

DROP_REPORTS data set, 1414 files (doc, pdf, txt) for text analytics shown below, includes commentaries about depression/anxiety, drugs/side effects.

The comments were posted in an online forum, and the names of the medications that are referenced in the documents were altered.

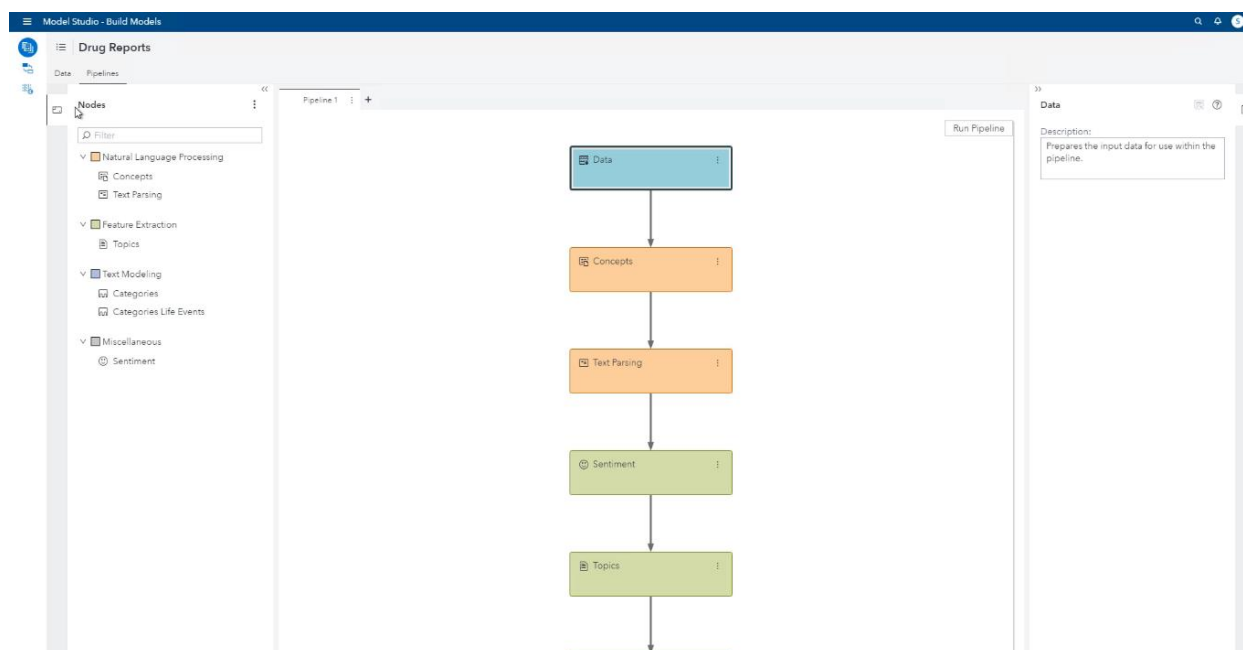
- CATEGORY Taxonomy: Topics in the document collection include the following concerns: depression and anxiety, weight gain, and sleep issues.
- CONCEPT Taxonomy: Some of the documents include the following key details: medication names, dosage levels, and side effects experienced. Four custom concepts are defined in the Concepts node.
 - DOSAGE with examples like 20 mg, 60 MG, 50 Mg, etc.
 - MEDICATION with examples like Abidal, Escalan, Cenerol, etc.
 - PRESCRIPTION with examples like Abidal 20 mg, 60 MG of Escalan, 50 Mg Cenerol, etc.
 - SIDEEFFECTS with examples like Headache, Blurred vision, Nausea, etc.

Goal is to automatically extract information from the document collection. For example, we'd like to obtain reports mentioning specific medications, so we have a Medication concept. When we score with respect to that concept, it's going to pull out all the medication names in the report. We will then combine that with dosage to get something called a Prescription. These concept rules will allow us to automatically parse the collection and create a table that has prescriptions in it. So we can immediately identify documents that mention a specific prescription, which would be a drug and a dosage.

The screenshot shows the 'Model Studio - Build Models' interface. On the left, a sidebar lists available data sources, with 'DRUG_REPORTS' selected. The main panel displays the 'DRUG_REPORTS' dataset details, including a table of sample data. The table has four columns: ID, DrugReport, NAME, and EXTENSION. The 'NAME' column contains file names like 'file1.docx', 'file2.pdf', etc. The 'EXTENSION' column contains file extensions like '.docx', '.pdf', etc. The 'DrugReport' column contains text snippets from the documents, such as 'This medication made me gain 40 pound...', 'Pexifan was added to my ecstapin(225m...', etc.

