Analyze Product Sentiment ¶

In [1]: ```python
import turicreate
```

## Read product review data

In [2]: ```python
products = turicreate.SFrame('~/Course/Week 3/m_bfaa91c17752f745.frame_idx')
```

Explore data

In [3]: `products.head()`

Out[3]:

name	review	rating
Planetwise Flannel Wipes	These flannel wipes are OK, but in my opinion ...	3.0
Planetwise Wipe Pouch	it came early and was not disappointed. i love ...	5.0
Annas Dream Full Quilt with 2 Shams ...	Very soft and comfortable and warmer than it ...	5.0
Stop Pacifier Sucking without tears with ...	This is a product well worth the purchase. I ...	5.0
Stop Pacifier Sucking without tears with ...	All of my kids have cried non-stop when I tried to ...	5.0
Stop Pacifier Sucking without tears with ...	When the Binky Fairy came to our house, we didn't ...	5.0
A Tale of Baby's Days with Peter Rabbit ...	Lovely book, it's bound tightly so you may no ...	4.0
Baby Tracker® - Daily Childcare Journal, ...	Perfect for new parents. We were able to keep ...	5.0
Baby Tracker® - Daily Childcare Journal, ...	A friend of mine pinned this product on Pinte ...	5.0
Baby Tracker® - Daily Childcare Journal, ...	This has been an easy way for my nanny to record ...	4.0

[10 rows x 3 columns]

In [4]:
```python
products.groupby('name',operations={'count':turicreate.aggregate.COUNT()}).sort('count',ascending=False)
```

Out[4]:

name	count
Vulli Sophie the Giraffe Teether ...	785
Simple Wishes Hands-Free Breastpump Bra, Pink, ...	562
Infant Optics DXR-5 2.4 GHz Digital Video Baby ...	561
Baby Einstein Take Along Tunes ...	547
Cloud b Twilight Constellation Night ...	520
Fisher-Price Booster Seat, Blue/Green/Gray ...	489
Fisher-Price Rainforest Jumperoo ...	450
Graco Nautilus 3-in-1 Car Seat, Matrix ...	419
Leachco Snoogle Total Body Pillow ...	388
Regalo Easy Step Walk Thru Gate, White ...	374

[32419 rows x 2 columns]

Note: Only the head of the SFrame is printed.

You can use print_rows(num_rows=m, num_columns=n) to print more rows and columns.

Examine the reivews for the most-reviewed product

In [5]: `len(products['name'].unique())`

Out[5]: 32419

In [6]: `products['name'].show()`

Materializing SArray

Distribution of Values [string]

Count

| | 0 | 20,000 | 40,000 | 60,000 | 80,000 | 100,000 | 120,000 | 140,000 | 160,000 | 180,000 |

Vulli Sophie the Giraffe Teether

Simple Wishes Hands-Free Br...

Infant Optics DXR-5 2.4 GHz D...

Baby Einstein Take Along Tunes

Cloud b Twilight Constellation ...

Fisher-Price Booster Seat, Blu...

Fisher-Price Rainforest Jumperoo

Graco Nautilus 3-in-1 Car Seat,...

Leachco Snoogle Total Body Pi...

Regalo Easy Step Walk Thru G...

Baby Trend Diaper Champ

Skip Hop Zoo Pack Little Kid B...

Other (32407 labels)

Values

In [7]:
```python
giraffe_reviews = products[products['name']=='Vulli Sophie the Giraffe Teether']
```

In [8]: `giraffe_reviews`

Out[8]:

name	review	rating
Vulli Sophie the Giraffe Teether ...	He likes chewing on all the parts especially the ...	5.0
Vulli Sophie the Giraffe Teether ...	My son loves this toy and fits great in the diaper ...	5.0
Vulli Sophie the Giraffe Teether ...	There really should be a large warning on the ...	1.0
Vulli Sophie the Giraffe Teether ...	All the moms in my moms' group got Sophie for ...	5.0
Vulli Sophie the Giraffe Teether ...	I was a little skeptical on whether Sophie was ...	5.0
Vulli Sophie the Giraffe Teether ...	I have been reading about Sophie and was going ...	5.0
Vulli Sophie the Giraffe Teether ...	My neice loves her sophie and has spent hours ...	5.0
Vulli Sophie the Giraffe Teether ...	What a friendly face! And those mesmerizing ...	5.0
Vulli Sophie the Giraffe Teether ...	We got this just for my son to chew on instea ...	5.0
Vulli Sophie the Giraffe Teether ...	My baby seems to like this toy, but I could ...	3.0

[? rows x 3 columns]

Note: Only the head of the SFrame is printed. This SFrame is lazily evaluated.

You can use sf.materialize() to force materialization.

