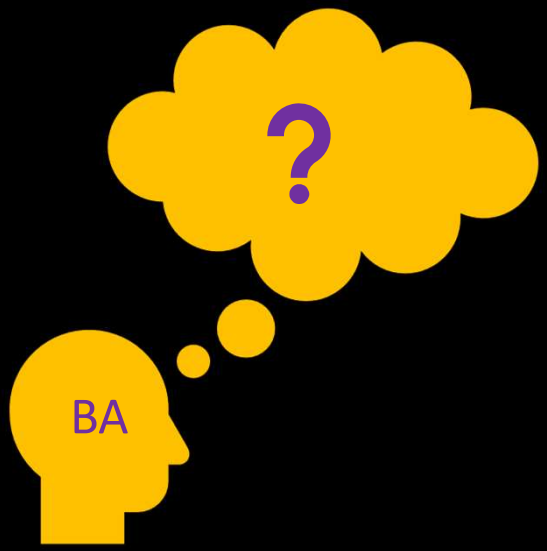
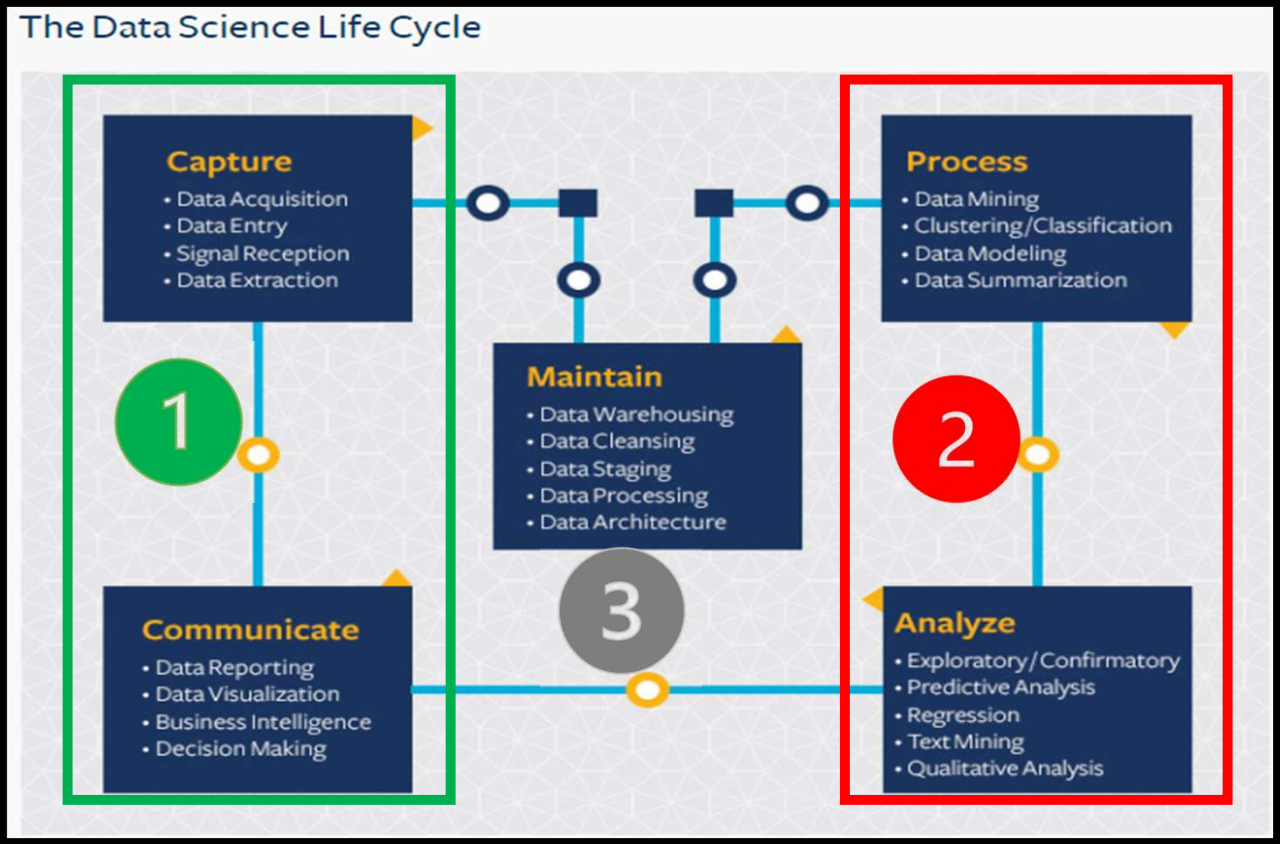
So You Want to Become a Data Scientist, Kinda?