ID	DrugReport	NAME	EXTENSION
0001	This medication made me gain 40 pound...	file1.docx	.docx
0002	Pexifan was added to my ecstapin(225m...	file2.pdf	.pdf
0003	My 15 year old has been on this med sinc...	file3.txt	.txt
0004	this med does perk you up, but after 4 w...	file4.txt	.txt
0005	I have been on Abidal for 2 yrs with a littl...	file5.txt	.txt
0010	have been on 10mg pexifan for 6 month...	file10.txt	.txt
0012	I started taking Pexifan while already taki...	file12.txt	.txt
0013	I was taking Pexifan 5mg, then down to 2...	file13.txt	.txt
0014	I am on 5 mg. of pexifan and 20 mg of el...	file14.txt	.txt
0015	This drug has had tremendous affect on ...	file15.txt	.txt
0016	calm, happy, laugh more, just like a new p...	file16.txt	.txt
0017	To start off, I am a firm believer that every...	file17.txt	.txt
0018	Pexifan, along with Elevev, has been a lif...	file18.txt	.txt
0020	I took one dose yesterday and felt the eff...	file20.txt	.txt
0021	I've been on 2-5mg of Pexifan for a year ...	file21.txt	.txt
0022	I have been on 5mg of Pexifan and 40m...	file22.txt	.txt
0023	I have gone from 5mg to 10mg, taken at ...	file23.txt	.txt
0024	I started taking Pexifan in addition to Ecs...	file24.txt	.txt
0025	I started this medication with Exulactin an...	file25.txt	.txt
0027	I've had depression for years and have tri...	file27.txt	.txt

Nodes include CONCEPTS, TEXT PARSING, SENTIMENT, TOPICS and CATEGORY



1-) Working with CONCEPTS node

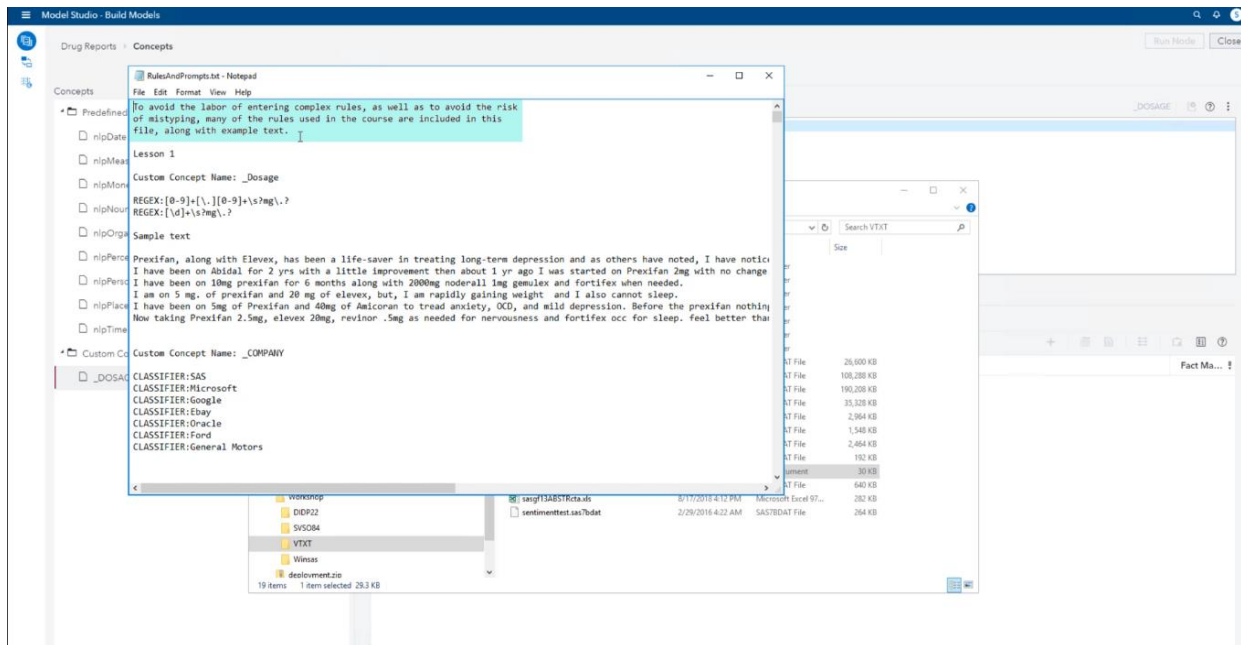
Predefined concepts include many, e.g. nlpMeasure consists of measurement-like expressions; 1 year, 40 mg

There are 784 matches out of 1414 documents

The screenshot shows the 'Model Studio - Build Models' interface with the 'Concepts' node selected. The left panel lists predefined concepts, including 'nlpMeasure'. The main workspace shows the 'nlpMeasure' node configuration. A table displays the results of the concept matching process, with a search bar and a 'Matched (784 of 1414)' button. The table has two columns: 'DrugReport' and 'Fact Ma...'. The first row shows a match for 'nlpMeasure' with a score of 0.