In [9]: `len(giraffe_reviews)`

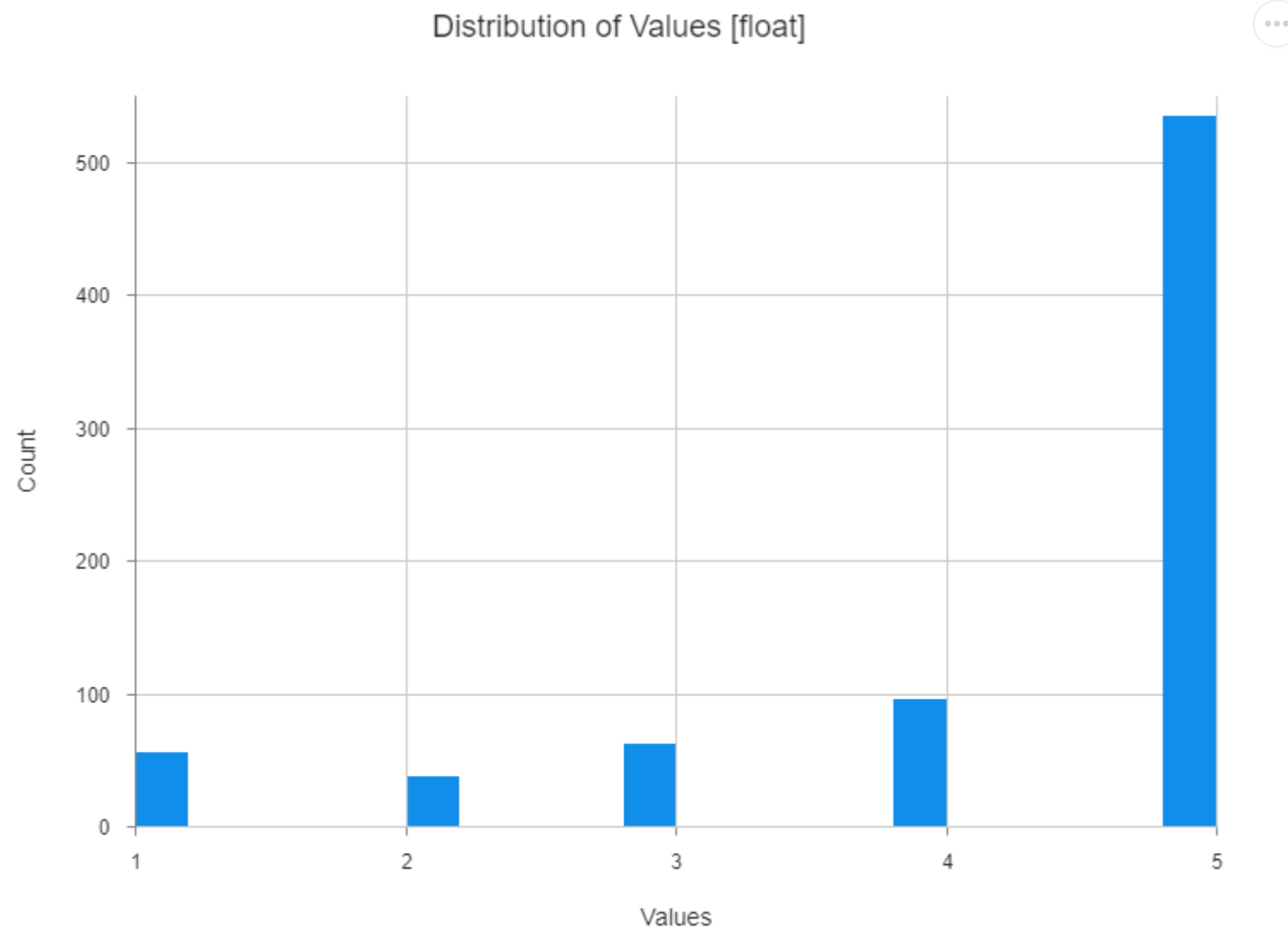Out[9]: 785

In [10]: `giraffe_reviews.shape`

Out[10]: (785, 3)

In [11]: `giraffe_reviews['rating'].show()`

Materializing SArray

Distribution of Values [float]

Building a sentiment classifier

Build word count vectors

```
In [12]: products['word_count'] = turicreate.text_analytics.count_words(products['review'])
```

In [13]: products

Out[13]:

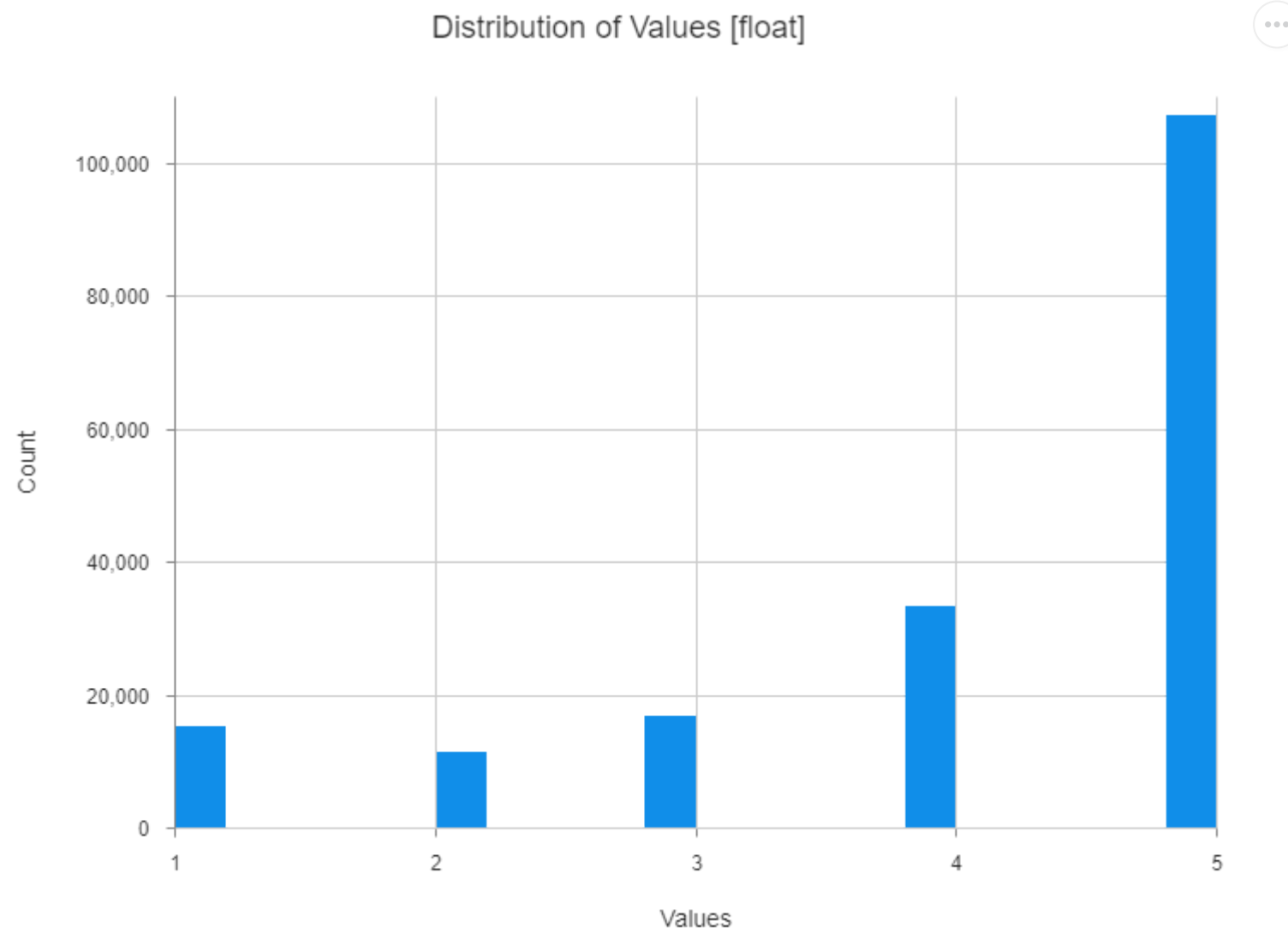| name	review	rating	word_count
Planetwise Flannel Wipes	These flannel wipes are OK, but in my opinion ...	3.0	{'handles': 1.0, 'stripping': 1.0, ...
Planetwise Wipe Pouch	it came early and was not disappointed. i love ...	5.0	{'recommend': 1.0, 'highly': 1.0, ...
Annas Dream Full Quilt with 2 Shams ...	Very soft and comfortable and warmer than it ...	5.0	{'quilt': 1.0, 'of': 1.0, 'the': 1.0, 'than': 1.0, ...
Stop Pacifier Sucking without tears with ...	This is a product well worth the purchase. I ...	5.0	{'tool': 1.0, 'clever': 1.0, 'approach': 2.0, ...
Stop Pacifier Sucking without tears with ...	All of my kids have cried non-stop when I tried to ...	5.0	{'rock': 1.0, 'many': 1.0, 'headaches': 1.0, ...
Stop Pacifier Sucking without tears with ...	When the Binky Fairy came to our house, we didn't ...	5.0	{'thumb': 1.0, 'or': 1.0, 'break': 1.0, 'trying': ...
A Tale of Baby's Days with Peter Rabbit ...	Lovely book, it's bound tightly so you may no ...	4.0	{'for': 1.0, 'barnes': 1.0, 'at': 1.0, 'is': ...
Baby Tracker® - Daily Childcare Journal, ...	Perfect for new parents. We were able to keep ...	5.0	{'right': 1.0, 'because': 1.0, 'questions': 1.0, ...
Baby Tracker® - Daily Childcare Journal, ...	A friend of mine pinned this product on Pinte ...	5.0	{'like': 1.0, 'and': 1.0, 'changes': 1.0, 'the': ...
Baby Tracker® - Daily Childcare Journal, ...	This has been an easy way for my nanny to record ...	4.0	{'in': 1.0, 'pages': 1.0, 'out': 1.0, 'run': 1.0, ...

[183531 rows x 4 columns]

Note: Only the head of the SFrame is printed.

You can use print_rows(num_rows=m, num_columns=n) to print more rows and columns.

Define what is positive and negative sentiment

```
In [14]: products['rating'].show()
```

Materializing SArray

Distribution of Values [float]

In [15]:
```python
#ignore all 3*  reviews
products = products[products['rating']!= 3]
```

In [16]:
```python
#positive sentiment = 4-star or 5-star reviews
products['sentiment'] = products['rating'] >= 4
```

In [17]: products

Out[17]:

