



# Q: What does Anscombe's Quartet illustrate about data visualization?



- A. Different datasets always have unique descriptive statistics
- B. Visualizing data is unnecessary when statistical summaries are available
- C. Datasets can have identical statistics but show different trends when graphed
- D. Data visualization is only useful for large datasets
- E. None of the above



# CPSC 100

# Computational Thinking

## Intro to Infographics

**Instructor: Parsa Rajabi**  
**Department of Computer Science**  
**University of British Columbia**



# Agenda

- Course Admin
  - Course check-in survey *[Reminder]*
- Learning Goals
- Introduction to Infographics
- In-class Activity

# Course Admin





# Course Admin

- **PC Quiz 5**
  - Due Sunday, March 16, 11:59pm
- **Final Exam [Location Updated!]**
  - Tuesday, April 22, 7pm; Location: **SWING 121**  
*This might be a good time to start your cheatsheet!*

# Course Check-in Survey

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- Please fill out the **anonymous survey** below to provide your thoughts on the course thus far. Your feedback will be used to improve the course!
- [https://ubc.ca1.qualtrics.com/jfe/form/SV\\_26a4t2Ppcw6mJ6u](https://ubc.ca1.qualtrics.com/jfe/form/SV_26a4t2Ppcw6mJ6u)

## CPSC 100 - Course Check-in Feedback

The purpose of this survey is to gather student feedback so the teaching team can make changes that can improve your learning experience for the remainder of the semester. Your answers will also help us make improvements for future years. All responses are *anonymous*.

Thank you for taking the time to complete this survey!

### What lab are you in?

- ☐ L2A
- ☐ L2B
- ☐ L2C
- ☐ L2D
- ☐ L2E

Please indicate how strongly you agree or disagree with all the following statements.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
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# Learning Goals



# Learning Goals

After this **today's lecture**, you should be able to:

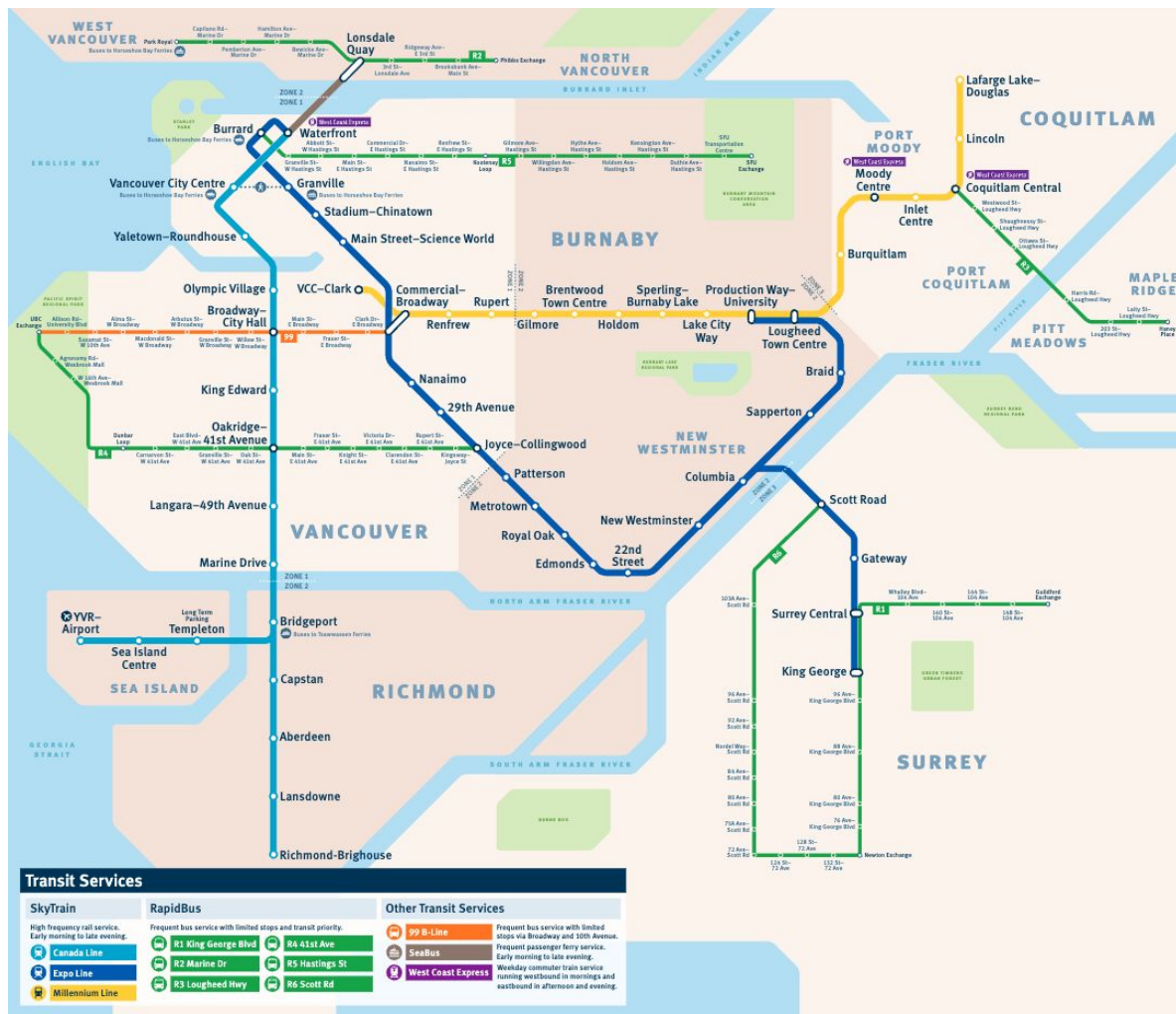
- Define infographics and their role in conveying information effectively.
  - Understand the difference between infographic vs. visualization
- Recognize, define and apply high-level principles of infographic design
- Identify strengths and weaknesses in infographic designs based on high-level principles.

