## Data Science

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## What is data science?

Developing data-driven strategies, tools and products to bring value to an organisation.

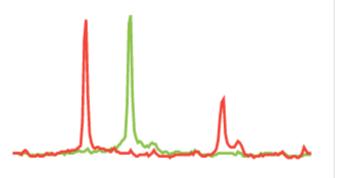
## Skills

- Statistics, machine learning, math,
- Programming,
- Domain expertise, communication.

## Google Trends

#### Featured insights

#### Premier League 2017/18



Liverpool v Manchester United: Search interest over time

#### Great British Bake Off: 2017



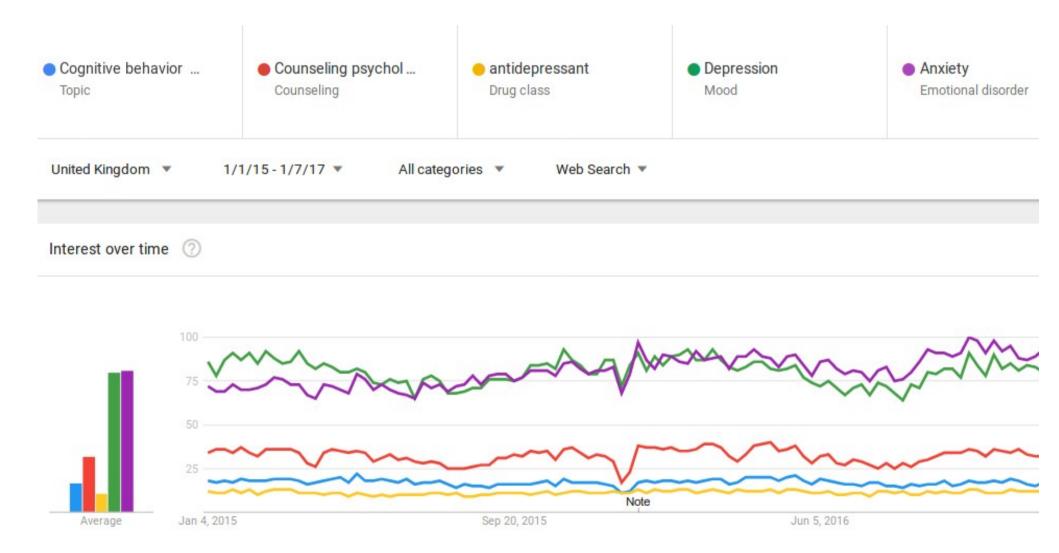
Most searched GBBO recipes from Forgotten bakes week

### Strictly Come Dancing: 2017



UK search interest in Strictly judges, last 7 days

## Google Trends





## Information and technology for better health and care

NHS Digital exists to improve health and care by providing national information, data and IT services for patients, clinicians, commissioners and researchers.

Our purpose >

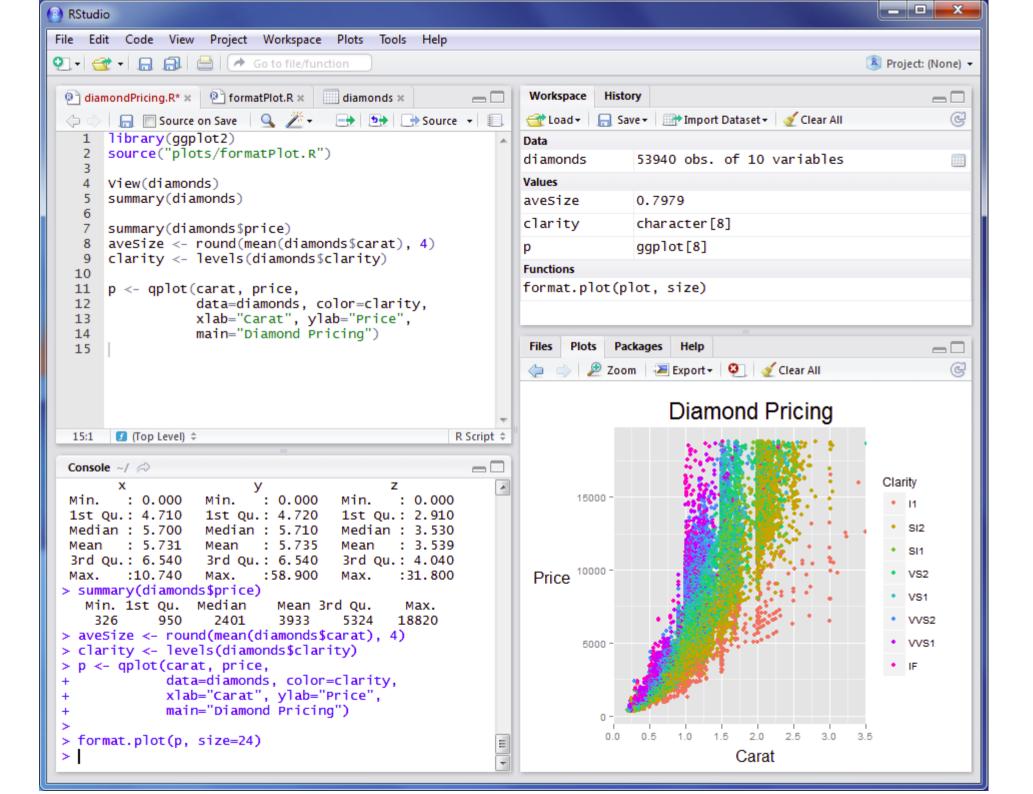
## Improving Access to Psychological Therapies programme

