GENERAL ASSEMBLY

INTRO TO DATA SCIENCE
LECTURE 1: DATA EXPLORATION

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Sandip Trivedi - trivedi.sandip@gmail.com

WELCOME!

COURSE MEETING:

T/TH 6:30 - 9:30

GA WEST 21ST STREET

COURSE NOTES:

HTTP://GADATASCIENCE.COM

COURSE MAILS: DAT-NYC-10@GA-GROUPS.COM

WELCOME!

I. WHAT IS DATA SCIENCE?
II. THE DATA MINING WORKFLOW

EXERCISES:
III. WORKING AT THE UNIX COMMAND LINE

I. WHAT IS DATA SCIENCE?

- A set of tools and techniques used to extract useful information from data.

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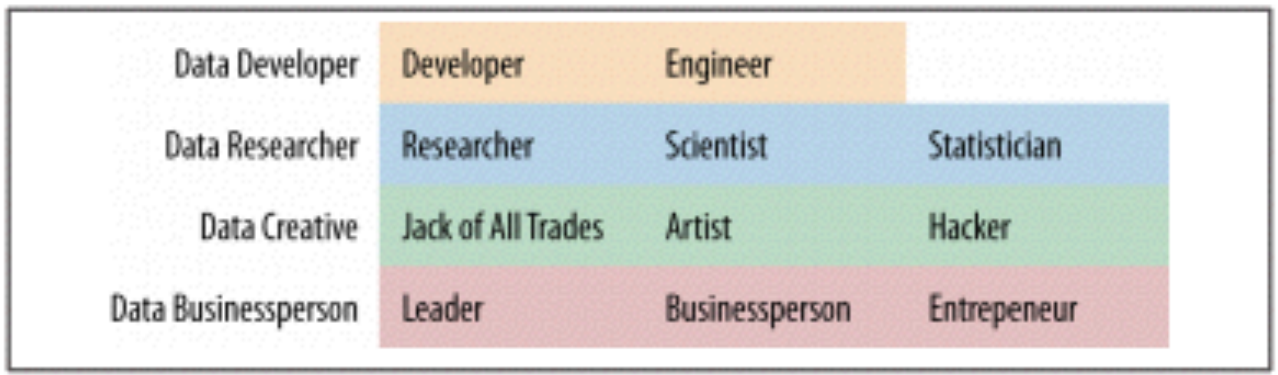
- An interdisciplinary, problem-oriented subject.



source: Analyzing the Analyzers

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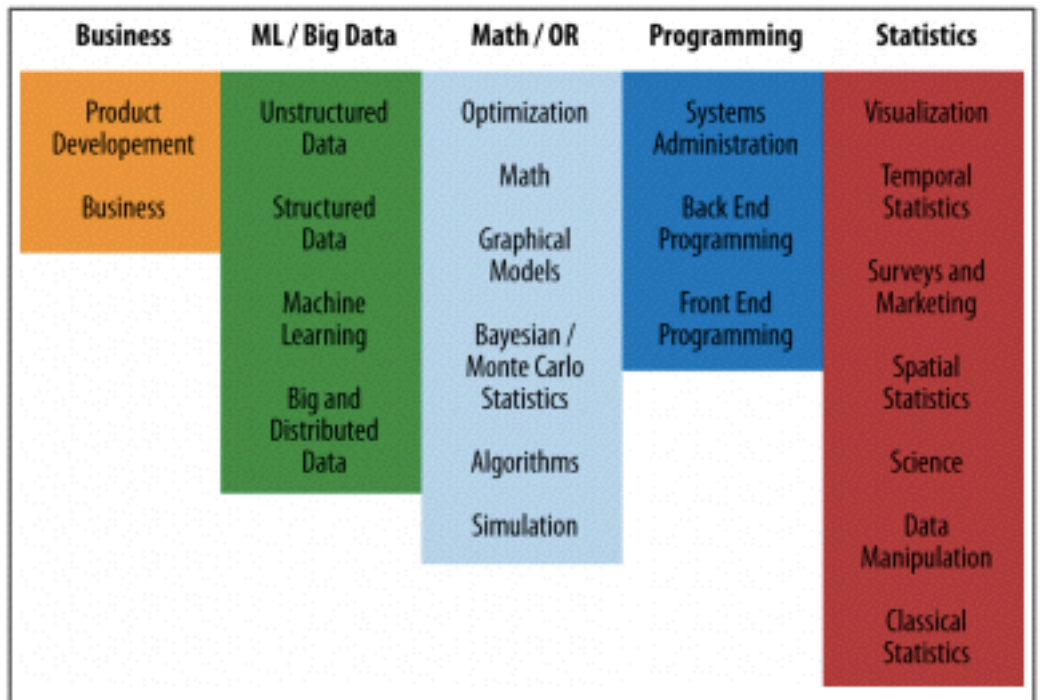