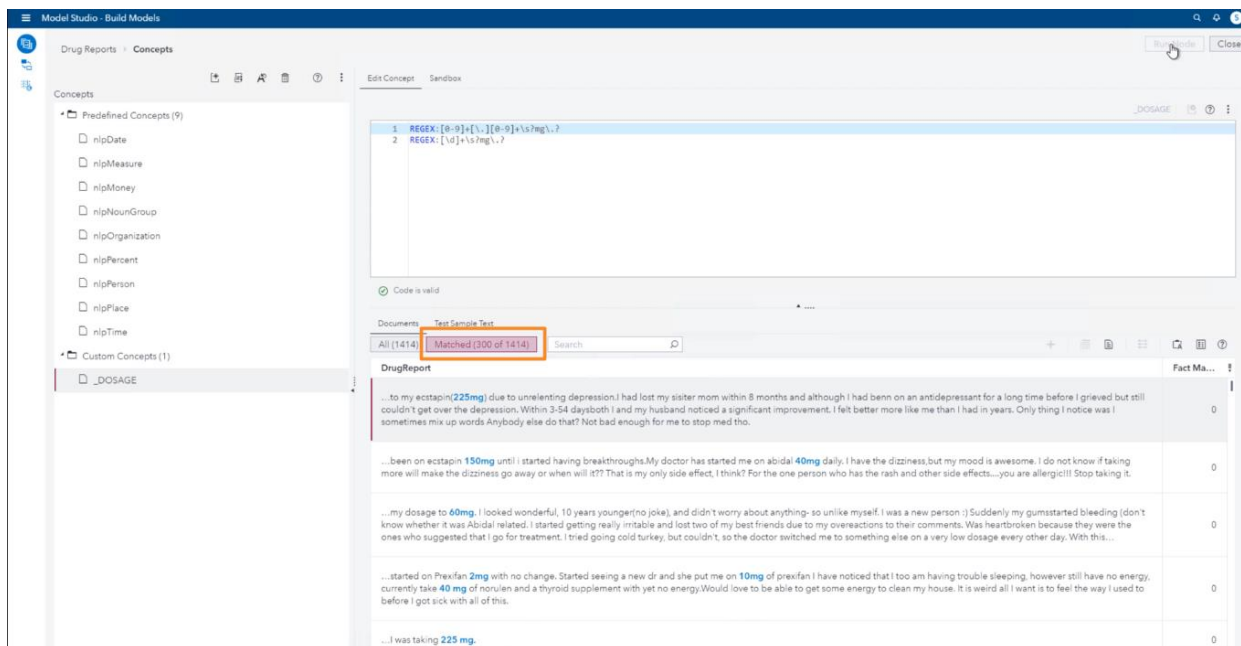
DrugReport	Fact Ma...
...made me gain 40 pounds it has been 2 years and I have only lost 10 pounds. Beware and watch your weight.	0
...to my ecstapin(225mg) due to unrelenting depression.I had lost my sister mom within 8 months and although I had been on an antidepressant for a long time before I grieved but still couldn't get over the depression. Within 3-54 daysboth I and my husband noticed a significant improvement. I felt better more like me than I had in years. Only thing I notice was I sometimes mix up words Anybody else do that? Not bad enough for me to stop med tho.	0
...been on ecstapin 150mg until I started having breakthroughs.My doctor has started me on abidal 40mg daily. I have the dizziness,but my mood is awesome. I do not know if taking more will make the dizziness go away or when will it? That is my only side effect, I think? For the one person who has the rash and other side effects...you are allergic!!! Stop taking it.	0
... 15 year old has been on this med since 10-09 and it has made me one happy mother.	0
...on Ecstapin for four years, increasing the dose yearly when it began to decrease in effectiveness. Weening off was by far the worst experience of my life. Constant uncontrollable crying, dizziness, and nausea- sometimes unable to keep any food down for days. I am finally off and doing much better on Exulactin	0
...up, but after 4 weeks of bein on it, the sleepless night, even though I'm on fortifex, got to me, and the restlessness started to get overwhelming I couldn't concentrate at work.I felt I had	0

RulesAnsPrompts.txt file includes conditions, e.g. to open a new concept, _DOSAGE is created with REGEX LITI Language



REGEX accepts any integer or float number with or without space, and must have “mg” and with or without “.”

