **AT&T**

<https://pdfs.semanticscholar.org/f26e/3d935ec705428b292f630d4aae63c24443a5.pdf>

1. Data Extraction (In Progress) : Everyday extract data for previous day for all the above mentioned providers

df = getTweets('VerizonSupport', df)

df = getTweets('verizon', df)

df = getTweets('VZWSupport', df)

df = getTweets('ATT', df)

df = getTweets('ATTHelp', df)

df = getTweets('TMobile', df)

df = getTweets('TMobileHelp', df)

for tweet in tokenized\_tweets:

thandles = []

thashtags = []

joined\_words = " "

words = [w.lower() for w in tweet if len(w)>2 and w not in stop\_words]

thandles = [w for w in words if re.search("^@\w+", w)]

tlinks = [w for w in words if re.search("^https:\w+", w)]

thashtags = [w for w in words if re.search("^#\w+", w)]

words = [w for w in words if w.isalpha() and w not in thandles and w not in thashtags and w not in tlinks]

words = [lemmatizer.lemmatize(w) for w in words]

from textblob import TextBlob

polarity = [0.0]\*len(df)

subjectivity = [0.5]\*len(df)

sentiment = [""]\*len(df)

for i in df.index:

blob = TextBlob(df.clean\_text[i])

polarity[i] = blob.polarity

subjectivity[i] = blob.subjectivity

if polarity[i] > 0.0:

sentiment[i] = "pos"

elif polarity[i] < 0.0:

sentiment[i] = "neg"

else:

sentiment[i] = "neu"

df["sentiment"] = sentiment

df["polarity"] = polarity

df["subjectivity"] = subjectivity

att\_df = df[df['carrier']=='att'][['date\_time','location','clean\_text','carrier', 'sentiment', 'polarity', 'subjectivity']]

verizon\_df = df[df['carrier']=='verizon'][['date\_time','location','clean\_text','carrier', 'sentiment', 'polarity', 'subjectivity']]

tmobile\_df = df[df['carrier']=='tmobile'][['date\_time','location','clean\_text','carrier', 'sentiment', 'polarity', 'subjectivity']]

tmobile\_att\_df = df[df['carrier']=='tmobile att'][['date\_time','location','clean\_text','carrier', 'sentiment', 'polarity', 'subjectivity']]

att\_verizon\_df = df[df['carrier']=='att verizon'][['date\_time','location','clean\_text','carrier', 'sentiment', 'polarity', 'subjectivity']]

tmobile\_verizon\_df = df[df['carrier']=='tmobile verizon'][['date\_time','location','clean\_text','carrier', 'sentiment', 'polarity', 'subjectivity']]

tmobile\_att\_verizon\_df = df[df['carrier']=='tmobile att verizon'][['date\_time','location','clean\_text','carrier', 'sentiment', 'polarity', 'subjectivity']]

data = american[(american.polarity >= 0.05) | (american.polarity <= -0.05)]

sns.distplot(data["polarity"], kde=True, hist=False, label="American Airlines")

data = southwest[(southwest.polarity >= 0.05) | (southwest.polarity <= -0.05)]

sns.distplot(data["polarity"], kde=True, hist=False, label="Southwest Airlines")

data = united[(united.polarity >= 0.05) | (united.polarity <= -0.05)]

sns.distplot(data["polarity"], kde=True, hist=False, label="United Airlines")

plt.legend(prop={"size": 12})

plt.title("Sentiment Polarity of Three Airlines")

plt.ylabel("Tweet Count")

**# Sentiment Analysis using TextBlob**

from textblob import TextBlob

blob\_att = TextBlob(' '.join(att\_df['clean\_text'].values))

print(blob\_att.sentiment)

print(blob\_att.sentiment.polarity)

print(blob\_att.subjectivity)

Some might churn patterns:

1. Subject + is + attribute (adjective) [negative words]

* bad → might churn
* @ATT @TMobile Fix your service in Queens, NY. It’s awful.
  + Might churn from ATT or TMobile to unknown
  + Reason: awful service in Queen, NY

1. Subject + is + better (comparative) [positive words in comparative]

* Better → might churn
* She asked me what service I had, and I told her @ATT. She told me that @tmobile was way better and that they had better service in my area 😂😂😂. She went on to tell me that they had true unlimited and that AT&T did not.
  + Might churn from ATT to TMobile
  + Reason: TMobile is way better

1. Switch to + Object (ATT, TMobile or Verizon)

* Switch → might churn
* @ATT @TMobile What about the VI tho? all cover that or we gotta switch to @sprint
  + Might churn from ATT and TMobile to Another
  + Reason: Switch to …
* Now if only they'd install a cell tower near me where I would get a decent signal i'd switch to @TMobile from ATT
  + Might churn from TMobile to ATT
  + Reason: Switch to … from ...

1. Switch to + Object + is a bad decision

* Bad → might churn
* Being a @ATT customer for 10 years and switch to @tmobilepr back in DEC was a bad decision.
* Question: How about “Switch to + Object + is the best decision”?
  + Good switch ⇒ Might not churn again.

1. Going to try + Object (ATT, TMobile or Verizon)

* Try → might churn
* @ATT Dude gotta try TMobile. @TMobileHelp and the Chicago team of experts are amazing. The team of experts anywhere!! And oddly Google too I had a good experience.
  + Might churn from ATT to Tmobile
  + Reason: gotta try Tmobile, Tmobile experts team is amazing

1. Hate + Object

* Hate is here @att
* The grass isn’t always greener...I miss you @tmobile. Can I come home? I hate it here @att
  + Might churn from ATT to Tmobile
  + Reason: I hate it here @att

1. Transfer

* Transfer
* @ATTHelp @ATT Can you transfer my old tmobile prepaid number to my new phone with AT&amp;T?

1. Free people from …

* Free someone from
* @TMobile you have referral program? I'm making it my mission to free people from @ATT and bring them to @JohnLegere and his team!!!

1. Mention Twice

* Like
* @TMobile @ATT And we Like @tmobilepr
  + Might churn from ATT to Tmobile
* Stinks
* @ATT @TMobile @ATT stinks!
  + Might churn from ATT to Tmobile

1. Come to + Object

* @ATT Come to T Mobile. @TMobile

1. @TMobile @verizon @sprint Do you suspend your long-standing customers account when they raise an inquiry about strange chargers on their account? Did that with @ATTHelp and they suspend my act instead of looking into my inquiry. Been a month now. How do I switch?"
2. What‚Äôs does @TMobile bring me for Christmas @verizon is giving out Disney+ https://t.co/McMRZJ6LOl

Questions:

1. Thinking about switching from @ATT to @sprint or at @TMobile. This decision is harder than I thought lol

* Switch to…. But harder than I thought ⇒ Might Not churn?

Good news for Verizon:

<https://www.cnbc.com/2019/10/22/verizon-will-offer-customers-a-year-of-disney-for-free.html>