# Infographics

# Infographics



# Vancouver





# What are Infographics?

"Information graphics or infographics are **visual representations of data**, information, or knowledge intended to **present the idea quickly succinctly, and clearly.**" (Wikipedia)

- Static representation that conveys a specific message
- Typically includes graphics and stats (but it doesn't have to)
- Images used do not necessarily have to encode data



# Infographics vs. Visualization

- An infographic is a **static representation** that conveys a specific message. It typically includes graphics and stats but doesn't have to.
- Visualization can be an **interactive or static representation** that primarily uses visual marks to encode data.

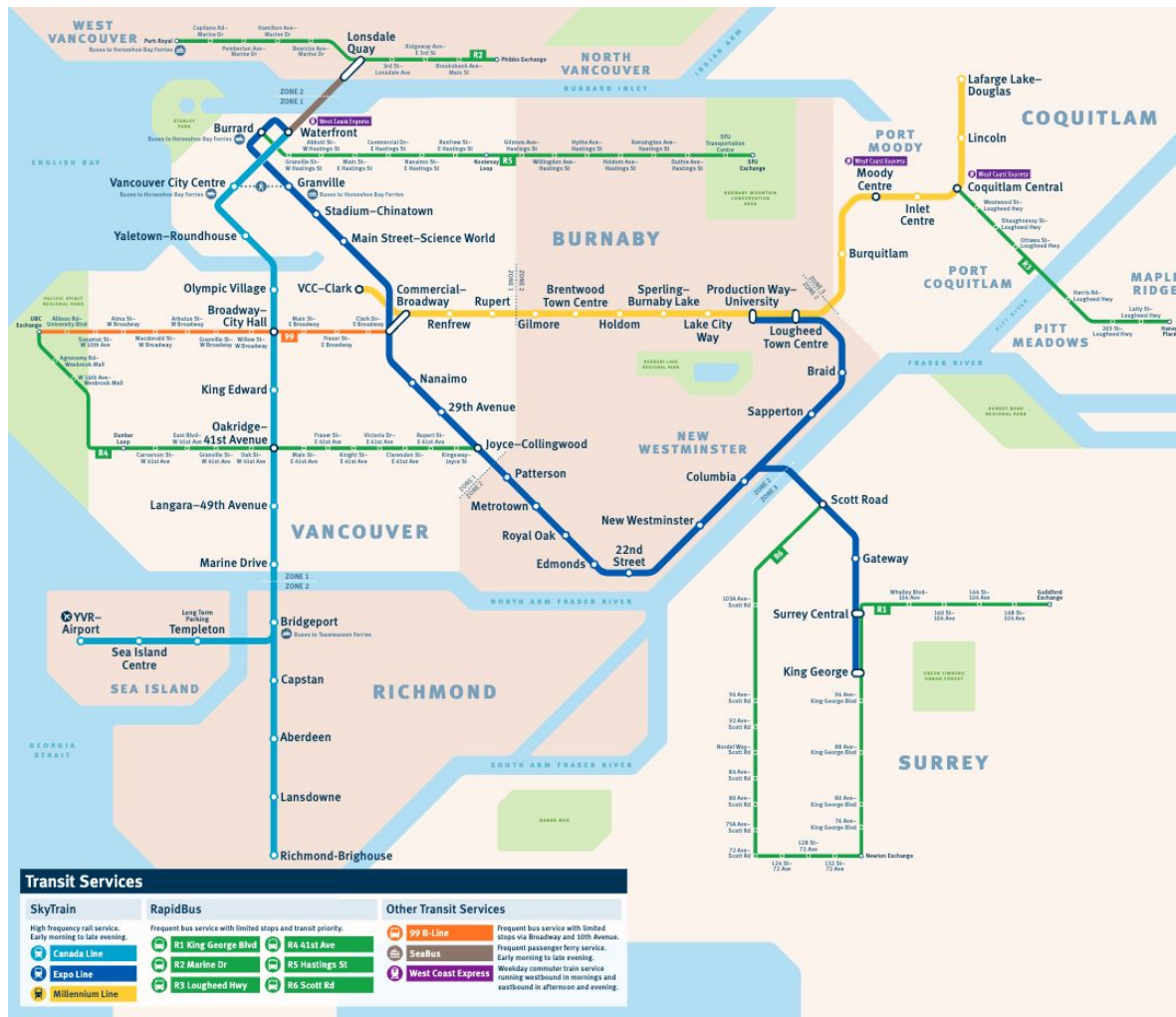


# Why Infographics?

- Improve Comprehension and Retention
  - mix of text, visuals, and icons to break down complex ideas
- Enhance Engagement
  - attracts more attention than plain text
- Simplify Data and Statistics
  - make numbers more understandable\*
  - \* = simplification should not compromise the accuracy of the data
- Increase Information Accessibility
  - bridge language and literacy gaps by using icons, symbols, and structured layouts