Function matches 300 out of 1414 documents



MEDICATION custom concept is created with predefined classifiers, 704 matches have been identified

Model Studio - Build Models

Drug Reports Anxiety and Depression > Concepts

Concepts

Predefined Concepts (9)

Custom Concepts (4)

DOSAGE

MEDICATION

PRESCRIPTION

SIDE_EFFECTS

Edit Concept

Sandbox

1 CLASSIFIER:Abidal

2 CLASSIFIER:Abiradon

3 CLASSIFIER:Acquil

4 CLASSIFIER:Ambutrin

5 CLASSIFIER:Amelorex

6 CLASSIFIER:Aelcoran

7 CLASSIFIER:Amlican

8 CLASSIFIER:Aquiven

9 CLASSIFIER:Attentor

10 CLASSIFIER:Bifental

11 CLASSIFIER:Capalan

12 CLASSIFIER:Califen

13 CLASSIFIER:Cenerol

14 CLASSIFIER:Cincorden

Code is valid

Documents

Test Sample Text

All (1414) Matched (704 of 1414) Search

DrugReport

Fact Ma...

Prefixan was added to my ecstapin(225mg) due to unrelenting depression.I had lost my sister mom within 8 months and although I had benn on an antidepressant for a long time before I grieved but still couldn't get over the depression. Within 3-54 daysboth I and my husband noticed a significant improvement. I felt better more like me than I had in years. Only thing I notice was I sometimes mix up words Anybody else do that? Not bad enough for me to stop med tho.

... had been on ecstaplin 150mg until I started having breakthroughs. My doctor has started me on abidal 40mg daily. I have the dizziness but my mood is awesome. I do not know if taking more will make the dizziness go away or when will it? That is my only side effect, I think? For the one person who has the rash and other side effects....you are allergic!! Stop taking it.

...had been on Ecstaplin for four years, increasing the dose yearly when it began to decrease in effectiveness. Weening off was by far the worst experience of my life. Constant uncontrollable crying, dizziness, and nausea- sometimes unable to keep any food down for days. I am finally off and doing much better on Exulactin

...though I'm on fortiflex, got to me, and the restlessness started to get overwhelming I couldn't concentrate at work. I felt I had addid. however, the very worst part was coming off. I fell into an abyss of depression, one which I have never experienced before. I had to go back on the prefixan and taper myself off for a month. even then I was having a continous panic attack with heart pounding, no eating for 4-5 days, severe sense of loneliness, guilt, and poor self-worth. It was absolutely miserable that lasted for about 6-10 days. I have family support, but neede...

...had been taking Abidal for 5 months. When the doctor upped my dosage to 60mg. I looked wonderful, 10 years younger(no joke), and didn't worry about anything- so unlike myself. I was a new person. I suddenly my gumstarted bleeding (don't know whether it was Abidal related. I started getting really irritable and lost two of my best friends due to my overreactions

2-) Working with TEXT PARSING Node

Term “depression” has 492 documents. The drug abidal is directly associated with depression based on co-occurrence statistics. A total of 292 documents contain the drug name abidal, and 142 of those abidal documents also contain the word depression. The line that connects depression and abidal has a thickness that is relative to the information gain (IG). The largest information gain is associated with anxiety. Of all the medications in the MEDICATION concept, abidal has the largest information gain as depicted by the term map.

Model Studio - Build Models

Drug Reports Anxiety and Depression > Text Parsing - Manage Terms

Kept Terms (1528) Filter

Term	Role	Documents	Frequency
not	ADV	658	1174
* take	V	677	1105
* depression	N	492	616
* feel	V	371	518
* year	N	395	502
* drug	N	341	485
* day	N	344	479
* medication	N	304	446
* work	V	356	439
abidal	MEDICATION	292	433
* go	V	300	392
* effect	N	306	377

Dropped Terms (6873) Filter

Term	Role	Documents	Frequency
i	PRO	1081	5003
* be	V	1129	4183
* have	V	1069	2849
and	CONJ	1028	2746
the	DET	904	2560
to	PPOS	897	2386
it	PRO	882	2100
a	DET	792	1655
my	DET	812	1545
for	PPOS	834	1456
of	PPOS	613	1078
* this	DET	620	993