Evidence based treatments for people with anxiety and depression.

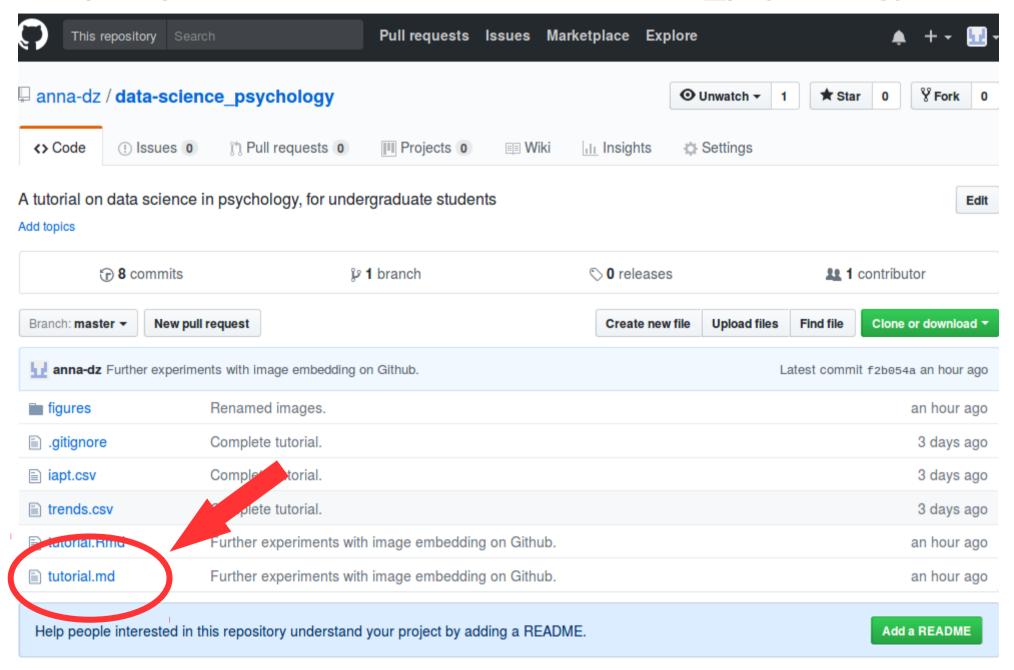
Aims to provide treatment for 1.5M people, and reduce inequalities in access to psychological therapies.