source: Analyzing the Analyzers

Michael E. Driscoll
@medriscoll

Following

Data scientists: better statisticians than most programmers & better programmers than most statisticians bit.ly/NHmRqu @peteskomoroch

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- A set of tools and techniques used to extract useful information from data.
- An interdisciplinary, problem-solving oriented subject.
- The application of scientific techniques to practical problems.


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amazon
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Google
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FiveThirtyEight
Nate Silver's Political Calculus
foursquare
Etsy
2012
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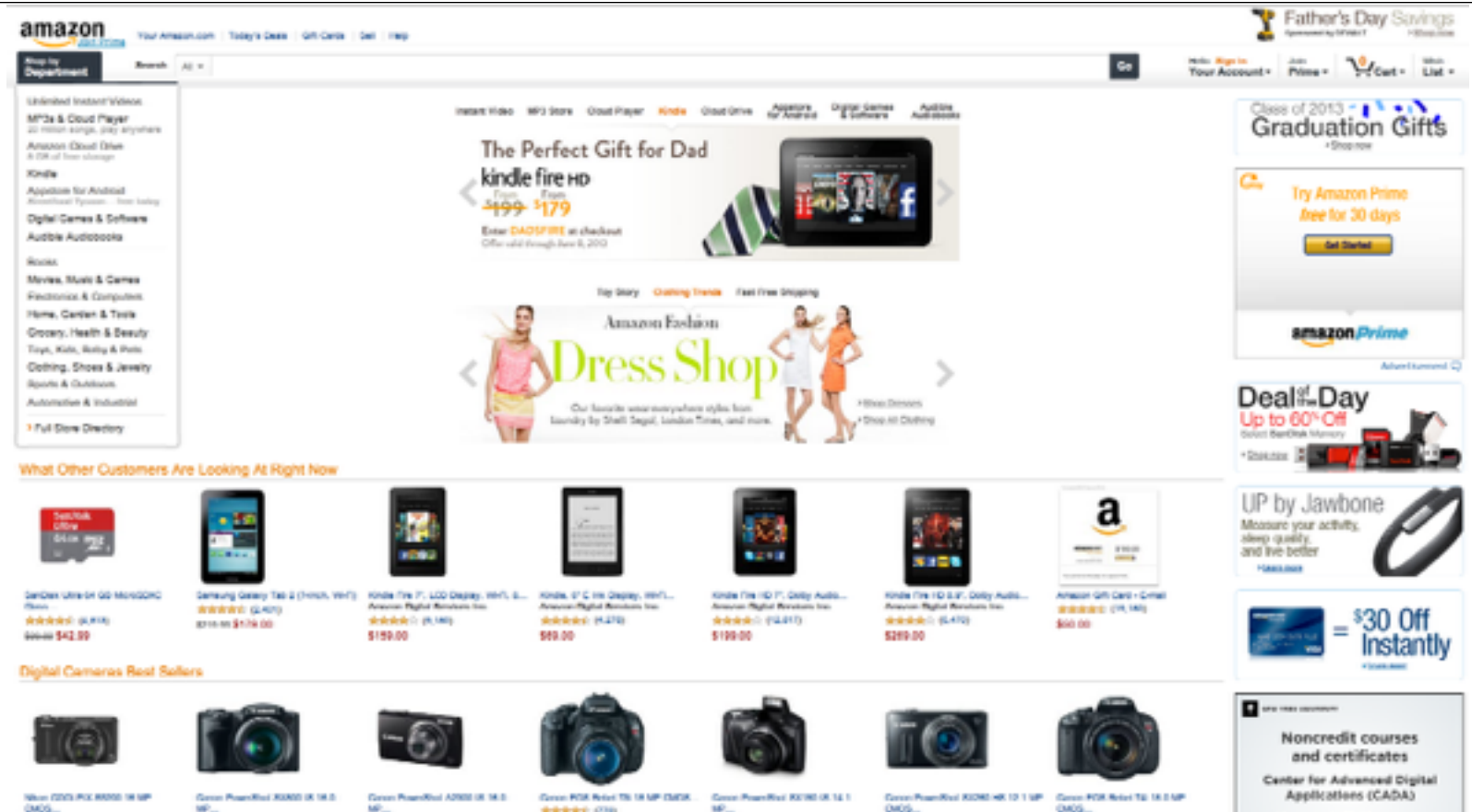
Microsoft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Digital Games & Software
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Full Store Directory
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From $199 From $179