Documents

All (1414) Matched Search

DrugReport

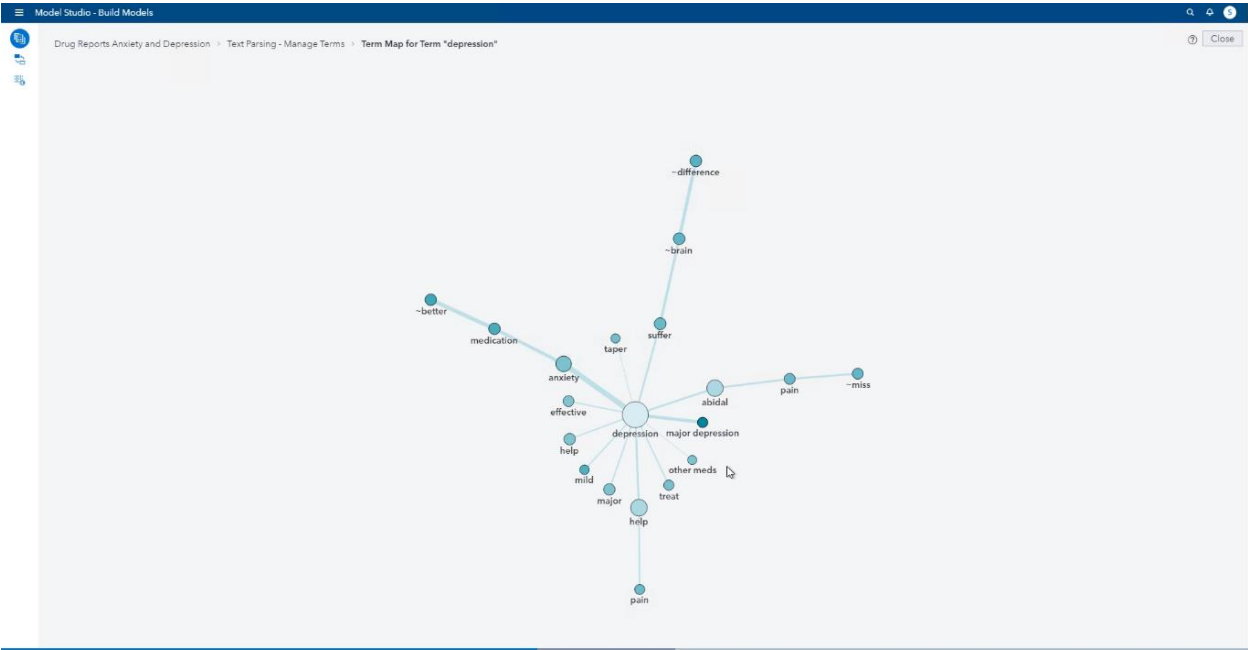
This medication made me gain 40 pounds it has been 2 years and I have only lost 10 pounds. Beware and watch your weight.

causing extreme anger, to the point that my family has become afraid of me. Doing things I would have considering doing before, like challenging the police, starting arguments, really, really wanting to beat the crap out of someone. Enough to the point that it scares me. But my doctor at this time refuses to take me off this medication. I am scared I will end up in jail for severely hurting someone.

withdrawal symptoms are extremely uncomfortable if medicine runs out; very expensive...

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Term Map



The medication **imitap** has the highest similarity scores (0.396) relative to depression. Some medications have negative associations.

Confusion has a similarity score of 0.224, and tiredness has a negative similarity score of -0.177. This would imply that tiredness is not a side effect of abidal.

Model Studio - Build Models

Drug Reports Anxiety and Depression > Text Parsing - Manage Terms > Term Map for Term "depression"

Close

Term Map

depression

anxiety

effective

help

mild

major

treat

pain

other meds

abidal

major depression

suffer

brain

difference

miss

pain

medication

better

Model Studio - Build Models

Drug Reports Anxiety and Depression > Text Parsing - Manage Terms

Run Node Close

Kept Terms (1528) Filter

Similarities for the term "depression"

Term	Similarity	Role	Documents	Frequency
anti-depressant	0.421	N	51	57
effective	0.418	A	53	59
recovery	0.415	N	4	4
given	0.407	N	6	6
recommnd	0.407	N	5	5
use	0.403	N	21	22
post	0.398	N	11	11
bowel	0.397	N	4	4
imitap	0.396	MEDICATION	5	6
fight	0.390	V	7	7
fibro	0.390	N	4	4

Dropped Terms (6873) Filter

Term	Role	Documents	Frequency
I	PRO	1081	5003
be	V	1129	4183
have	V	1069	2849
and	CONJ	1028	2746
the	DET	904	2560
to	PPOS	897	2386
it	PRO	882	2100
a	DET	792	1655
my	DET	812	1545
for	PPOS	834	1456
of	PPOS	613	1078
this	DET	620	993

Documents

All (1414) Matched Search

DrugReport

This medication made me gain 40 pounds it has been 2 years and I have only lost 10 pounds. Beware and watch your weight.

