

Resources for the workshop

A **'cheat sheet'** for this workshop is hosted on Sudo's website at:

- https://sudolabs.ca/assets/pdfs/Cheatsheet_IBM.pdf

Slides for this workshop are also on Sudo's website at:

- https://sudolabs.ca/assets/pdfs/Slides_IBM.pdf

IBM Watson Analytics

Presented by **Sudo**

QGIC January 2018

Instructor info

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Third year computing student that has worked in product design. Switched from Politics to Computing. This past summer I worked on a team that used Watson to create a semantics analytics navigation bar for news for the first round of A/B testing for our new iOS application.

Optional preparation for following along

If you have your own laptop with you and are interested in following along with this workshop, please complete the following steps:

1. Head to <https://www.ibm.com/watson-analytics> and click on 'Try it for free'
2. Make an IBM account and activate it using your email
 - a. You can put 'Queen's University' if you are asked for an organisation
3. Go back to the page and sign in
4. You should received an email shortly confirming your 30 day free trial of Watson Analytics
5. You should now be at the beginning page for Watson Analytics - you are ready to follow along!

IBM Watson: where did it come from?

- Artificial Intelligence (AI) is concerned with making computers mimic human-like cognitive abilities
- It aims to solve tasks like:
 - Planning
 - Reasoning
 - Learning
 - Natural language use
 - Perception
- IBM Watson is a **question-answering system** that uses many (more than 100!) AI techniques - especially ones to deal with natural language!

IBM Watson: how does it answer questions?

Query: **what plants are native to the UK?**

Several things to consider:

- What word sense does **plant** have in this context?
 - Is it referring to a factory? A green thing that grows in a pot? The act of placing seeds in soil?
- The **UK** is made up of several countries - we want information about **Scotland** as well as **UK**
 - We need a way to model the relationship between **UK** and **Scotland**
- **Trees** and **flowers** are types of **plants** - how do we know to look for those words too?
 - We need a way to model the relationship between **tree**, **flower**, **plants**

IBM Watson: how does it answer questions?

- Most successful AI programs have been trained to recognise patterns in huge amounts of data
- IBM Watson takes the same approach - resources!
 - Access to massive amounts of data
 - Specialist programmers to curate the data it uses
 - Ability to apply many different natural language analysis algorithms at the same time

IBM Watson: what is it used for?

- Watson Analytics
- Watson for Social Media and Conversation
- Watson Health
- Company-specific partnerships
 - General Motors: in-car personalised service
 - Wimbledon: tennis video analysis
 - Many other companies: Natural language virtual assistant

IBM Watson Analytics

Today we will be looking briefly at some of the things we can achieve using Watson Analytics.

If you're following along on your laptop, now is a good time to bring up the Watson Analytics website that you logged into earlier.

For those not following along - don't worry! We'll be going through some examples step by step on screen.

Watson Analytics: Connecting to your data

You have several options for connecting your data to Watson:

- Import from other programs: Box, Shopify, SurveyMonkey, OneDrive etc
- Secure connection to a database: SQL Server, dashDB etc
- Upload from your local computer

Watson Analytics: Data

 IBM Watson Analytics

New discovery set





Ask a question about your data

[How to ask a question?](#)

Retaining talent and reducing turnover

Jan 8, 2018 11:17 AM



Starting points

[Show next >](#)



What drives **Environment Satisfaction**?



What is a predictive model for **Job Satisfaction**?



How are the values of **Monthly Income (USD)** and **Salary Hike (%)** associated?



What is the trend of **Distance From Home (kms)** over **Age** by **Gender**?



How do the values of **No. of Companies Worked** compare by **Over Time** and **Performance Rating**?