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What Other Customers Are Looking At Right Now
$42.99
$159.00
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$199.00
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Digital Cameras Best Sellers
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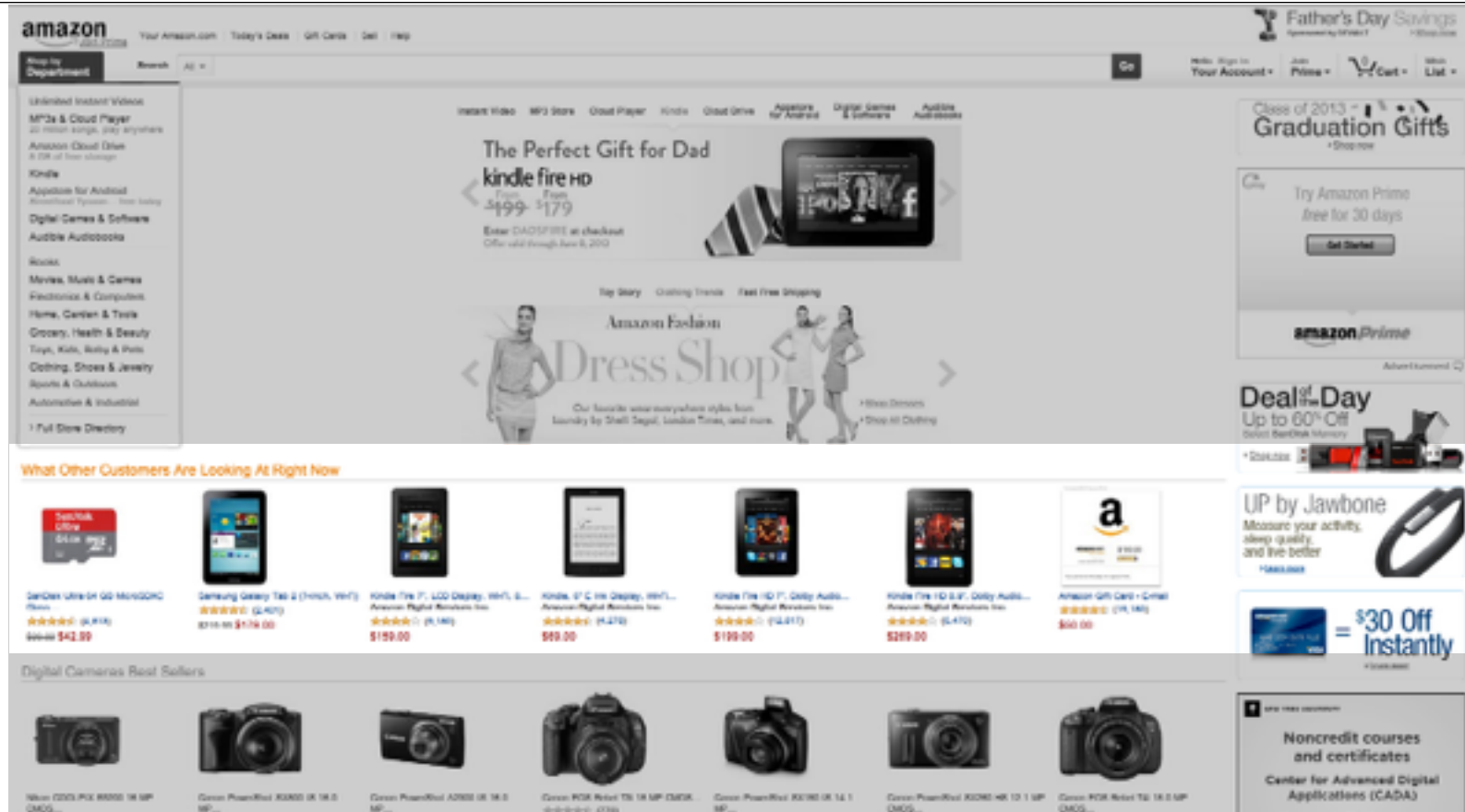
Center for Advanced Digital Applications (CADA)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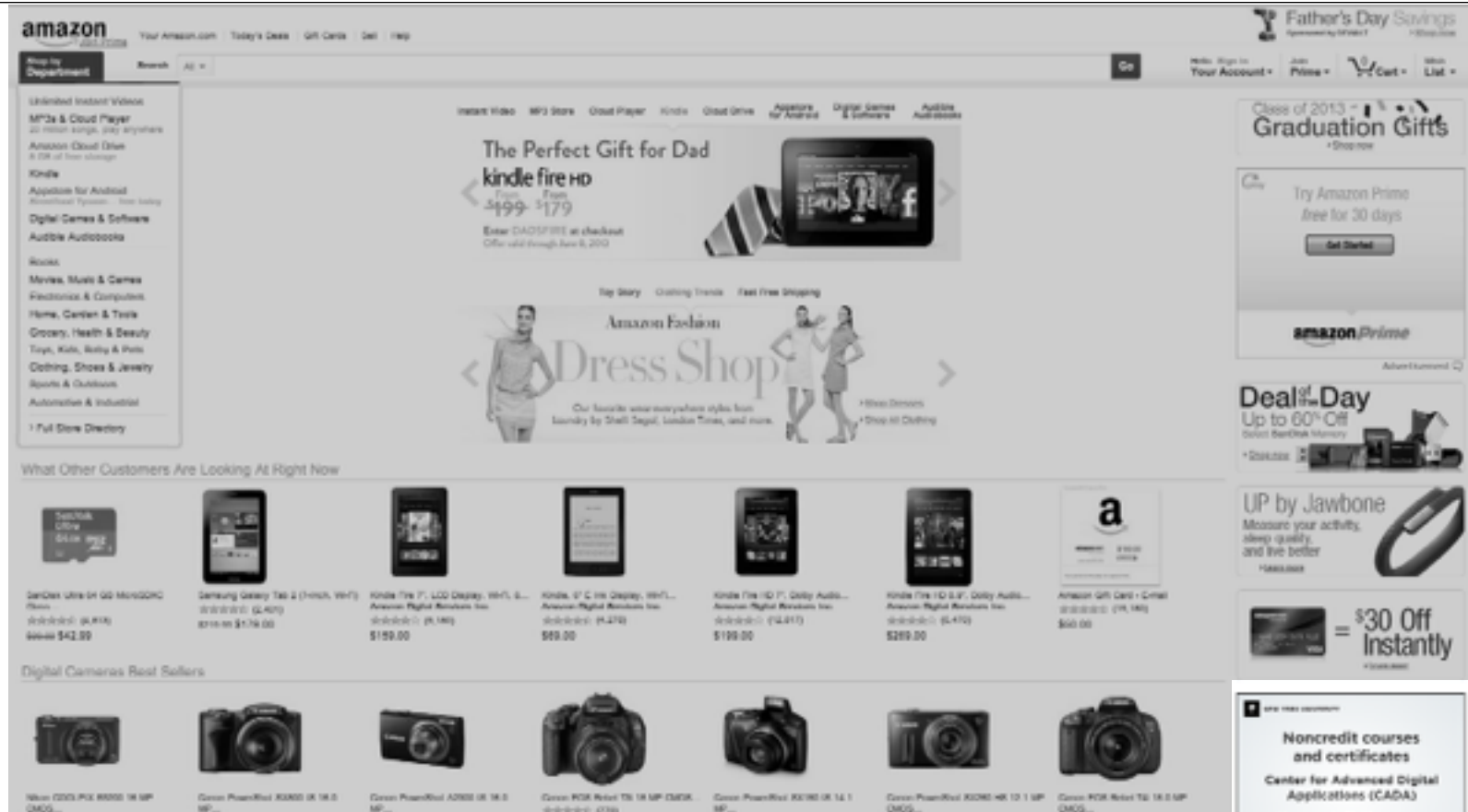
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Roll over image to zoom in