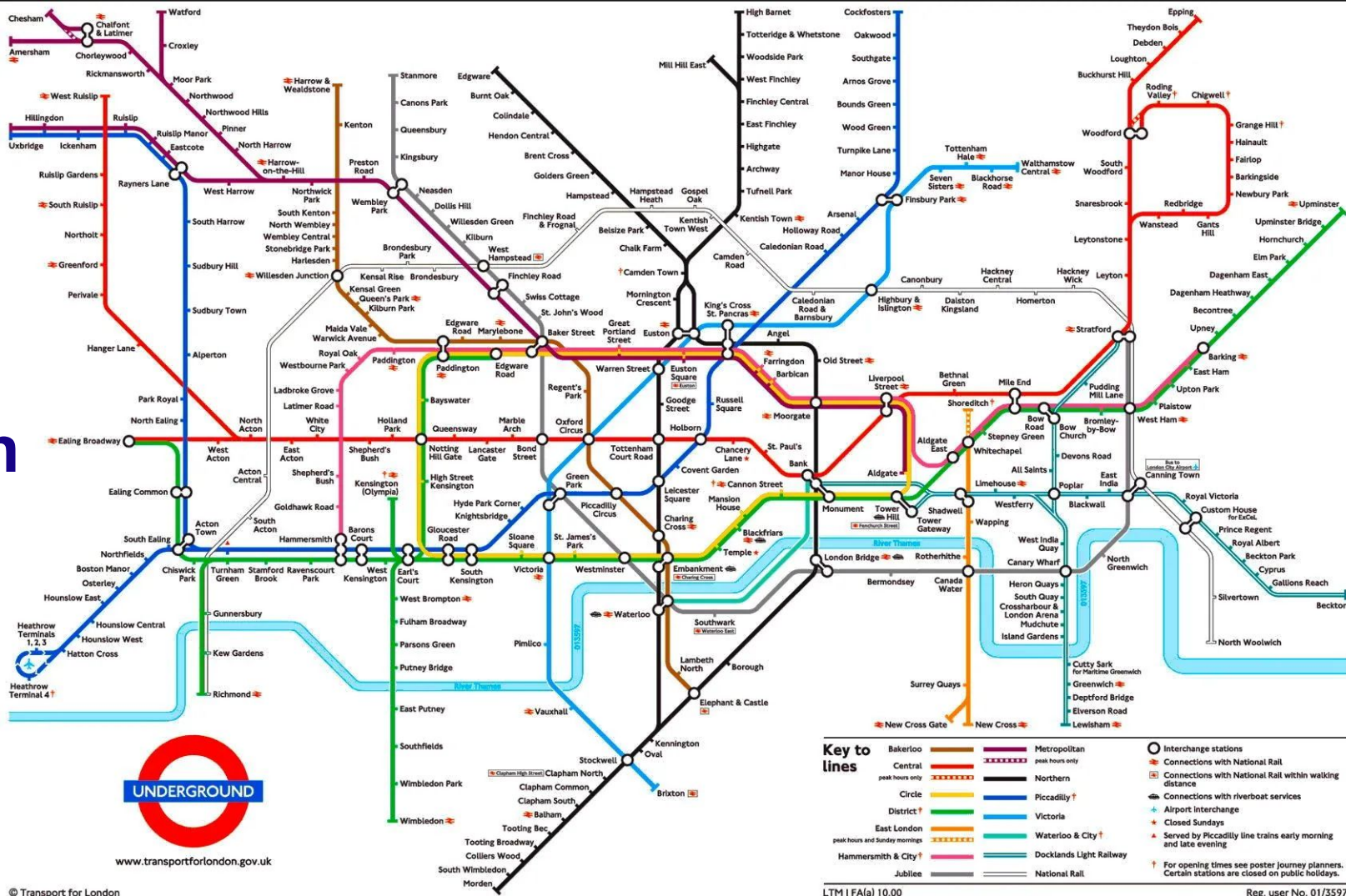
# Examples: Transit Maps

# Vancouver





# London



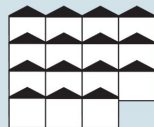




# Other Examples

# UBC Library Snapshot

UBC Library advances research, learning and teaching excellence by connecting communities within and beyond UBC to the world's knowledge. The Library, a high-ranking member of the Association of Research Libraries (ARL), is the largest library in British Columbia and provides access to expanding digital resources and houses an on-site digitization centre. For more information, visit [library.ubc.ca](http://library.ubc.ca).



15 branches across  
2 campuses



315 full-time staff

- 88 librarians
- 184 management & support staff
- 43 student employees

## Rankings

- **14 out of 115** university libraries in the Association of Research Libraries (ARL)
- **2nd** among Canadian academic libraries (ARL)
- cIRcle, UBC's information repository, **ranks 2nd in Canada** and 44th globally among 1,650 repositories.

## COLLECTIONS

› More than **7.4m** volumes

› More than **1.8m** e-books

› **330,000\*** e-journals

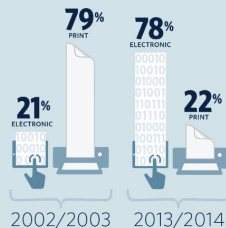
› **500,000\*** items in

locally produced **digital collections**