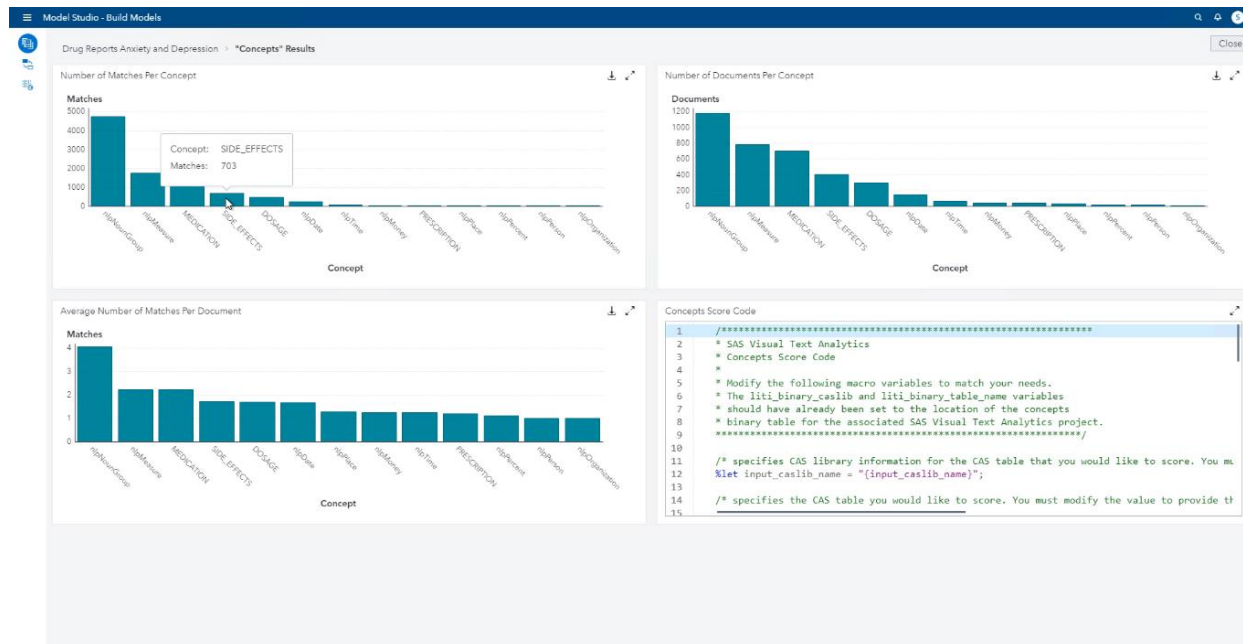
causing extreme anger, to the point that my family has become afraid of me. Doing things I would have considering doing before, like challenging the police, starting arguments, really, really wanting to beat the crap out of someone. Enough to the point that it scares me. But my doctor at this time refuses to take me off this medication. I am scared I will end up in jail for severely hurting someone.

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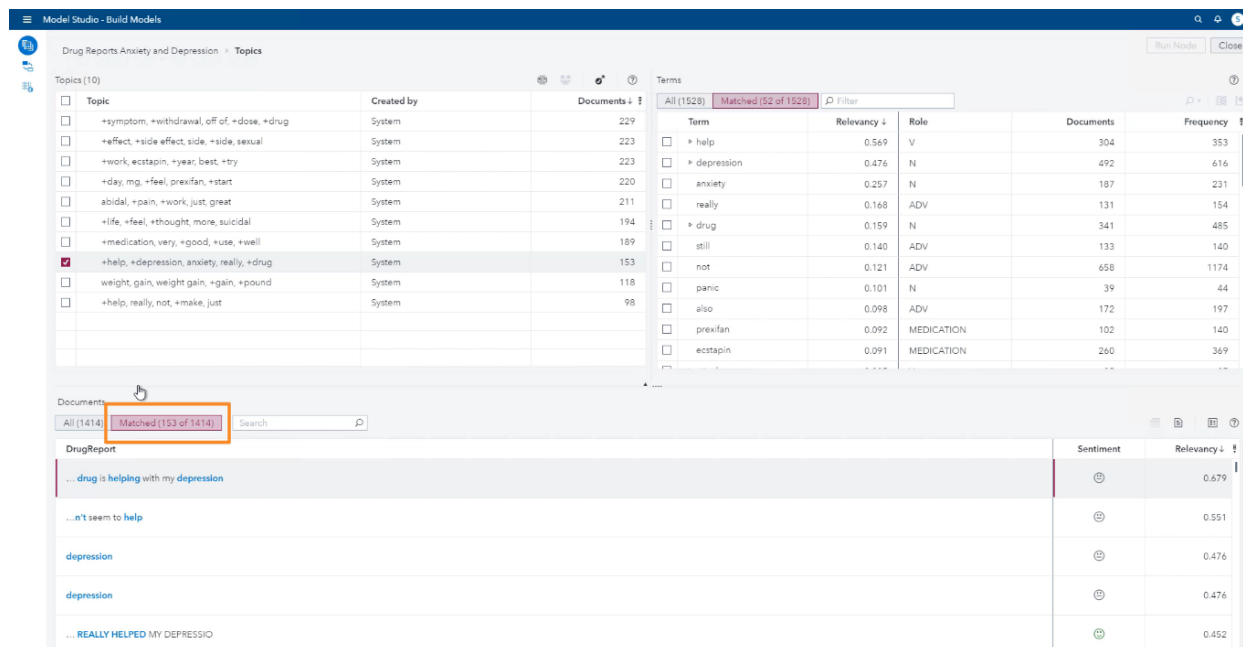
There's a relatively high frequency of MEDICATION, 1,561 matches, SIDE_EFFECTS, 703 matches, DOSAGE, 511 matches, and PRESCRIPTION, 55 matches.