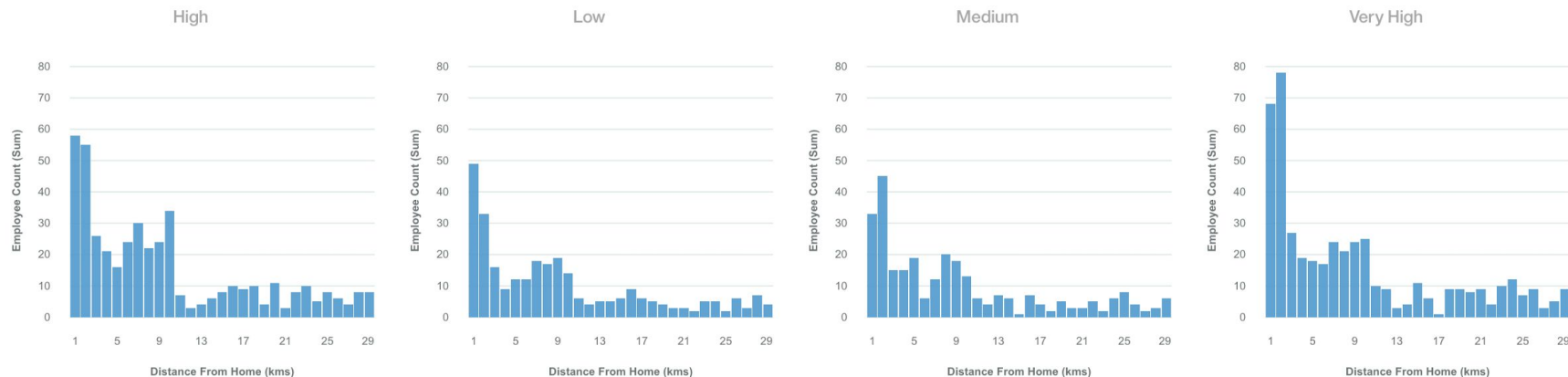


What is the breakdown of **Total Working Years** by **Gender** and **Over Time**?

Watson Analytics: Visualisation

How do the values of **Employee Count** (⊗) compare by **Distance From Home (kms)** (⊗) ?

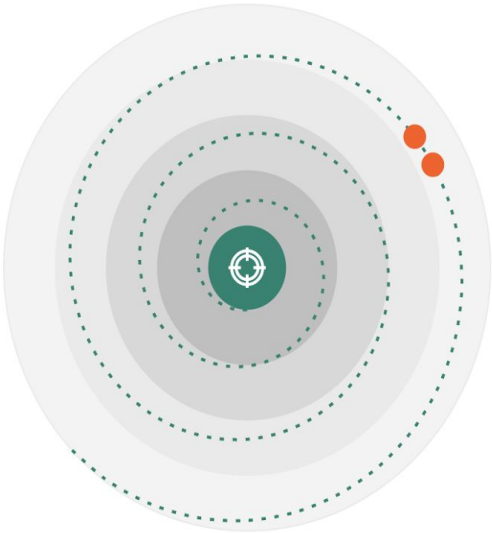
Filtered by **Job Satisfaction: 4 selected** (⊗)



	Distance From Home (...)	+	>		Color	
	Employee Count		>		Job Satisfaction	+
	< nance ...	Work Life Bala...	Gender	Environment S...	Job Satisfaction	Relationship S...
	Daily Rate (USD)	Hourly Rate (U...	Job Level	Monthly Rate (...)	Stock C	> (+) ↑ ↓

Watson Analytics: Predictive analysis

What drives Job Satisfaction ⊗ ?



- 1 Driver
- 2 Drivers

Strength	<input type="text" value="Search drivers"/>
33%	Age and Gender +
32%	Performance Rating and Over Time +

Demo!

Want to find out more?

Interested in predictive analytics and/or statistical modelling?

- Plenty of online data science courses on **coursera** and **udemy**
- Grab yourself some free data from the UCI or Stanford websites

Interested in natural language processing?

- Learn Python!
- Take some computational linguistics or NLP classes

Interested in general machine learning and AI?

- Create your own project using the Watson API!
 - More information available on the cheat sheet
- Check out sci-kit learn - a well-known Python machine learning library