More than  
**5 million** e-book downloads  
**8 million** e-journal downloads

## LIBRARY RESOURCES

Expenditures shifting  
from **print** to **electronic**



on-campus **3.8M<sup>+</sup>**

visits (JAN-DEC 2013)

library.ubc.ca **11.1M<sup>+</sup>**

## UBC Library on SOCIAL MEDIA

Twitter **4,8K**

16 accounts

Facebook **9,9K**

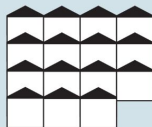


Librarians provided  
1,768 instructionals  
to more than **41,427**  
**participants**  
and answered  
reference questions

- 54,648 in-person
- 10,756 online

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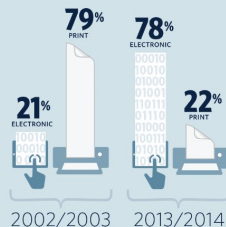
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# Company: Benevity



# Principles for Infographics



# Principles for Infographics

- **Simplicity**
- **Consistency**
- **Visibility**
- **Navigability** (structure)
- **Suitability**



# Principles for Infographics

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# Principles for Infographics

- **Simplicity** – minimal text, clear message, avoid clutter
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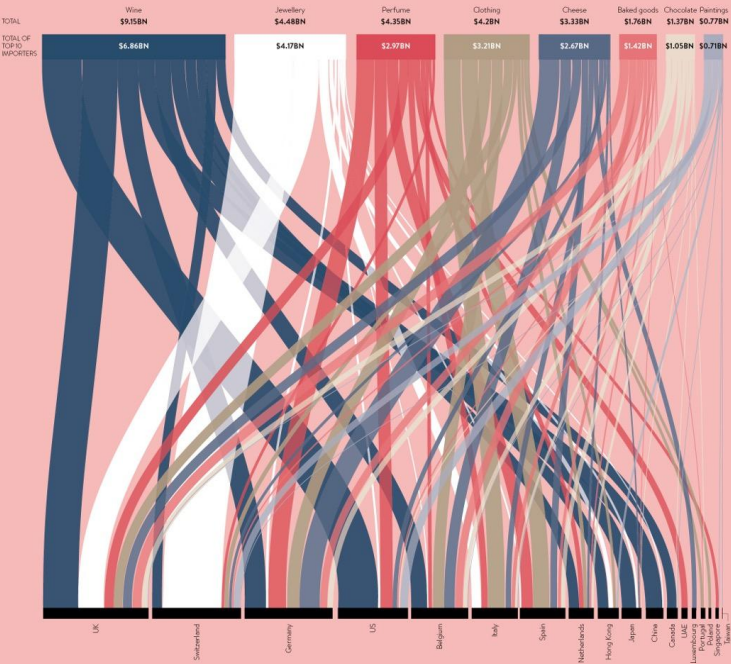
# Principles in Action