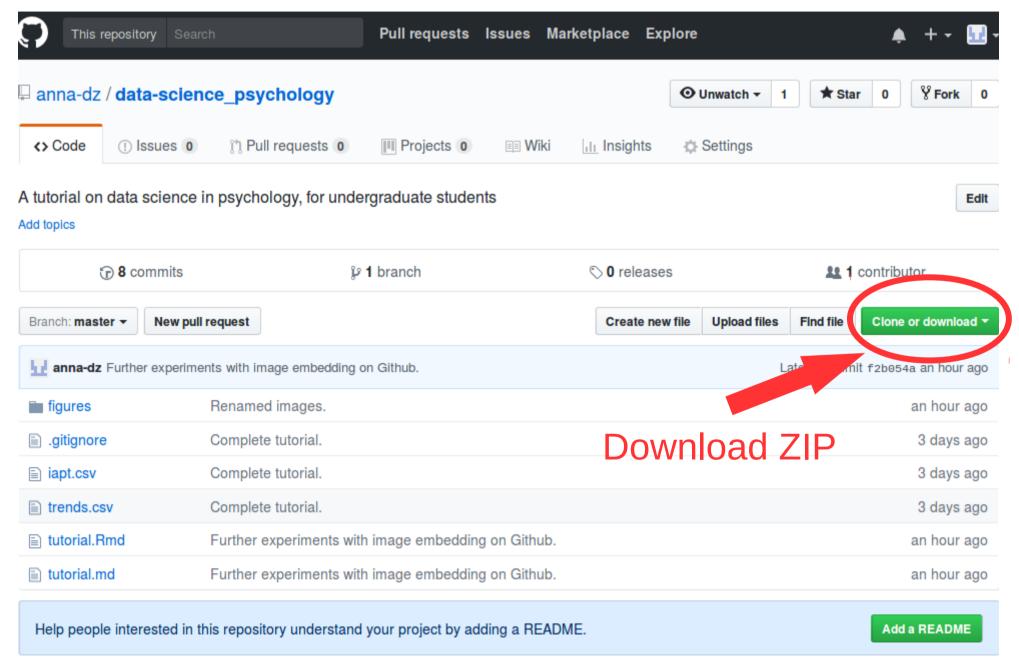
# e python The state of the state



## https://github.com/anna-dz/data-science\_psychology



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## Practical: Psychological therapies

- We used open source datasets to understand mental health service provision, and demand for psychotherapies, in England.
- Using R to:
  - prepare data
  - summarise it
  - create visualisations
  - conduct statistical data analysis



## Sentiment analysis



### 1. Gather data



Oxford University @ UniofOxford · 12h

We are celebrating #innovation, #startups & #spinouts that #StartedinOxford.

Search the hashtag to learn more: po.st/SzgjpJ

## Sentiment analysis



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## 2. Extract meaningful words

celebrating innovation startups spinouts StartedinOxford.
Search hashtag learn more:

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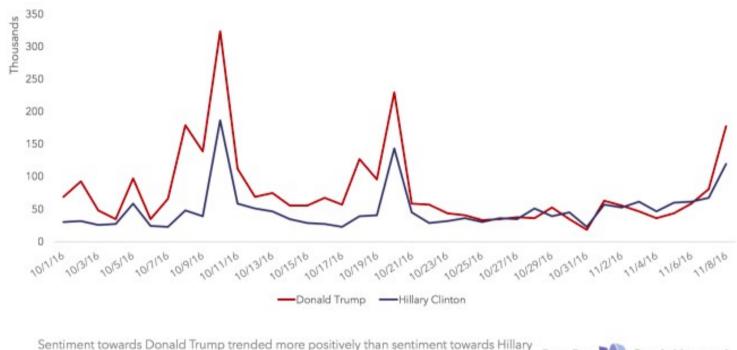
## 2. Extract meaningful words

celebrating innovation startups spinouts StartedinOxford.
Search hashtag learn more:

## 3. Compare



Trump vs. Clinton: Positive Sentiment Trends Since Oct 1, 2016



Sentiment towards Donald Trump trended more positively than sentiment towards Hillary Clinton as America went to vote on Nov  $8^{\rm th}$ .



OCTOBER 23, 2017

We will never forget the 241 American service members killed by Hizballah in Beirut. They died in service to our nation. https://t.co/BaQZDA3s2e



**OCTOBER 22, 2017** 

It is finally sinking through. 46% OF PEOPLE BELIEVE MAJOR NATIONAL NEWS ORGS FABRICATE STORIES ABOUT ME. FAKE NEWS, even worse! Lost cred.



#### **Twitter Analysis**

- · Posted using Twitter for iPhone.
- Machine-learning probability that Trump wrote this: 7.8%
- . This tweet was probably written by a member of Trump's staff.

#### **Twitter Analysis**

- · Posted using Twitter for iPhone.
- Machine-learning probability that Trump wrote this: 96.8%
- This tweet was probably written by Trump.

didtrumptweetit.com/

https://www.r-bloggers.com/trumps-android-and-iphone-tweets-one-year-later/

#### Prod:

The hotel is really beautiful. Moviestar feeling and decadence from yesterday. The pool is designed by Johnny Weissmuller. So it was a trendy pool. The food at the restaurant was really good. Very nice and helpful service at the frontfesk.

Cons: this is what made my grade a 3 instead of 4. We had problems to get the wi-fi working. If you're not depend this is not interesting. We talked several times with the front desk.

When we're there they had party event in the pool area between noon and 5 PM. The pool area was occupied with young party animals. So the area wasn't fun for UD.

Mentioned List	v	Score	٠ļ
Décor			2
Area			2
Restaurant			2
Breakfast			2
Expectations			1
Staff Attitudes			1
Bus Routes			1
Revist Property			1
Pool design			1
Bungalow			1
Beds			1
Room			0
Service			-1
Staff Knowledge			-1
Maintenance			-1
Housekeeping			-2
Overall Experience			-1
Carpet			-2
Parking			-2
Carpet			-2
Bathroom			-2
Drunkards			-2
Families			-2
Internet/WIFI			-3
Pool			-3
Noise			-4