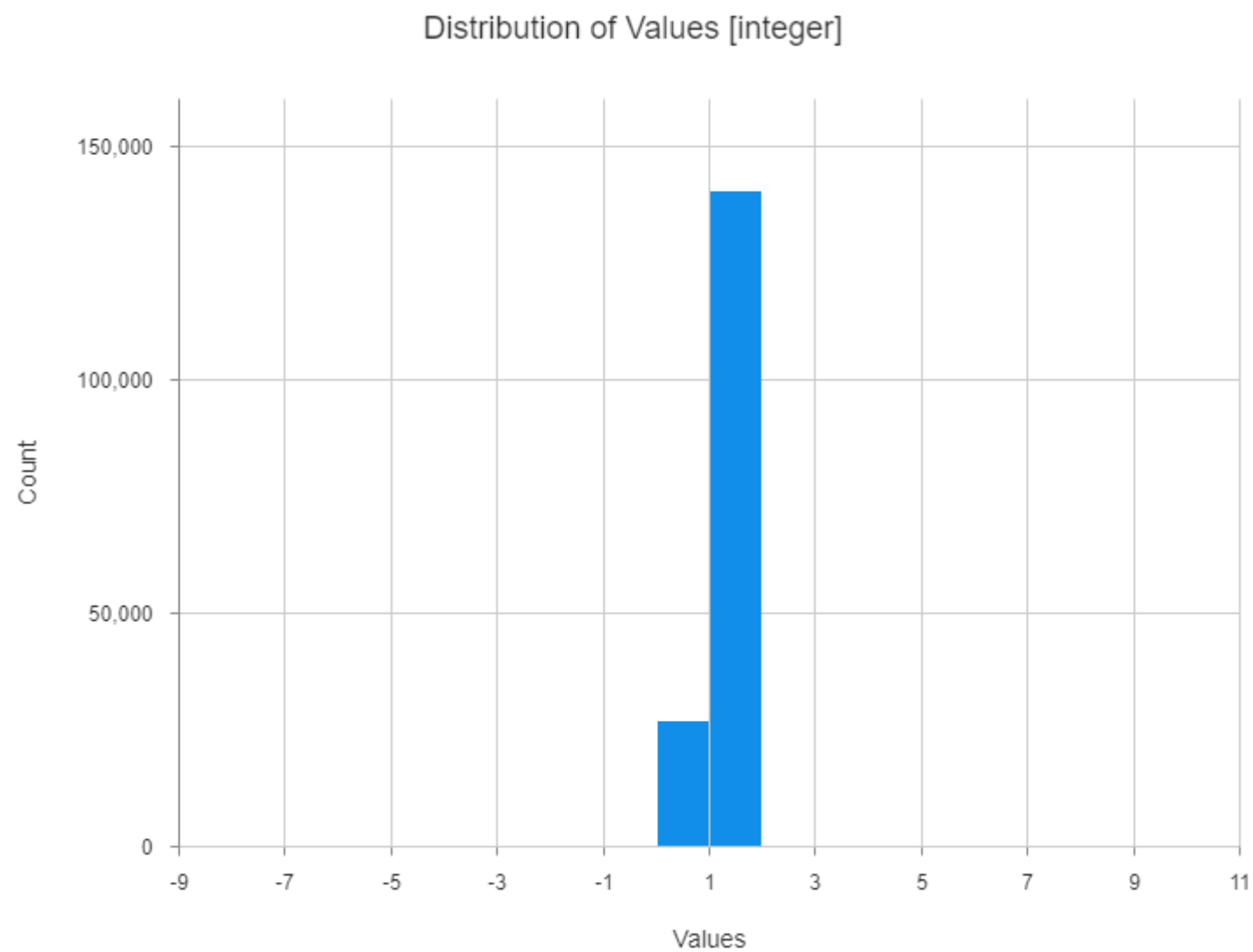| name	review	rating	word_count	sentiment
Planetwise Wipe Pouch	it came early and was not disappointed. i love ...	5.0	{'recommend': 1.0, 'highly': 1.0, ...	1
Annas Dream Full Quilt with 2 Shams ...	Very soft and comfortable and warmer than it ...	5.0	{'quilt': 1.0, 'of': 1.0, 'the': 1.0, 'than': 1.0, ...	1
Stop Pacifier Sucking without tears with ...	This is a product well worth the purchase. I ...	5.0	{'tool': 1.0, 'clever': 1.0, 'approach': 2.0, ...	1
Stop Pacifier Sucking without tears with ...	All of my kids have cried non-stop when I tried to ...	5.0	{'rock': 1.0, 'many': 1.0, 'headaches': 1.0, ...	1
Stop Pacifier Sucking without tears with ...	When the Binky Fairy came to our house, we didn't ...	5.0	{'thumb': 1.0, 'or': 1.0, 'break': 1.0, 'trying': ...	1
A Tale of Baby's Days with Peter Rabbit ...	Lovely book, it's bound tightly so you may no ...	4.0	{'for': 1.0, 'barnes': 1.0, 'at': 1.0, 'is': ...	1
Baby Tracker® - Daily Childcare Journal, ...	Perfect for new parents. We were able to keep ...	5.0	{'right': 1.0, 'because': 1.0, 'questions': 1.0, ...	1
Baby Tracker® - Daily Childcare Journal, ...	A friend of mine pinned this product on Pinte ...	5.0	{'like': 1.0, 'and': 1.0, 'changes': 1.0, 'the': ...	1
Baby Tracker® - Daily Childcare Journal, ...	This has been an easy way for my nanny to record ...	4.0	{'in': 1.0, 'pages': 1.0, 'out': 1.0, 'run': 1.0, ...	1
Baby Tracker® - Daily Childcare Journal, ...	I love this journal and our nanny uses it ...	4.0	{'tracker': 1.0, 'now': 1.0, 'its': 1.0, 'sti ...	1

[166752 rows x 5 columns]

Note: Only the head of the SFrame is printed.

You can use print_rows(num_rows=m, num_columns=n) to print more rows and columns.