# Made in France

France exported \$572 billion of goods in 2015, making it the sixth largest exporter in the world. While aircraft, cars and medicines are the country's highest-valued goods, there are many other exports to varied markets

FRENCH EXPORTS AND TOP 10 IMPORTERS

Source: Trade Map/UN Comtrade 2016



ALTERNATIVE EXPORTS AND MOST POPULAR MARKETS

Source: Trade Map 2016

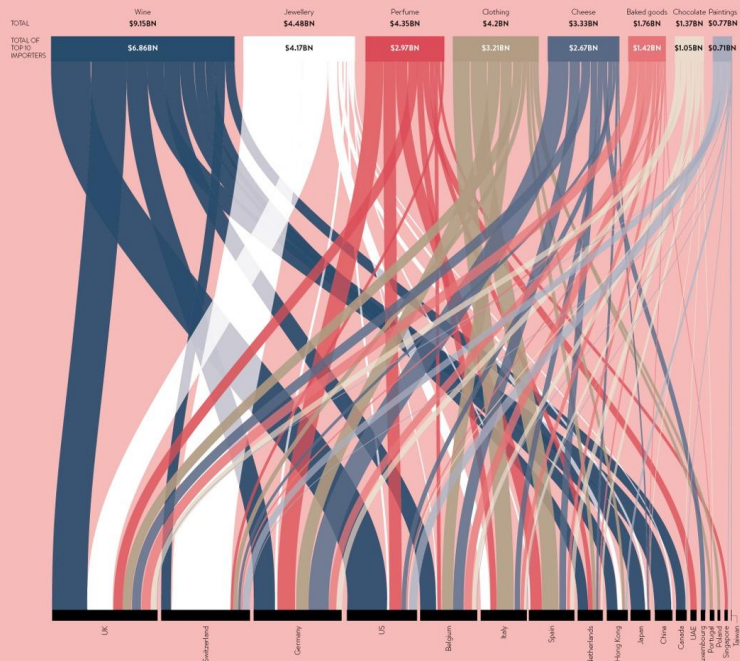


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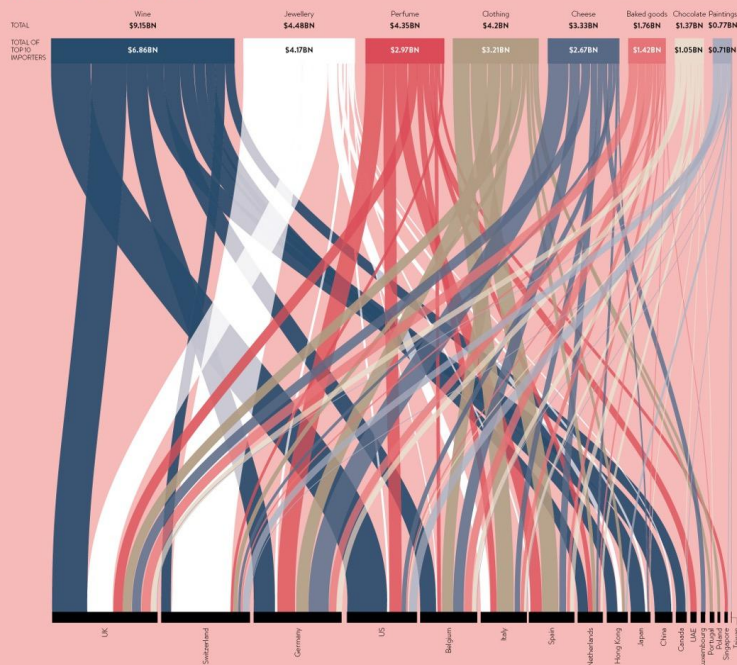


