

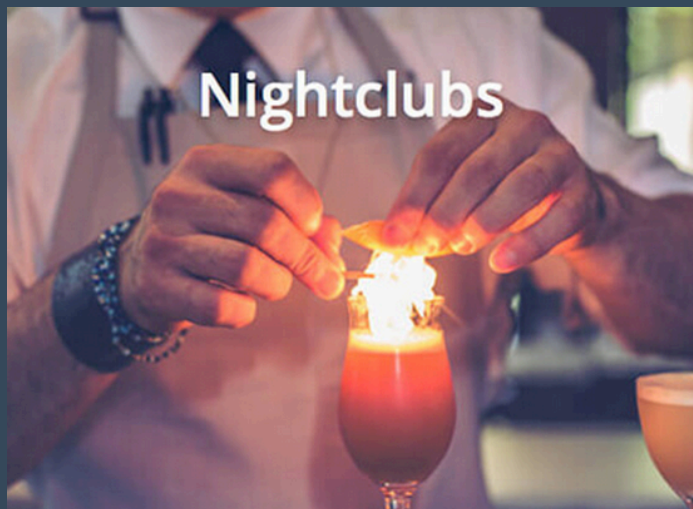
Voicemail Processing and Prioritization

Catherine Cornell

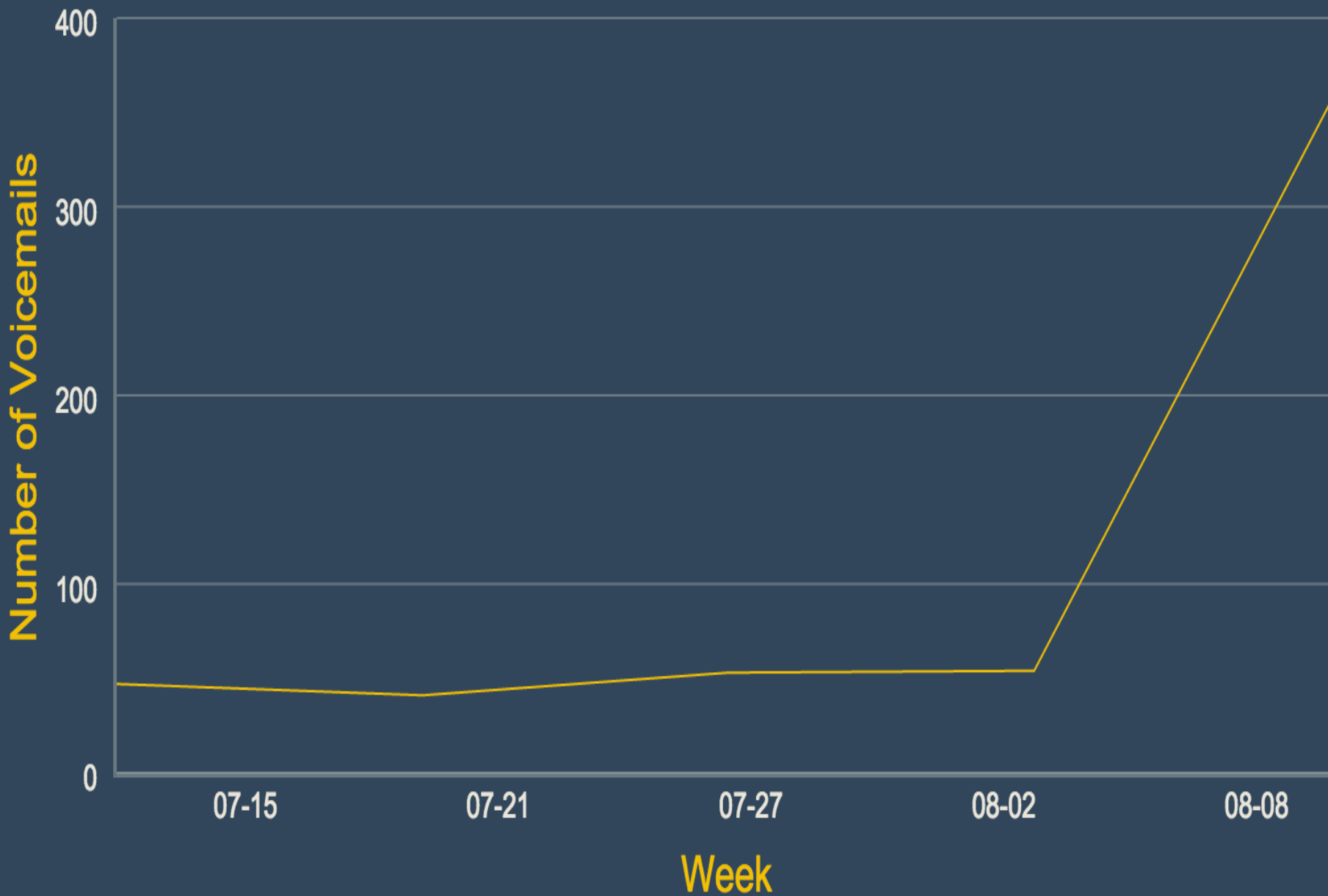
General Assembly

Data Science Summer 2015

Breadcrumb Point of Sale



Breadcrumb Voicemail Count Week over Week



Data source

- Zendesk Comments API
- `select id from tickets where created_at > '2015-05-01 00:00:00' and subject LIKE 'Voicemail%' and ticket_form_id=6111;`
- Response came in JSON form with a significant amount of irrelevant info

The Data

Filled in the nulls as ‘hang-ups’, then converted all the transcripts to strings and looped them through 6 functions to create features:

- Subjectivity
- Polarity
- Sentiment
- Pos/Neg
- Probability Dist. Positive
- Probability Dist. Negative

Negative Nancy

- train =
[('sync errors', 'neg'),
('declining all', 'neg'),
('offline mode', 'neg'),
('I have been on hold for 8 minutes', 'neg'),
('No one has returned my call', 'neg'),
('middle of dinner service', 'neg')

('thank you', 'pos'),
('quick question about how to add a user', 'pos'),
('monthly subscription charge question', 'pos')]

Feature Selection

```
voicemails.polarity.idxmin(axis=0, skipna=True)  
voicemails.sentiment[15]  
voicemails.prob_neg[15]
```

```
voicemails.prob_neg.idxmax(axis=0, skipna=True)  
voicemails.sentiment[68]  
voicemails.prob_neg[68]
```

Min Polarity

Comment A:

"Hi, my name is Joan up we got Somebody Tavern. It's xxx-xxx-xxxx. I need some help with the printer and it's off-line and I need to set up some sort of button for coupons that I wanna start taking. Could you call me today would be great."

Max Probability Dist. of Negative

- Comment B:

"Hi, my name is Kelly, I'm calling for Lisa Richard, this is absolutely [expletive] after 9:00 I been on hold for 15 minutes and I cannot get a hold of anyone. I need someone to help my printers are not functioning and this is ridiculous I pay for your service. Somebody should be able to answer my phone call. Please call back. Thanks."

Comment A

Sentiment(polarity=-0.5, subjectivity=1.0)
Prob_Negative: 0.6961684

Comment B

Sentiment(polarity=0.113333, subjectivity=0.545)
Prob_Negative: .999764

Further Application

- Combining the two Zendesk APIs to automate grabbing ticket numbers
- Internal dashboard that auto-updates with urgent ticket numbers
- Bug wrangling