See 1 customer image

Share your own customer images

Star Trek [Blu-ray] (2009)

Chris Pine (Actor), Zachary Quinto (Actor), J.J. Abrams (Director) | Rated: PG-13 | Format: Blu-ray

(2,040 customer reviews)

List Price: ~~$22.98~~
Price: $9.99 & **FREE Shipping** on orders over $25. Details
You Save: $12.99 (57%)

In Stock.
Ships from and sold by **Amazon.com**. Gift-wrap available.

Want it Wednesday, June 5? Order within 20 hrs 11 mins and choose **One-Day Shipping** at checkout. Details

23 new from $9.98 19 used from $9.78 1 collectible from $49.99

Watch instantly with amazon instant video		Rent	Buy
Star Trek (2009)		$2.99	$9.99

Other Formats & Versions		Amazon Price	New from	Used from
Blu-ray	1-Disc Version	$9.99	$9.98	$9.78
DVD	Single-Disc Edition	$8.49	$5.65	$3.29

Quantity: 1

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This week only, save up to 62% on *Farscape: The Complete Series* in our Deal of the Week. Offer ends June 8, 2013. Learn more

Frequently Bought Together

Price for all three: $66.47

Add all three to Cart | Add all three to Wish List

Some of these items ship sooner than the others. Show details

- **This item:** Star Trek [Blu-ray] ~ Chris Pine Blu-ray $9.99
- Star Trek Into Darkness (Blu-ray 3D + Blu-ray + DVD + Digital Copy) ~ Chris Pine Blu-ray $24.99
- Iron Man 3 (Two-Disc Blu-ray / DVD + Digital Copy) ~ Robert Downey Jr. Blu-ray $31.49

What Other Items Do Customers Buy After Viewing This Item?

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(199)
$24.99

Star Trek: Original Motion Picture Collection (Star Trek I, II, III, IV, V, VI + The Captain's Summit Bonus Disc) [Blu-ray] ~ William Shatner Blu-ray
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Sin City (Two-Disc Theatrical & Recut, Extended, and Unrated Versions) [Blu-ray] ~ Jessica Alba Blu-ray
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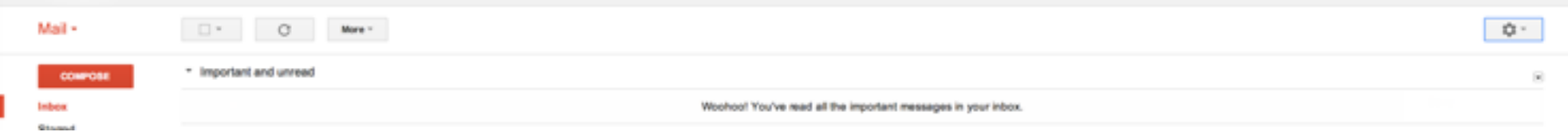
WHO USES DATA SCIENCE?



II. THE DATA SCIENCE WORKFLOW

acquire parse filter mine represent refine interact

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THE DATA SCIENCE WORKFLOW

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- From Jeff Hammerbacher:

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6. Evaluate model
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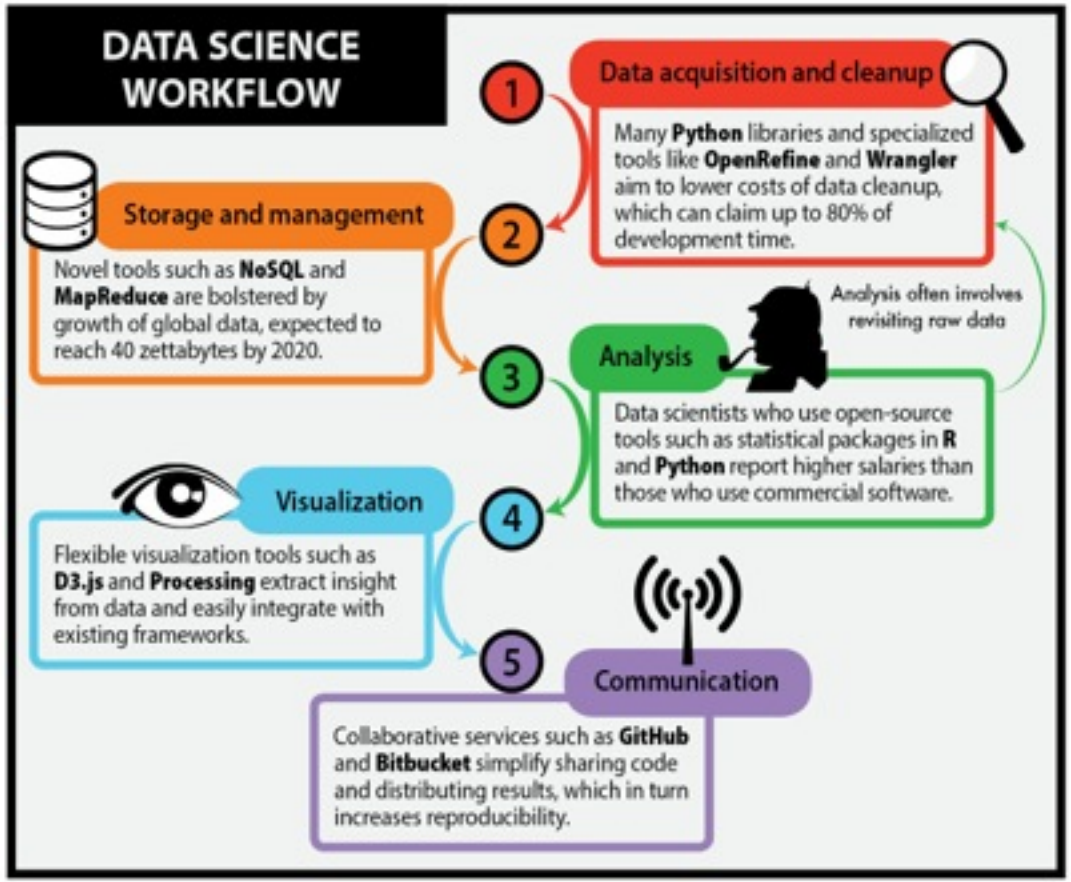
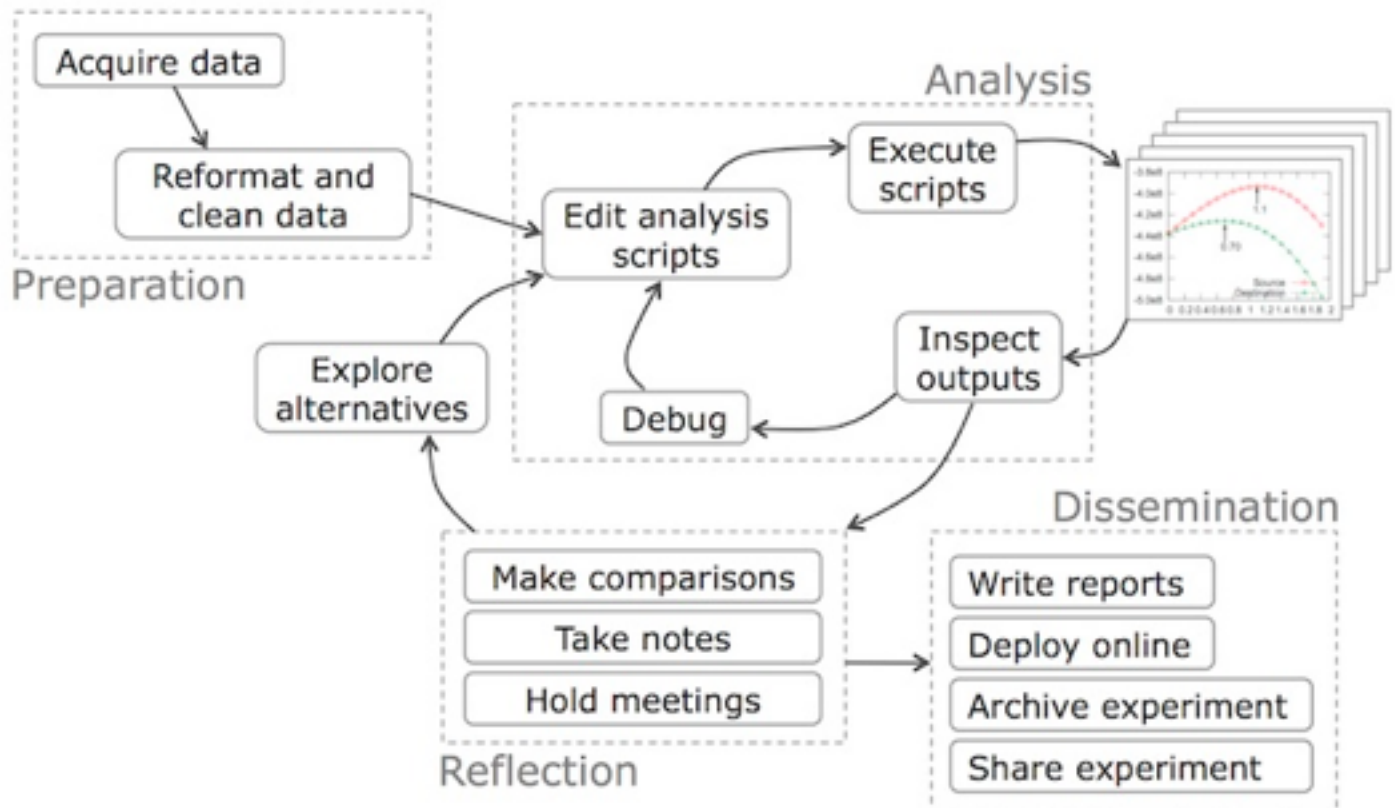
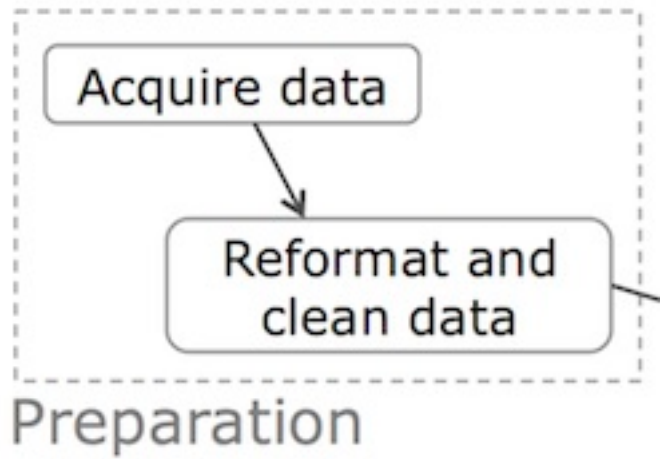
From Dataists Blog