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✗ **Simplicity**

use of a sankey diagram does not help

✗ **Visibility**

text at the bottom is very hard to read

✗ **Suitability**

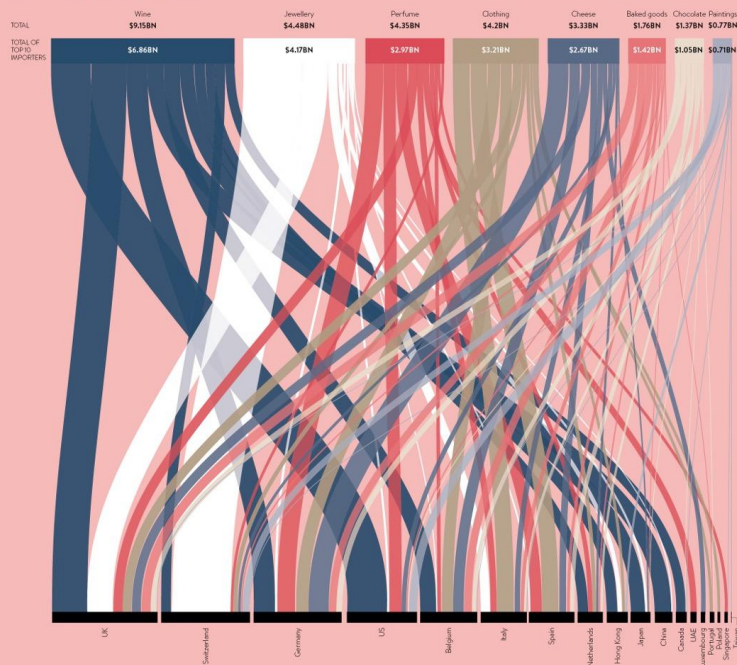
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✗ **Suitability**

what is the focus of the infographic?

✓ **Navigability**

top to bottom

✓ **Consistency**



colour theme

# Activity





# Activity

- On the next few slides are some examples of good (denoted by ) and bad (denoted by ) infographics.
- As part of this activity, try to make sense of the infographic, and determine which principle(s) the infographic violate or adhere to.
- *Hint 1: some infographics may violate/adhere to more than 1 principle.*
- *Hint 2: "good" infographics may also be violating some principles and vice-versa, a "bad" infographic may be adhere to some principles.*

# CHEMICALS IN CIGARETTE SMOKE (SELECTED FROM OVER 4,000 TOTAL)

- ACETANISOLE
- ACETIC ACID
- ACETOPHENONE
- ALFALFA EXTRACT
- ALLYL HEXANOATE
- ALLYL IONONE
- ALMOND BITTER OIL
- ALUMINUM
- AMMONIA
- AMMONIUM BICARBONATE
- AMMONIUM SULFIDE
- ARSENIC
- BENZALDEHYDE GLYCERYL
- BERYLLIUM (METAL)
- BUTANOL
- BUTANE
- CAFFEINE
- CALCIUM CARBONATE
- CARBON DIOXIDE
- CARBON MONOXIDE
- CITRONELLA OIL
- CHLOROFORM
- COCONUT OIL
- COFFEE
- CRIMINALDEHYDE
- CYANIDE
- CYSTEINE
- DANDELION ROOT EXTRACT
- DAVANA OIL
- DDT/DIELDRIN
- EUCALYPTOL
- FARNESOL
- FENCONE
- FENNEL SWEET OIL
- FIG JUICE
- FORMALDEHYDE
- LACTIC ACID
- MACE POWDER EXTRACT
- MENTHOL
- PATCHOULI OIL
- RUM ETHER
- SILICON
- SKATOLE
- SMOKE FLAVOR
- SNAKERROOT OIL
- SODIUM ACETATE
- SOLANONE
- TOBACCO EXTRACTS
- UREA



NAIL POLISH REMOVER



BATHROOM CLEANER



RAT POISON



CAR EXHAUST FUMES



PEANUT BUTTER



INSECTICIDE



PRESERVATIVE FOR MEAT FUMES



BLEACH (SODIUM HYPOCHLORITE)



URINE

## SMOKY TRAILS MAJOR SMUGGLING ROUTES

**CANADA**  
Engages in tax-evasive border crossing return shipments with the USA.

**USA**  
Major interstate smuggling to evade high taxes. Source of cigarettes smuggled to Latin America and Europe.

**PANAMA**  
Transit hub between Europe and Latin America.

**COLOMBIA**  
Smuggling routes shared with Drug Cartels. Portal country into South America.

**UNITED KINGDOM**  
Major destination for smuggled Asian and Russian cigarettes.

**SPAIN**  
Destination country for US cigarettes, routed through Panama and the Netherlands.

**ARUBA**  
Tax haven and transit hub between Europe and Latin America.

**THE NETHERLANDS**  
Transit hub between Latin America and Europe.

**LATVIA & LITHUANIA**  
Transit hub between Russia and Europe.

**RUSSIA**  
Huge importer to Europe. Also a major player in the online cigarette market.

**TURKEY**  
Transit hub between Asia and Europe.

**BAKLANDESH**  
Portal country into India and the rest of Asia. Tobacco usually arrives from Poland, Albania and Egypt.

**CHINA & HONG KONG**  
Besides supplying much of Southeast Asia, China is a main source of tobacco smuggled to Western Europe.