In [18]: `products['sentiment'].show()`

Materializing SArray

Distribution of Values [integer]

Train our sentiment classifier

In [19]:
```python
train_data,test_data = products.random_split(.8,seed=0)
```

```
In [20]: sentiment_model = turicreate.logistic_classifier.create(train_data,target='sentiment', features=['word_count'], validatir
```

Logistic regression:

Number of examples   : 133448

Number of classes   : 2

Number of feature columns   : 1

Number of unpacked features : 57356

Number of coefficients   : 57357

Starting L-BFGS

Iteration	Passes	Step size	Elapsed Time	Training Accuracy	Validation Accuracy
0	4	0.250000	1.818467	0.841421	0.840019
1	9	3.250000	2.819292	0.931359	0.911362
2	11	2.669978	3.332361	0.938650	0.916466
3	12	2.669978	3.662740	0.927417	0.901814
4	14	1.326072	4.227521	0.945200	0.918088
9	20	1.326072	6.180338	0.977654	0.917698

```
In [21]: ev = sentiment_model.evaluate(test_data,metric='roc_curve')
         ev
```

Out[21]: {'roc_curve': Columns:
                threshold   float
                fpr   float
                tpr   float
                p   int
                n   int

         Rows: 100001

         Data:
         +-----------+--------------------+--------------------+-------+------+
         | threshold | fpr | tpr | p | n |
         +-----------+--------------------+--------------------+-------+------+
         | 0.0 | 1.0 | 1.0 | 27976 | 5328 |
         | 1e-05 | 0.847972972972973 | 0.9975693451529882 | 27976 | 5328 |
         | 2e-05 | 0.829954954954955 | 0.9971761509865599 | 27976 | 5328 |
         | 3e-05 | 0.818506006006006 | 0.9969616814412353 | 27976 | 5328 |
         | 4e-05 | 0.8109984984984985 | 0.9967472118959108 | 27976 | 5328 |
         | 5e-05 | 0.8057432432432432 | 0.9966042321990277 | 27976 | 5328 |
         | 6e-05 | 0.7991741741741741 | 0.9962825278810409 | 27976 | 5328 |
         | 7e-05 | 0.7952327327327328 | 0.9961752931083786 | 27976 | 5328 |
         | 8e-05 | 0.7920420420420421 | 0.9961038032599371 | 27976 | 5328 |
         | 9e-05 | 0.7882882882882883 | 0.9958893337146125 | 27976 | 5328 |
         +-----------+--------------------+--------------------+-------+------+
         [100001 rows x 5 columns]
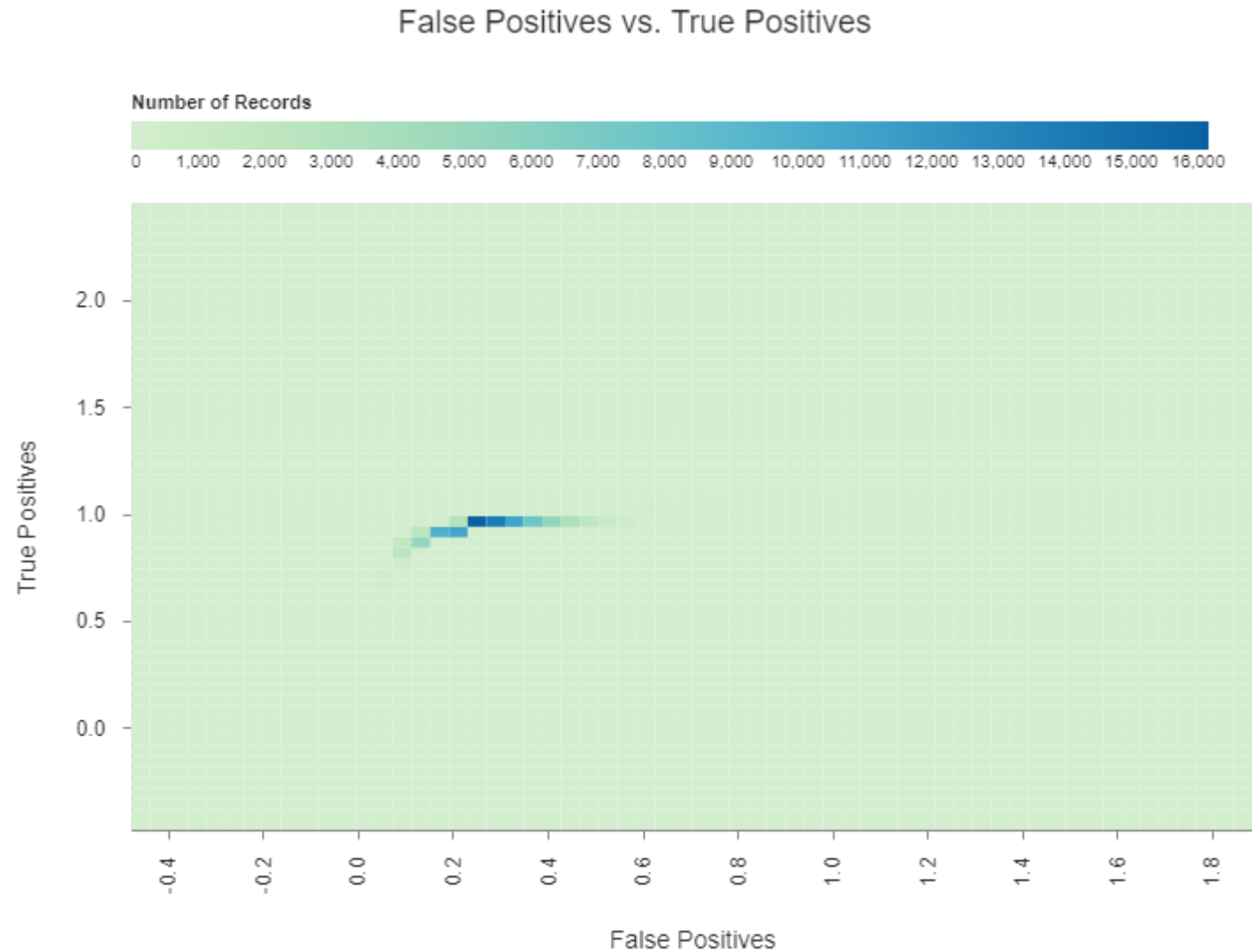   Note: Only the head of the SFrame is printed.
         You can use print_rows(num_rows=m, num_columns=n) to print more rows and columns.}
```

In [22]:
```python
turicreate.show(ev['roc_curve']['fpr']
                ,ev['roc_curve']['tpr'],
                xlabel='False Positives',
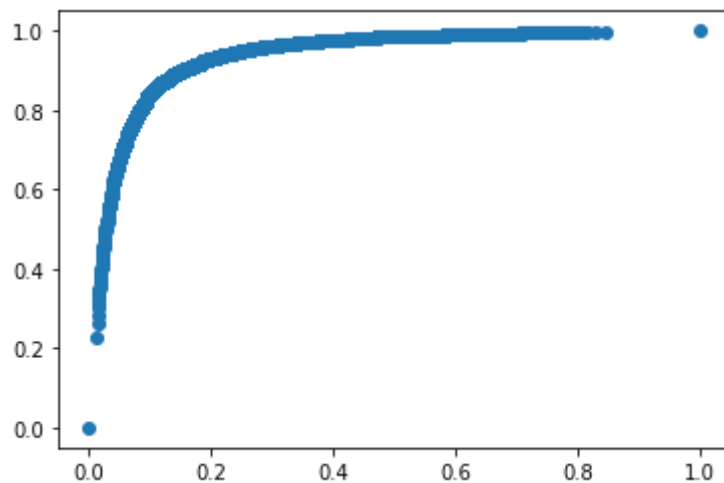                ylabel='True Positives')
```

Materializing X axis SArray

Materializing Y axis SArray

False Positives vs. True Positives

Number of Records

0   1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000 10,000 11,000 12,000 13,000 14,000 15,000 16,000

In [23]:
```python
import matplotlib.pyplot as plt
plt.scatter(ev['roc_curve']['fpr'], ev['roc_curve']['tpr'])
```

Out[23]: `<matplotlib.collections.PathCollection at 0x7fc31008c2e8>`

Apply the sentiment classifier to better understand the Giraffe reviews

In [24]:
```python
products['predicted_sentiment'] = sentiment_model.predict(products, output_type = 'probability')
```

In [25]: products

Out[25]:

name	review	rating	word_count	sentiment
Planetwise Wipe Pouch	it came early and was not disappointed. i love ...	5.0	{'recommend': 1.0, 'highly': 1.0, ...	1
Annas Dream Full Quilt with 2 Shams ...	Very soft and comfortable and warmer than it ...	5.0	{'quilt': 1.0, 'of': 1.0, 'the': 1.0, 'than': 1.0, ...	1