What Comes Next ?

Beyond Analysis Conference
IIBA ATL Chapter
January 23, 2021



Traditional BA Tasks



What is Data Science ?

https://ischoolonline.berkeley.edu/data-science/what-is-data-science/

What is a Data Scientist ?

- " Data scientists are a new breed of *analytical* *data expert* who have the technical skills to solve complex problems – and the curiosity to explore what problems need to be solved. "

https://www.sas.com/en_us/insights/analytics/what-is-a-data-scientist.html

Ingredients:

Data

Be an “Insights Machine”

Domain Knowledge

Algorithms & Statistics

Processes

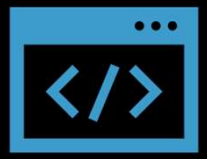
Communication

No Magic Formula, You Define the Roadmap

"If It's to be, then it's up to me."

Agenda

Changing the BA's Mindset



Show and Tell … Key Technologies

Transformation for BAs and Practical Strategies

Changing the BA’s Mindset

BAs 2010 vs. BAs 2021 Mindsets

Criteria	Old School: ”Enterprise Support”	New School: “Data Centric”
Method	“Process Oriented”	“Data-Oriented”
Tools	1-2	Many & Variety of tools / data sets
Deliverable(s)	Traditional report	Innovators with data/game changer
Day-to-Day Focus	Across Enterprise	Functional / Team contributor
Autonomy	Low - Medium	High
Project Management	High & Collaboration	Self-Management

Career Transformation: Case Study

- Accounting Major => CPA => CFO
- CPA => Regulatory Expert (SEC / Sox / IT / Healthcare)
- Regulatory Expert => Entrepreneur / Consultant / Interim Exec
- Consultant => SQL BI Developer / Analyst

Technical Skills

- SQL / MS SQL BI
- ETL (SSIS)
- Data Warehousing
- Visualizations (SSRS, Qlik, MicroStrategy)
- R / Python
- Healthcare Systems / Domain Knowledge

- Director / CIO
- CIO => Product Manager
- Data Scientist / Product Data Scientist

“Ingredients” to Transformation

INTELLECTTUAL CURIOUSITY

PERSEVERANCE

PASSION

OPPORTUNITIES

PROBLEM SOLVER

ANALYTIC ABILITIES

STRATEGIST & TACTICIAN

“ UNDERDOG”

Career Paths of BAs vs. Data Professionals

" Bridging the Gap"

Traditional BA Careers

- Other functional areas
- Entry / Junior Business Analyst
- Senior Business Analyst
- Product Analyst / Owner
- Project / Program Manager
- Scrum Master
- Middle / Executive Management

Traditional Data Careers

- College / Self Taught IT / Designer
- Junior Data Analyst / Developer
- Senior Data Analyst / Developer
- Business Intelligence Developer
- Manager of Reporting / Analytics
- Director / VP Analytics
- Middle / Executive Management

Leverage the Skills You Have

ANALYTICAL MIND

DOMAIN KNOWLEDGE

PROBLEM SOLVING

CURIOSITY

LEADERSHIP / INITIATIVE

INTERPERSONAL SKILLS

Lessons Learned

Career change is hard, scary and frustrating.

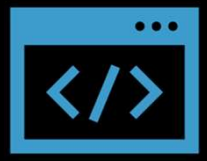
Understand your limits and strengths.

Technical skills are developed with practice, consistency and initiative.

Deadlines are great motivators, use them to your advantage.

There is no finish line, be lifelong learner.

Success is not binary, it's a continuum.