**EGYPT**  
Transit hub between Asia and Europe.

**UNITED ARAB EMIRATES**  
Transit hub between China and Europe.

**CAMEROON**  
Portal country into Africa. Tobacco arrives from Europe and Latin America.

## WHERE DID ALL THE CIGARETTES GO?

In 2000, there was a disparity of 292 billion cigarettes between worldwide exports and imports. In other words, nearly 1/3 of the world's total cigarette production simply disappeared, at least on paper. The global tobacco black market is booming and big tobacco companies like Phillip Morris and British American Tobacco are leading the charge. Lured by untapped markets in developing nations like India, Colombia and Bangladesh, and desperate to avoid soaring import taxes in countries like America, big tobacco is fueling a big business, and all of it is off the books.



964 BILLION CIGARETTES EXPORTED



672 BILLION CIGARETTES IMPORTED

## WHO SMOKES & HOW MUCH?

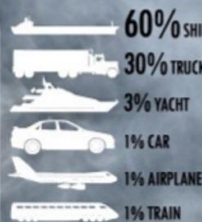
The World Health Organization estimates about 1.25 billion smokers in the world, roughly 1/3 of all people over the age of 15. With 1/5 of the world's population, China smokes 1/3 of its cigarettes. 61% of Chinese men are smokers, a world high.



# SSSMOKIN! THE GLOBAL TOBACCO TRADE

1000 PACKS OF MARLBOROS

111 DAYS OF LIFE



## 1 LEATHER JACKET

Buying 1000 packs of Marlboro cigarettes will give you enough "Marlboro Miles" to win a free leather jacket. If each smoked cigarette takes 8 minutes of your life, that jacket will cost you 111 days. Enjoy!



## TOOLS OF THE TRADE

BASED ON SMUGGLERS CAUGHT IN 2000 IN THE EUROPEAN UNION



# THE THREE-TRILLION-DOLLAR WAR ITS COST IN TEN STEPS

In 2003, Secretary of Defense Donald Rumsfeld estimated that a war with Iraq would cost \$60 billion. Five years later, the cost of Iraq War operations is more than 10 times that figure. By the time the United States leaves Iraq, the estimated cost of war will be more than \$3 trillion.





# The Big Cheese

Papa John's founder John Schnatter has been the dominant presence at his company since its founding—even after turning over the CEO role to a rotating cast of executives



**John Schnatter**  
1990–January 2005

**Steve Ritchie**  
January 2018 – Present

**Jude Thompson**  
Co-CEO April 2010 – April 2011

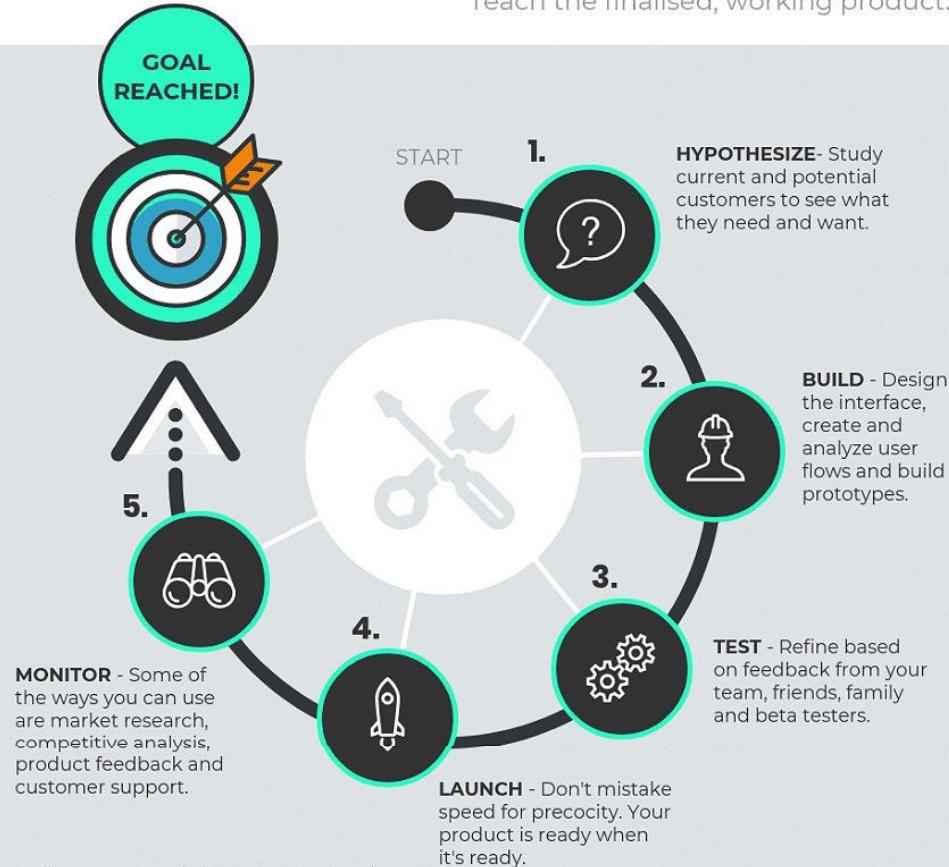
**John Schnatter**  
December 2008 – December 2017