Stop Pacifier Sucking without tears with ...	This is a product well worth the purchase. I ...	5.0	{'tool': 1.0, 'clever': 1.0, 'approach': 2.0, ...	1
Stop Pacifier Sucking without tears with ...	All of my kids have cried non-stop when I tried to ...	5.0	{'rock': 1.0, 'many': 1.0, 'headaches': 1.0, ...	1
Stop Pacifier Sucking without tears with ...	When the Binky Fairy came to our house, we didn't ...	5.0	{'thumb': 1.0, 'or': 1.0, 'break': 1.0, 'trying': ...	1
A Tale of Baby's Days with Peter Rabbit ...	Lovely book, it's bound tightly so you may no ...	4.0	{'for': 1.0, 'barnes': 1.0, 'at': 1.0, 'is': ...	1
Baby Tracker® - Daily Childcare Journal, ...	Perfect for new parents. We were able to keep ...	5.0	{'right': 1.0, 'because': 1.0, 'questions': 1.0, ...	1
Baby Tracker® - Daily Childcare Journal, ...	A friend of mine pinned this product on Pinte ...	5.0	{'like': 1.0, 'and': 1.0, 'changes': 1.0, 'the': ...	1
Baby Tracker® - Daily Childcare Journal, ...	This has been an easy way for my nanny to record ...	4.0	{'in': 1.0, 'pages': 1.0, 'out': 1.0, 'run': 1.0, ...	1
Baby Tracker® - Daily Childcare Journal, ...	I love this journal and our nanny uses it ...	4.0	{'tracker': 1.0, 'now': 1.0, 'its': 1.0, 'sti ...	1

predicted_sentiment

0.9997307390047108

0.9985083368316827

0.9997489042499907

0.9999916625399978

0.9999999514462167

0.9999146735569922

0.9999916615904655

0.999993884359401

0.9961247617005243

0.9999999920460633

[166752 rows x 6 columns]

Note: Only the head of the SFrame is printed.

You can use print_rows(num_rows=m, num_columns=n) to print more rows and columns.

In [26]: `giraffe_reviews = products[products['name']== 'Vulli Sophie the Giraffe Teether']`

`In [27]:` `giraffe_reviews`

Out[27]:

name	review	rating	word_count	sentiment
Vulli Sophie the Giraffe Teether ...	He likes chewing on all the parts especially the ...	5.0	{'purchase': 1.0, 'teething': 1.0, ...	1
Vulli Sophie the Giraffe Teether ...	My son loves this toy and fits great in the diaper ...	5.0	{'a': 1.0, 'is': 1.0, 'when': 1.0, 'him': 1.0, ...	1
Vulli Sophie the Giraffe Teether ...	There really should be a large warning on the ...	1.0	{'made': 1.0, 'of': 1.0, 'packaging': 1.0, 'no': ...	0
Vulli Sophie the Giraffe Teether ...	All the moms in my moms' group got Sophie for ...	5.0	{'another': 1.0, 'out': 1.0, 'run': 1.0, 'lost': ...	1
Vulli Sophie the Giraffe Teether ...	I was a little skeptical on whether Sophie was ...	5.0	{'disappointed': 1.0, 'will': 1.0, 'take': ...	1
Vulli Sophie the Giraffe Teether ...	I have been reading about Sophie and was going ...	5.0	{'late': 1.0, 'perfect': 1.0, 'pack': 1.0, 'on ...	1
Vulli Sophie the Giraffe Teether ...	My neice loves her sophie and has spent hours ...	5.0	{'delight': 1.0, 'in': 1.0, 'other': 1.0, ...	1
Vulli Sophie the Giraffe Teether ...	What a friendly face! And those mesmerizing ...	5.0	{'inside': 1.0, 'water': 1.0, 'don': 1.0, 'up': ...	1
Vulli Sophie the Giraffe Teether ...	We got this just for my son to chew on instea ...	5.0	{'its': 1.0, 'fine': 1.0, 'is': 1.0, 'which': 1.0, ...	1
Vulli Sophie the Giraffe Teether ...	This product is without a doubt the best on the ...	5.0	{'belongs': 1.0, 'dog': 1.0, 'if': 1.0, 'bewa ...	1

predicted_sentiment
0.9993655365682542
0.9998633791689672
0.25452681974934416
0.9165688083895995
0.6855768205779204
0.99999994452112
0.9979351181092765
0.9999745004834412

0.9460144428329846

0.9999999721665869

[? rows x 6 columns]

Note: Only the head of the SFrame is printed. This SFrame is lazily evaluated.

You can use sf.materialize() to force materialization.

Sort the Giraffe reviews according to predicted sentiment