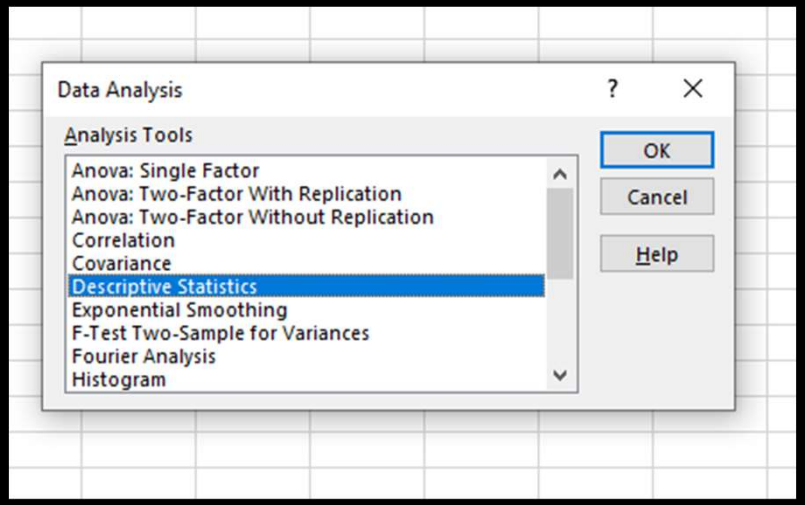


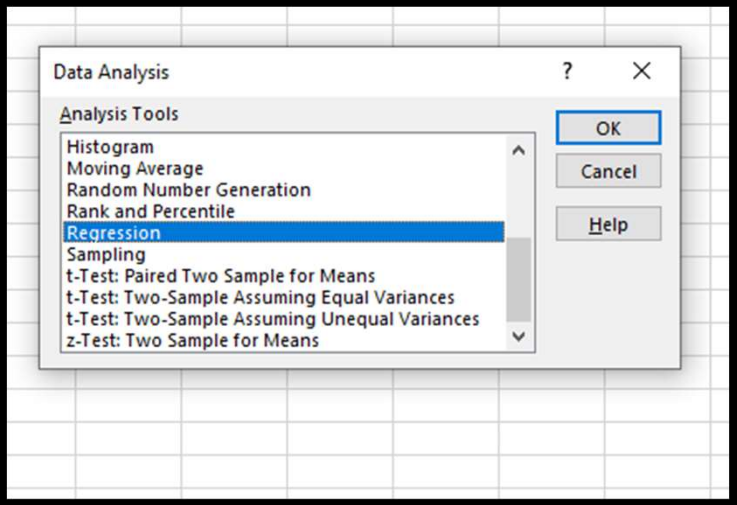
Show and Tell …
Key Technologies

Data Tools and Purpose

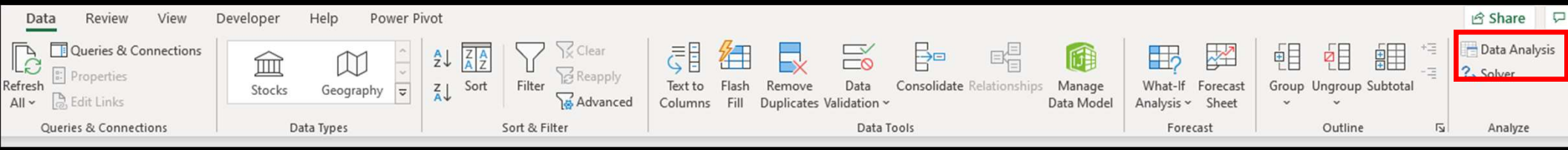
Tool	Familiarity	Sophistication	Purpose
Microsoft Excel	H	L - M	All Purpose
SQL Tools	L – M	M	Query data sets
E.T.L. / Data Warehouse	L – M	M – H	Extraction / Manipulation
Statistical / Development	L	M – H	“True” Analytics
Visualizations	M - H	L - M - H	Communication

Did You Know ? Excel used for Data Science !





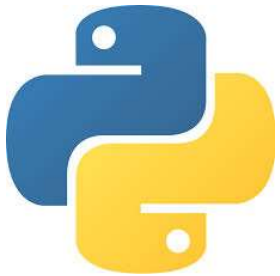
Using the **Data Analysis** Tab, you can perform basic statistical functions.