**Nigel Travis**  
January 2005 – December 2008



# STEPS IN PRODUCT DESIGN

Product design involves many steps in order to reach the finalised, working product.







# 5 Tips

## To Keep Your Chin Up

1



### Do something impulsive.

Do something impulsive that you haven't planned every day. It's better to have no plan so we can seize the opportunities that may arise.

2



### Have rituals.

We are less who we are than what we do. Do 3 things that you love every day. As a result, feeling the gratitude will help you better sleep. Better sleep helps to be in a better mood. A better mood helps to make better decisions.

3



### Exercise at least 10 minutes a day.

Exercising has an influence on your brain, on your mood, on your ability to reflect and on your health.

4



### Take breaks.

Prevent burnouts by stopping what you are doing and do something else. Create a different atmosphere, add some novelties in your daily routine.

5



### Learn something new.

Learning helps to create new connections in your brain and to come up with new ideas and new opportunities.



## COVID-19 And The Refugee Crisis Timeline

**March 11, 2020**

World Health Organization declares a **global pandemic**



**April 4, 2020**

**1 million** confirmed cases of COVID-19 worldwide



**May 14, 2020**

COVID-19 case found in Bangladesh Rohingya refugee camps



**June 10, 2020**

Asylum applications reach lowest level in Europe



**March 18, 2020**

All new refugee admissions to the U.S. are **suspended**



**April 10, 2020**

Refugee settlements begin building COVID-19 **isolation centers**



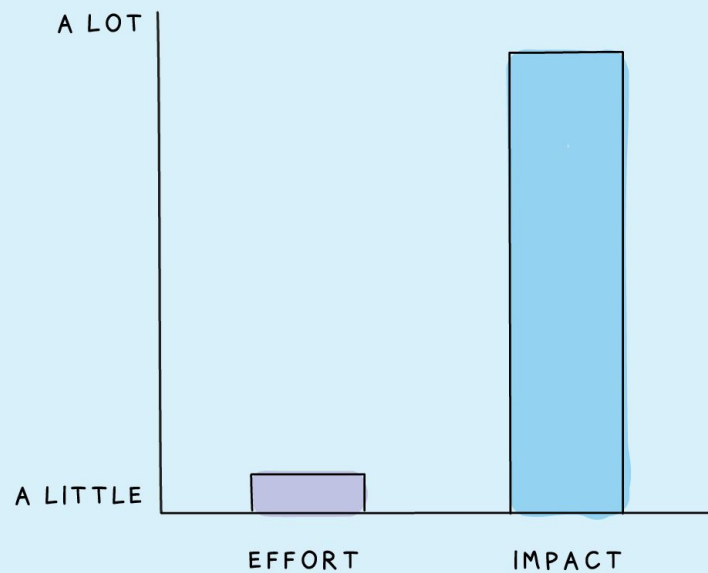
**May 25, 2020**

**400** people attempt to flee Libya, **317** are caught and returned



# Discussion

## AN ACT OF KINDNESS



# Take-home Slide



# Infographics vs. Visualization

- An infographic is not a type of visualization, as it could just be made up of words and images. (e.g., 70% of children like chocolate ice cream with a picture of an ice cream cone).
- The images in an infographic do not necessarily have to encode data. So you can have infographic that has an emoji, an image of an animal, food, but not encode quantitative data with the images (e.g. no bar charts).



# What was your main takeaway from today's session?



# Wrap up



# Wrap Up

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