```
In [28]: giraffe_reviews = giraffe_reviews.sort('predicted_sentiment', ascending=False)
```

In [29]: `giraffe_reviews`

Out[29]:

name	review	rating	word_count	sentiment
Vulli Sophie the Giraffe Teether ...	Sophie, oh Sophie, your time has come. My ...	5.0	{'11': 1.0, 'prisrob': 1.0, '12': 1.0, 'who': ...	1
Vulli Sophie the Giraffe Teether ...	I'll be honest...I bought this toy because all the ...	4.0	{'around': 1.0, 'explore': 1.0, 'they': ...	1
Vulli Sophie the Giraffe Teether ...	As a mother of 16month old twins; I bought ...	5.0	{'will': 1.0, '15months': 1.0, 'would': 2.0, ...	1
Vulli Sophie the Giraffe Teether ...	We got this little giraffe as a gift from a ...	5.0	{'out': 1.0, 'would': 1.0, 've': 1.0, 'enou ...	1
Vulli Sophie the Giraffe Teether ...	As every mom knows, you always want to give your ...	5.0	{'whether': 1.0, 'neutral': 1.0, 'gend ...	1
Vulli Sophie the Giraffe Teether ...	My Mom-in-Law bought Sophie for my son whe ...	5.0	{'penny': 1.0, 'little': 1.0, 'perfect': 1.0, ...	1
Vulli Sophie the Giraffe Teether ...	My 4 month old son is teething, and I've tried ...	4.0	{'worth': 1.0, 'works': 1.0, 'teether': 1.0, ...	1
Vulli Sophie the Giraffe Teether ...	Let me just start off by addressing the choking ...	5.0	{'question': 1.0, 'must': 1.0, 'overall': 1.0, ...	1
Vulli Sophie the Giraffe Teether ...	I'm not sure why Sophie is such a hit with the ...	4.0	{'makers': 1.0, 'or': 1.0, 'take': 1.0, 'can': ...	1
Vulli Sophie the Giraffe Teether ...	I admit, I didn't get Sophie the Giraffe at ...	4.0	{'dye': 1.0, 'of': 1.0, 'cause': 1.0, 'fade': ...	1

predicted_sentiment

1.0

1.0

1.0

0.9999999999998377

0.9999999999998284

0.9999999999997958

0.9999999999994914

0.9999999999941254

0.999999999987423

0.9999999999829475

[723 rows x 6 columns]

Note: Only the head of the SFrame is printed.

You can use print_rows(num_rows=m, num_columns=n) to print more rows and columns.

In [30]: `giraffe_reviews.tail()`

Out[30]:

name	review	rating	word_count	sentiment
Vulli Sophie the Giraffe Teether ...	My 7 1/2 month old grandbaby was sittng up ...	1.0	{'sopie': 1.0, 'with': 1.0, 'be': 1.0, 'shou ...	0
Vulli Sophie the Giraffe Teether ...	I was so looking forward to getting this for my ...	1.0	{'amazon': 1.0, 'back': 1.0, 'by': 1.0, 'more': ...	0
Vulli Sophie the Giraffe Teether ...	Received the product and smells like cheap rub ...	1.0	{'was': 1.0, 'as': 1.0, 'still': 1.0, 'but': ...	0
Vulli Sophie the Giraffe Teether ...	I got one of these as a showe gift that my baby ...	1.0	{'typical': 1.0, 'paint': 1.0, 'came': 1.0, 'mi ...	0
Vulli Sophie the Giraffe Teether ...	When we first got it I thought did my ...	2.0	{'mom': 1.0, 'teethers': 1.0, 'btw': 1.0, 'oth ...	0
Vulli Sophie the Giraffe Teether ...	When I received this the paint was peeling off in ...	1.0	{'risk': 1.0, 'but': 1.0, 'help': 1.0, 'terrible': ...	0
Vulli Sophie the Giraffe Teether ...	"Sophie the Giraffe" has tested positive for ...	1.0	{'ingest': 1.0, 'they': 1.0, 'naturally': 1.0, ...	0
Vulli Sophie the Giraffe Teether ...	My son (now 2.5) LOVED his Sophie, and I bought ...	1.0	{'exaggerated': 1.0, 'are': 1.0, 'a': 3.0, ...	0
Vulli Sophie the Giraffe Teether ...	I wanted to love this product and was excited ...	1.0	{'risk': 1.0, 'ready': 1.0, 'bummed': 1.0, ...	0
Vulli Sophie the Giraffe Teether ...	This children's toy is nostalgic and very cute. ...	1.0	{'amazon': 1.0, 'from': 1.0, 'one': 1.0, 'by': ...	0

predicted_sentiment
1.911074019333239e-06
6.547801684265123e-07
3.8642363969748076e-07
2.2378225152363076e-07
1.9353955279967913e-07
1.6900753979371418e-07
1.1748826795804334e-07
5.364933426304439e-11

3.109035269753383e-13

4.119269638681899e-15

[10 rows x 6 columns]

Show the most positive reviews

In [31]: `giraffe_reviews[0]['review']`