snowflake®

Google Cloud

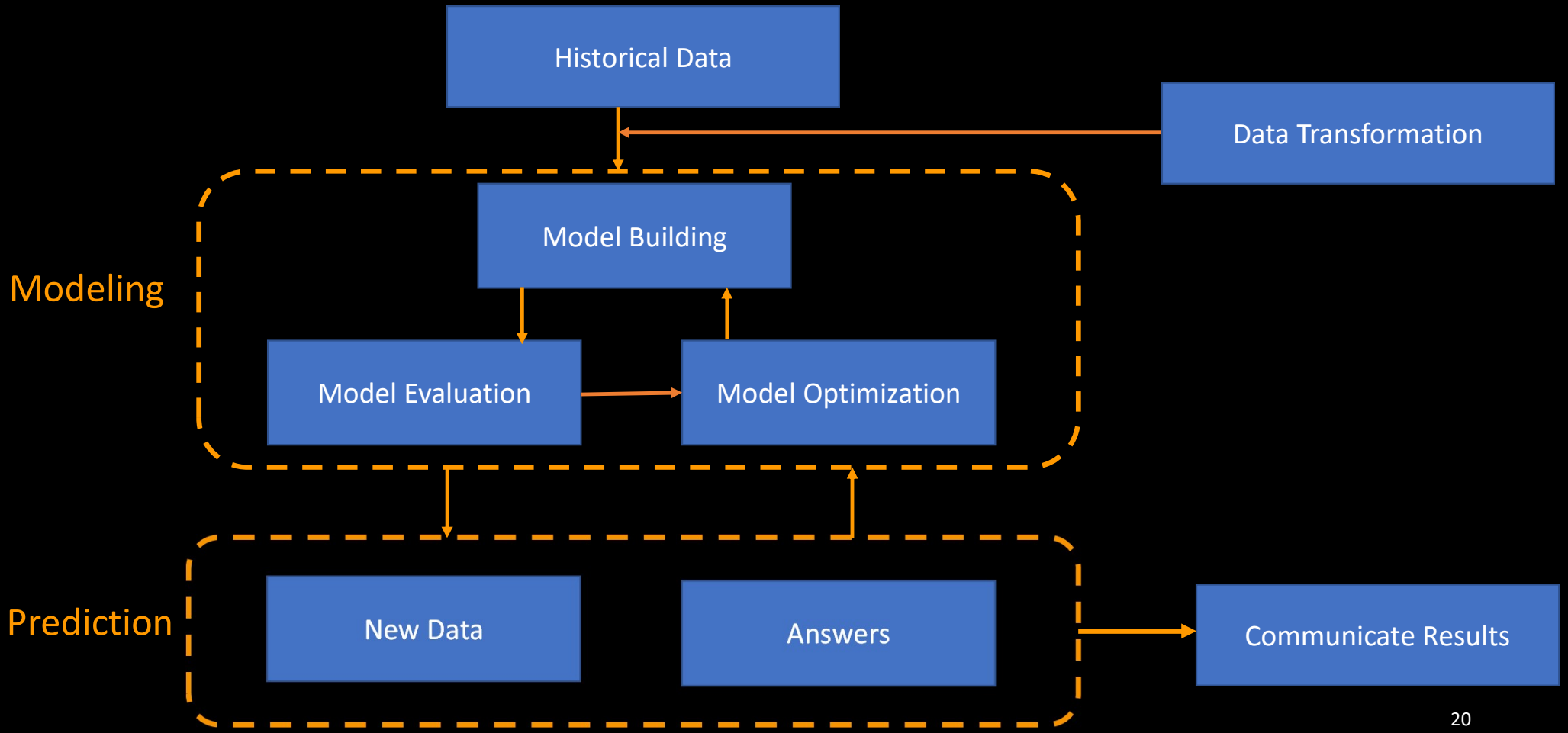
Data Warehouse Tools



Statistical Development Tools

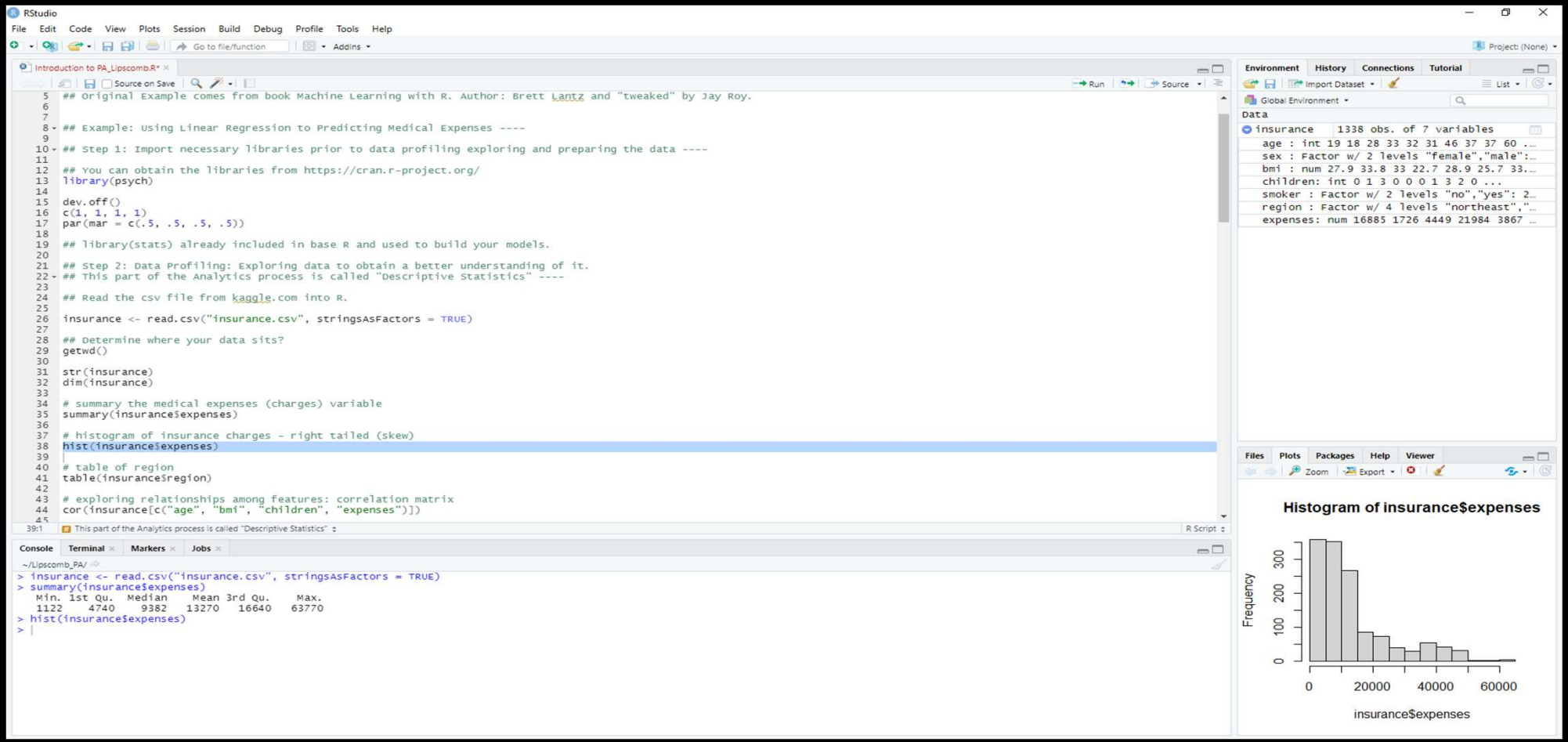
Integrated Development Environment Tools

Machine Learning Workflow – What D.S. does



Show and Tell

Example of Running RStudio IDE



Case Study: Predicting Medical Costs

Scenario:

- You are the new Chief Data Scientist at "Nashville Health Plan"
- CEO requests you revitalize the profitability of this organization by identifying high-cost patients and predicting future costs.
- Your new team will present its findings at executive strategy meeting.

Questions:

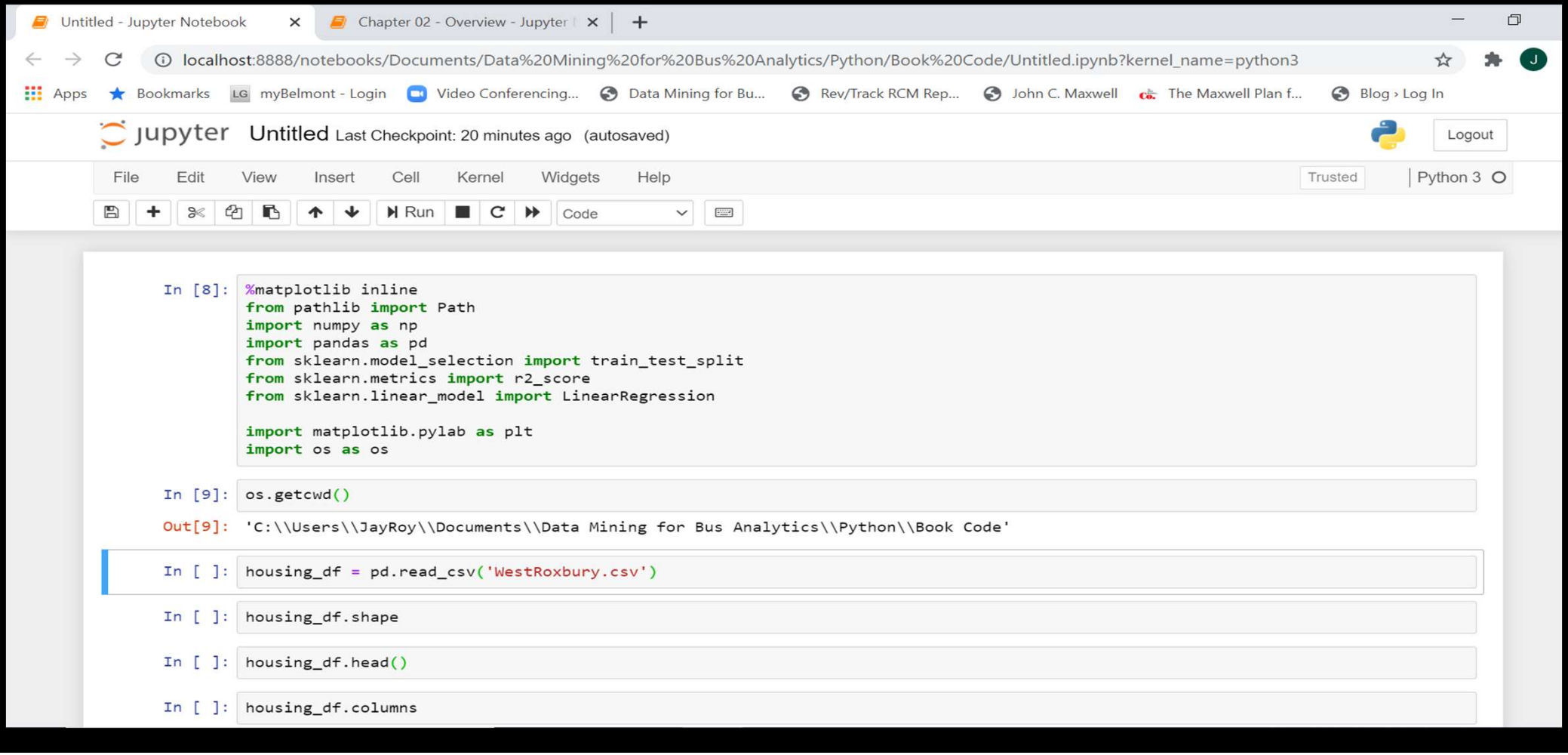
1. How do you attack the problem?
2. What statistical tools could you use?
3. How do I explain this in a manner that my audience can consume?

Show and Tell: Python

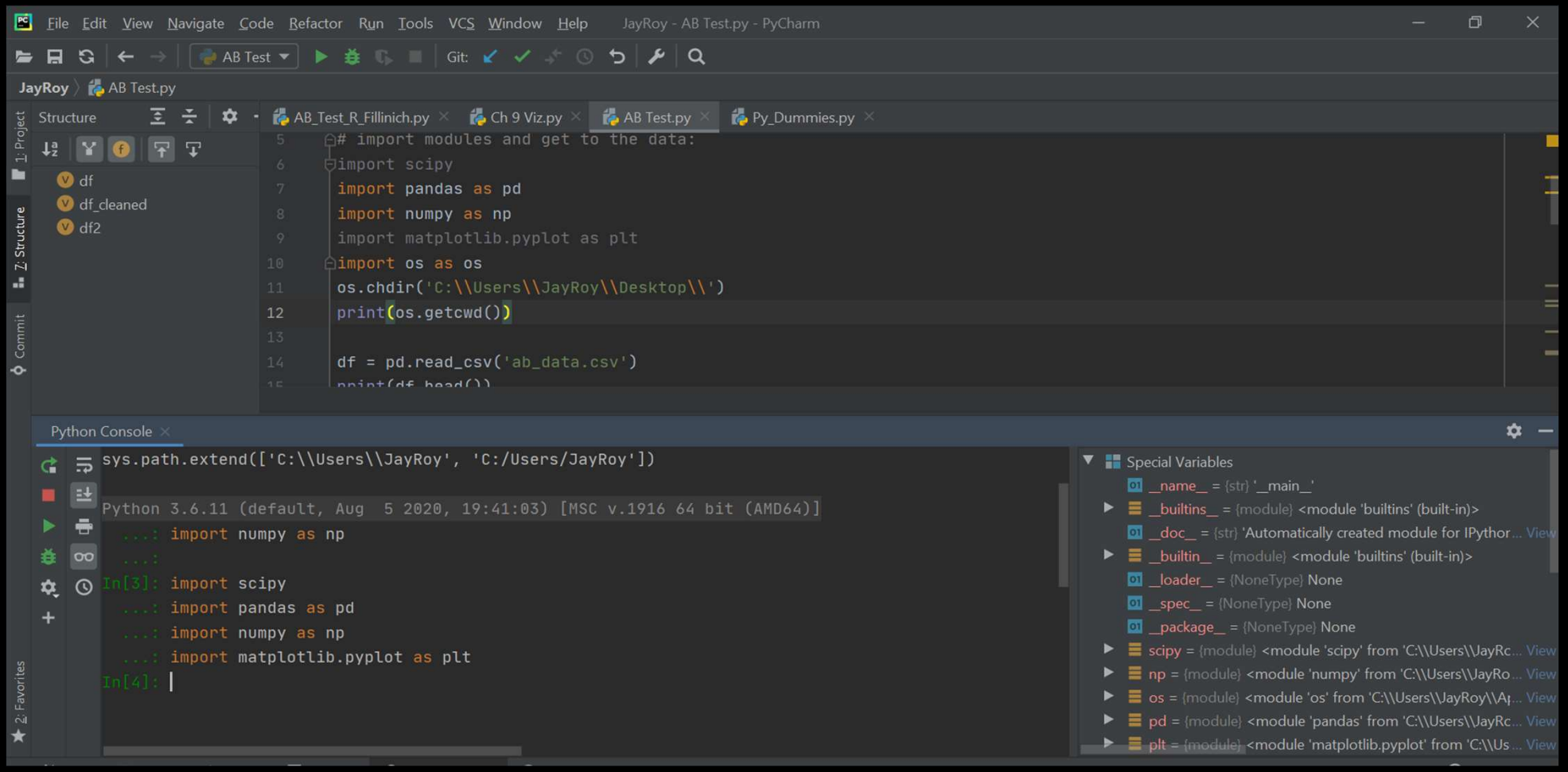
Key Concepts:

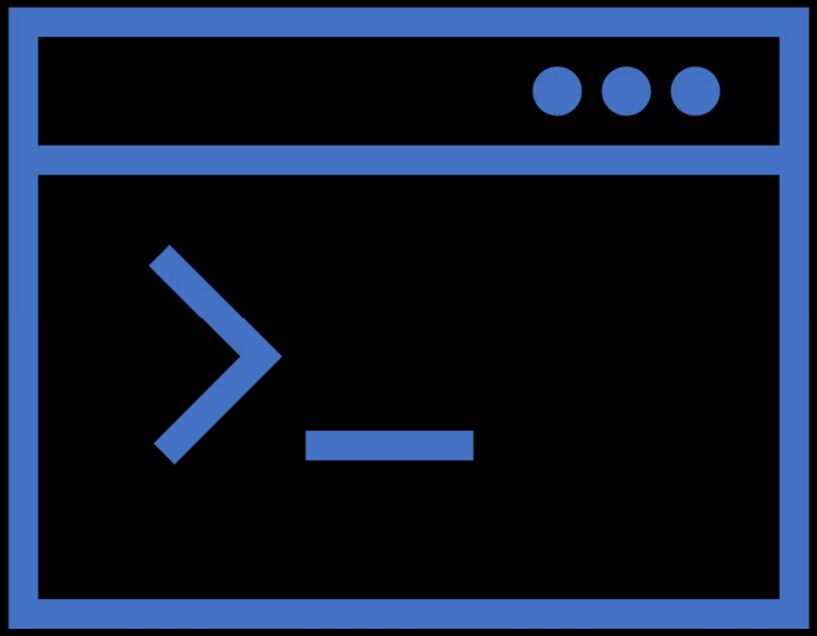
- IDE – PyCharm vs Spyder vs. Jupyter Notebook
- How an IDE works and navigation in Pycharm
- Data Structures
- Modules
- Methods/Functions
- Objects
- Dot notation and attributes
- Python vs R programming (similarities and differences)