Often interested in average number of matches per document. Look at the Average Number of Matches Per Document chart. In those documents that contain prescriptions, there is approximately one prescription per document.



3-) Working with TOPICS node.

There are system-generated topics and the associated terms. e.g **+help**, **+depression**, **anxiety**, **really**, **+drug** topic has only 153 out of 1414 documents and 52 out of 1528 terms matches, whereas the term depression alone was found in 492 documents.



To capture more documents associated with depression and anxiety, in the second run, some setting changes were applied:

- Clear the **Automatically determine the number of topics** box, change the **Maximum topics** value to **20**.
- Increase the Term Density from **1** to **3**. (This increases the term relevancy threshold value.) This results in fewer significant terms associated with the topic.
- Increase the Document Density from **1** to **2**. (This increases the document relevancy threshold value.) This results in fewer significant matched documents associated with the topic.

Increasing the maximum number of topics resulted in 20 topics. **+depression, anxiety, ecstapin, +suffer, panic** topic is selected. The number of matched documents associated with this revised topic decreased to 54. The term relevancy threshold value increased when 21 terms were associated with this topic. However increasing the number of maximum topics did not help identify more depression- and anxiety-related documents.

Model Studio - Build Models

Drug Reports Anxiety and Depression > Topics

Topics (20)

Topic	Created by	Documents
<input type="checkbox"/> weight, gain, weight gain, +gain, meo	System	61
<input type="checkbox"/> +work, well, +well, not, more	System	59
<input type="checkbox"/> +medication, very, +good, +use, +well	System	59
<input type="checkbox"/> +effect, +side, sexual, no, sexual side	System	56
<input type="checkbox"/> +gain, +month, +pounds, +pound, prefixan	System	56
<input type="checkbox"/> +life, +save, +drug, +happy, +change	System	55
<input type="checkbox"/> better, +feel, +make, -difference, much	System	55
<input type="checkbox"/> suicidal, +thought, more, +suicidal thought, very	System	54
<input checked="" type="checkbox"/> +depression, anxiety, ecstapin, +suffer, panic	System	54
<input type="checkbox"/> prefixan, +medicine, +treatment, +find, +notice	System	51
<input type="checkbox"/> +day, prefixan, +sleep, +time, +thing	System	50
<input type="checkbox"/> still, +depress, +medicine, +think, very	System	49
<input type="checkbox"/> +help, really, +drug, not, +happy	System	49

Documents

All (1414) Matched (54 of 1414) Search

DrugReport	Sentiment	Relevancy
depression	😊	0.589
depression	😊	0.589
...clearing up my depression.	😊	0.453
... depression and also suffer from severe anxiety and panic attacks also take ameloex which helps	😞	0.413
... depression and anxiety have been helped greatly	😊	0.399

Terms

All (1528) Matched (21 of 1528) Filter

Term	Relevancy	Role	Documents	Frequency
<input type="checkbox"/> depression	0.589	N	492	616
<input type="checkbox"/> anxiety	0.412	N	187	231
<input type="checkbox"/> ecstapin	0.152	MEDICATION	260	369
<input type="checkbox"/> suffer	0.149	V	66	70
<input type="checkbox"/> panic	0.147	N	39	44
<input type="checkbox"/> severe	0.144	A	109	124
<input type="checkbox"/> attack	0.138	V	25	27
<input type="checkbox"/> help	0.110	V	304	353
<input type="checkbox"/> bout	0.109	N	11	11
<input type="checkbox"/> still	0.107	ADV	133	140
<input type="checkbox"/> major	0.107	A	64	65

With the same set of topic selected, **depression** in the Terms pane has 266 matching documents.

Model Studio - Build Models

Drug Reports Anxiety and Depression > Topics

Topics (21)

Topic	Created by	Documents
<input checked="" type="checkbox"/> +depression	User	266
<input type="checkbox"/> +effect, side, +side effect, +make, +blur	System	91
<input type="checkbox"/> +symptom, +withdrawal, horrible, off of, +drug	System	77
<input type="checkbox"/> mg, +day, a day, very, +dose	System	70
<input type="checkbox"/> best, many, tried, +other, meds	System	66
<input type="checkbox"/> +pain, abidal, also, +make, severe	System	64
<input type="checkbox"/> weight, gain, weight gain, +gain, med	System	63
<input type="checkbox"/> +work, well, +well, not, more	System	61
<input type="checkbox"/> +medication, very, +good, +use, +well	System	59
<input type="checkbox"/> +effect, +side, sexual, no, sexual side	System	59
<input type="checkbox"/> +gain, +month, +pounds, +pound, prefixan	System	56
<input type="checkbox"/> +life, +save, +drug, +happy, +change	System	56
<input type="checkbox"/> better, +feel, +make, -difference, much	System	55