1. Obtain
2. Scrub
3. Explore
4. Model
5. Interpret


DATA SCIENCE WORKFLOW
1
Data acquisition and cleanup
Many Python libraries and specialized tools like OpenRefine and Wrangler aim to lower costs of data cleanup, which can claim up to 80% of development time.
2
Storage and management
Novel tools such as NoSQL and MapReduce are bolstered by growth of global data, expected to reach 40 zettabytes by 2020.
3
Analysis
Analysis often involves revisiting raw data
Data scientists who use open-source tools such as statistical packages in R and Python report higher salaries than those who use commercial software.
4
Visualization
Flexible visualization tools such as D3.js and Processing extract insight from data and easily integrate with existing frameworks.
5
Communication
Collaborative services such as GitHub and Bitbucket simplify sharing code and distributing results, which in turn increases reproducibility.



source: Phillip Guo - BLOG@CACM Data Science Workflow: Overview and Challenge



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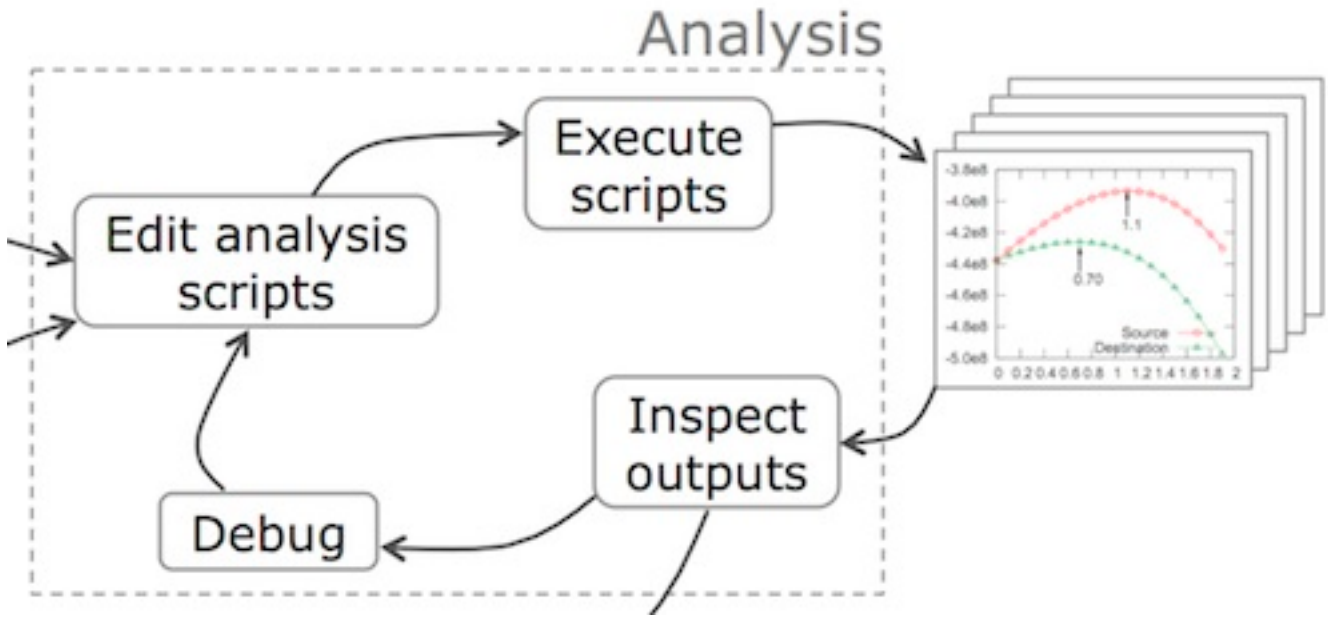

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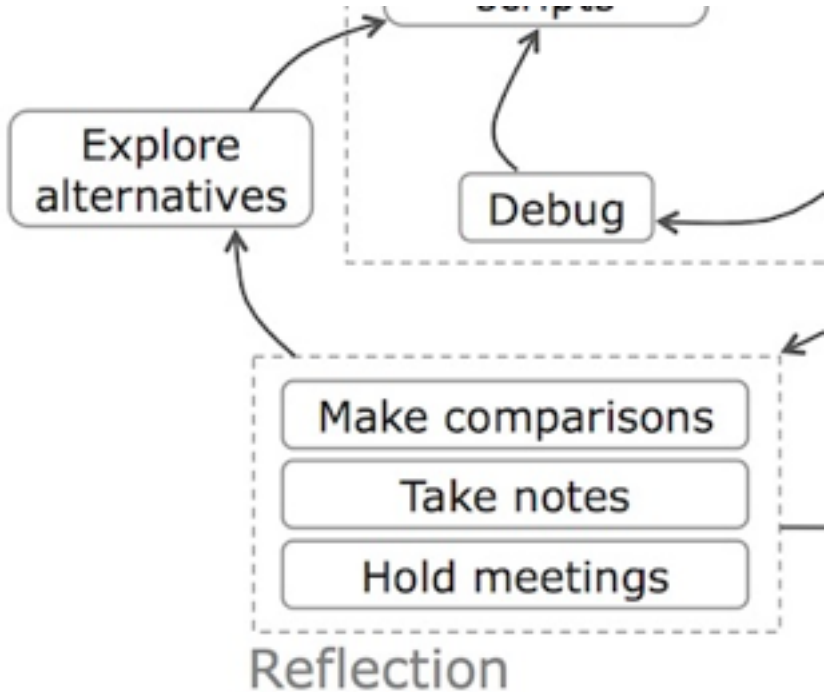

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4. Extract new meaning to predict if user would purchase again
5. Share results (and probably also go back to the drawing board)

Let's build an analytics team:

You are on of the following organizations:

GA, Pinterest, Tesla, Pixar, Blue Bottle Coffee

Answer the following questions:

1. Define the top priorities of the organization
2. What products could you build or studies could you run?
3. What data would you need to collect?
4. What will your top challenges be?

III. WORKING AT THE UNIX COMMAND LINE

LET'S TAKE A LOOK AT THE 538 DATASET

DISCUSSION