Out[31]: "Sophie, oh Sophie, your time has come. My granddaughter, Violet is 5 months old and starting to teeth. What joy little Sophie brings to Violet. Sophie is made of a very pliable rubber that is sturdy but not tough. It is quite easy for Violet to twist Sophie into unheard of positions to get Sophie into her mouth. The little nose and hooves fit perfectly into small mouths, and the drooling has purpose. The paint on Sophie is food quality.Sophie was born in 1961 in France. The maker had wondered why there was nothing available for babies and made Sophie from the finest rubber, phthalate-free on St Sophie's Day, thus the name was born. Since that time millions of Sophie's populate the world. She is soft and for babies little hands easy to grasp. Violet especially loves the bumpy head and horns of Sophie. Sophie has a long neck that easy to grasp and twist. She has lovely, sizable spots that attract Violet's attention. Sophie has happy little squeaks that bring squeals of delight from Violet. She is able to make Sophie squeak and that brings much joy. Sophie's smooth skin is soothing to Violet's little gums. Sophie is 7 inches tall and is the exact correct size for babies to hold and love.As you well know the first thing babies grasp, goes into their mouths- how wonderful to have a toy that stimulates all of the senses and helps with the issue of teething. Sophie is small enough to fit into any size pocket or bag. Sophie is the perfect find for babies from a few months to a year old. How wonderful to hear the giggles and laughs that emanate from babies who find Sophie irresistible. Viva La Sophie!Highly Recommended.   prisrob 12-11-09"

In [32]: `giraffe_reviews[1]['review']`

Out[32]: 'I\'ll be honest...I bought this toy because all the hip parents seem to have one too and I wanted to be a part of the "hip parent" crowd. The price-tag was somewhat of a deterent but I prevailed and purchased this teether for my daughter.At first, Lily didn\'t know what to make of of Sophie and showed little interest in the polka-dotted creature. I continued to introduce Lily to Sophie and kept the toy in the carrier so that it was on-hand during transitions. Eventually, Lily discovered what a wonderful experience it was to gnaw on the hooves and ears and these two have never been far apart since.Lily really enjoys gumming all the different parts of Sophie like no other teether we have. The size of the toy is great as it is somewhat substantial and so easy for a little one to grasp and hold onto. Lily really enjoys hearing Sophie squeak and will smile whenever Sophie makes a noise or pops her head up from Mommy\'s lap to say hello.People have stopped and commented on Sophie and to them I have stated, "It\'s worth every penny." I can\'t imagine not having this toy, it has become part and parcel with Lily\'s daily existence. She is soothed by it, loves to chew on it and seems endlessly entertained by it.Someday, Sophie will have earned her retirement. She will relocate to Lily\'s keepsake box. But until then, this little French Giraffe will embark on many adventures alongside my daughter as they explore this big world around them.'

Most negative reivews

In [33]: `giraffe_reviews[-1]['review']`

Out[33]: "This children's toy is nostalgic and very cute. However, there is a distinct rubber smell and a very odd taste, yes I tried it, that my baby did not enjoy. Also, if it is soiled it is extremely difficult to clean as the rubber is a kind of porus material and does not clean well. The final thing is the squeaking device inside which stopped working after the first couple of days. I returned this item feeling I had overpaid for a toy that was defective and did not meet my expectations. Please do not be swayed by the cute packaging and hype surounding it as I was. One more thing, I was given a full refund from Amazon without any problem."

In [34]: `giraffe_reviews[-2]['review']`

Out[34]: 'I wanted to love this product and was excited to buy it when I became pregnant but am now hesitant to let my baby use it after reading about the recall in Europe. Apparently, as I understand it, their toxin standards of measurement are lower than ours so they have not been recalled here (apparently we are OK with low levels of nitrates in the toys our children put in their mouths, but Europeans are not...hmmm)...Be that as it may, toxins registering even CLOSE to a dangerous level made me nervous about using. After digging around online I did discover that the company claims to have changed the product after a certain date and lists manufacturing codes so you can check yours (those listed were made after a certain date and are said to be safer). Sadly mine was not made after the "improved" date but I could not return it because there was no formal recall in our country. I considered returning it and hunting for one with an approved manufacturing date but man that was just too much work. Bummed but not ready to take a risk with my baby.'