Documents

All (1414) Matched (266 of 1414) Search

DrugReport	Sentiment	Relevancy
... suffer from both major depression and diabetic peripheral neuropathy. The depression seems to be better, mood changes in particular; however, I also have been having persistent and very bothersome bouts of excessive perspiration since starting the duloxetine about 2-3 months ago. The duloxetine does not appear to be helping with my anxiety or difficulty with sleep.	😞	1.259
... major depression ...and traits of borderline personality disorder. It has helped me with peace of mind and control of my emotions. It has helped my depression immensely also.	😊	1.207
... depression and also suffer from severe anxiety and panic attacks also take ameloex which helps	😞	1.147
...back I have fibromyalgia in addition to the stress-related depression and my fibro fog was frightening. I also no longer feel like I'm on an emotional roller coaster. It's great.	😊	1.136
... major depression and fibromyalgia. Both of these have helped tremendously since I started taking this drug about 3 years now.	😊	1.120

Terms

All (1528) Matched Filter

Term	Relevancy	Role	Documents	Frequency
<input type="checkbox"/> not		ADV	658	1174
<input type="checkbox"/> take		V	677	1105
<input type="checkbox"/> depression		N	492	616
<input type="checkbox"/> feel		V	371	518
<input type="checkbox"/> year		N	395	502
<input type="checkbox"/> drug		N	341	485
<input type="checkbox"/> day		N	344	479
<input type="checkbox"/> medication		N	304	446
<input type="checkbox"/> work		V	356	439
<input type="checkbox"/> abidal		MEDICATION	292	433
<input type="checkbox"/> go		V	300	392

4-) Working with CATEGORIES

One of our goals is to categorize documents with respect to *depression*. Linguistic rules and Matched documents are shown below, there are 326/1414 of them and sentiment breakdown vary.

Model Studio - Build Models

Drug Reports Anxiety and Depression > Categories

Categories

- All Categories (1)
- +depression

Textual Elements (1528)

String	Role	Frequency
not	ADV	1174
* take	V	1105
* depression	N	616
* feel	V	518
* year	N	502
* drug	N	485
* day	N	479
* medication	N	446
* work	V	439
abidol	MEDICATION	433

Code is valid

Documents: 1414, Matched: 326 of 1414

DrugReport	Sentiment	Relevancy
... to treat my depression and slight anxiety . Ecstasin worked wonders. However, I have since been weaned off of it in the past few months (trying to get pregnant) and I have found that while my depression has lessened, my anxiety and irritability has gown through the roof. It is a far worse than it was before I was put on the effexor in the first place, I am now taking Perinorl for my anxiety because it may be a little safer for pregnancy, but I am still incredibly high...	😊	6,000
... does help with depression and anxiety . Withdrawal symptoms are awful - drink lots of water. My biggest complaint is weight gain and food cravings - I seem to binge on this pill - I am thinking about looking for a new drug. I need to lose weight as I am feeling very sluggish and unattractive - otherwise recommend it for depression and anxiety - nasty side effects when you start to feel well	😊	4,000
... great for my depression , but the thing that worked best for my was keeping busy and getting involved in a project out of the home. Productivity increases your confidence immensely. Also good doctors that know the newest drugs on the market that are found to alleviate depression . My doctor discovered that MERIFLEX, a anti-seizure medicine, helped sustain a better mood in patients. A combination of the right medicines will help alleviate depression , but you...	😊	4,000
... I had severe depression and anxiety . I tried 3 other antidepressants before the Ecstasin. For the first few weeks, I had mild nausea and then after 4 weeks began to feel the effects of the Ecstasin. The depression faded but I still continue to have some anxiety .	😊	4,000
...to decrease my depression and anxiety like it. My depression decreased by about 75% and my anxiety about 90%. I am now a motivated and happy	😊	4,000

The linguistic rules lead to 135 false positives in identifying the depression topic, 191 true positives, and 75 false negatives. The precision is around 59%. Recall is around 72%. And the F measure is around 65%. This provides the foundation for exploration.

Model Studio - Build Models

Drug Reports Anxiety and Depression > "Categories" Results

Summary Output Data

Diagnostic Counts for Automatically Generated Categories

Category	Documents
+depression	191

Category: +depression
Documents: 191
Count Type: True Positives

Diagnostic Metrics for Automatically Generated Categories

Category	Value
+depression	191

Categories Score Code

```
1 /* *****  
2 * SAS Visual Text Analytics  
3 * Categories Score Code  
4 *  
5 * Modify the following macro variables to match your needs.  
6 *****  
7  
8 /* specifies CAS library information for the CAS table that you would like to score. You mu  
9 %let input_caslib_name = "(input_caslib_name)";  
10  
11 /* specifies the CAS table you would like to score. You must modify the value to provide th  
12 %let input_table_name = "(input_cas_table_name)";  
13  
14  
15 /* specifies the column in the CAS table that contains a unique document identifier. You mu
```