Example of Running Jupyter Notebook IDE



Example of Running Pycharm IDE





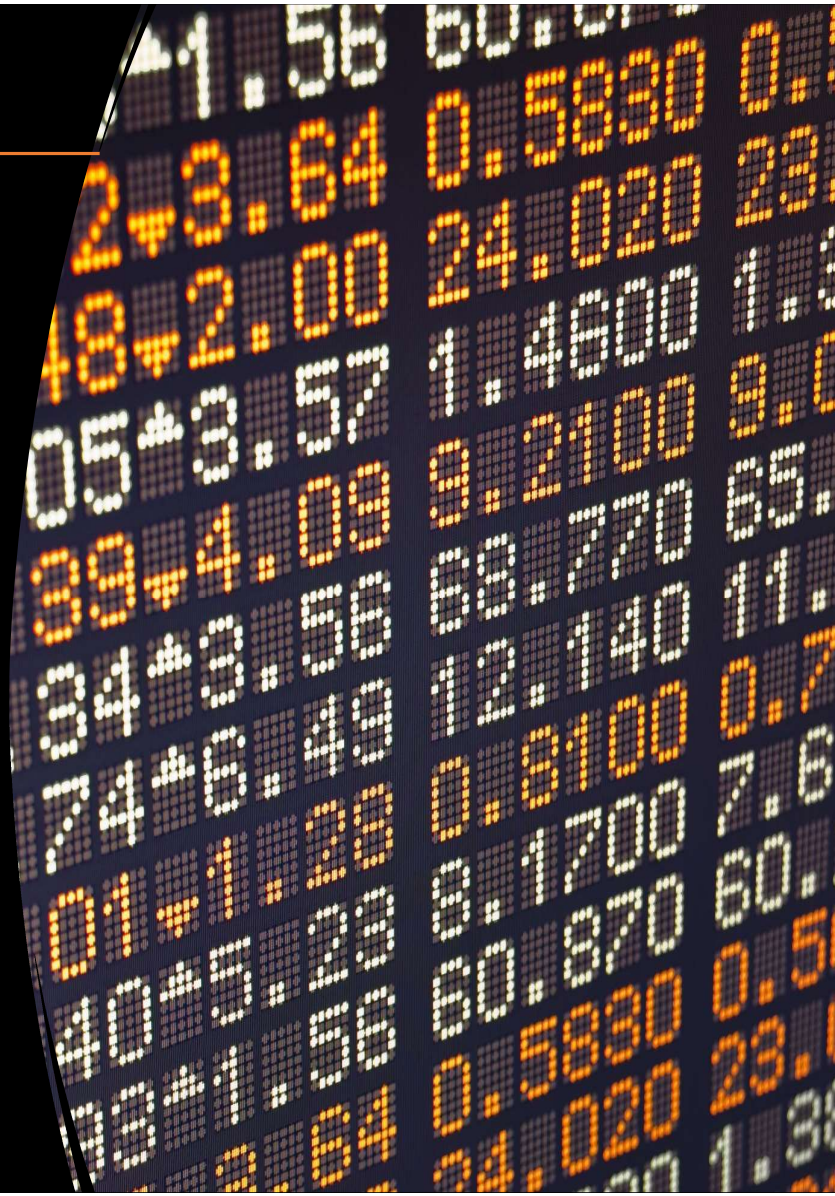
What Tool to Start With?

- What type of analyses interest you?
- Ease of Use.
- Ramp up time.
- Computer Literacy knowledge.
- Industry / Location.
- No perfect solution, just begin.

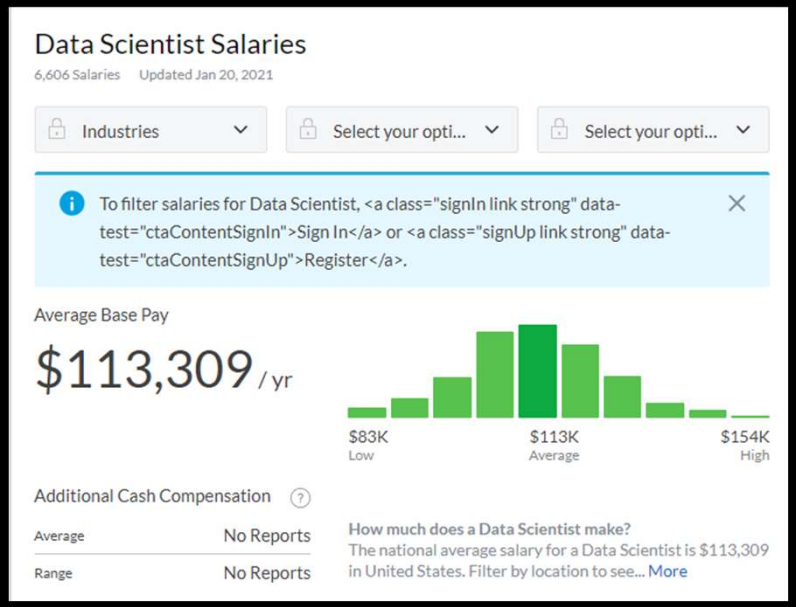
Transformation for BAs and Practical Strategies

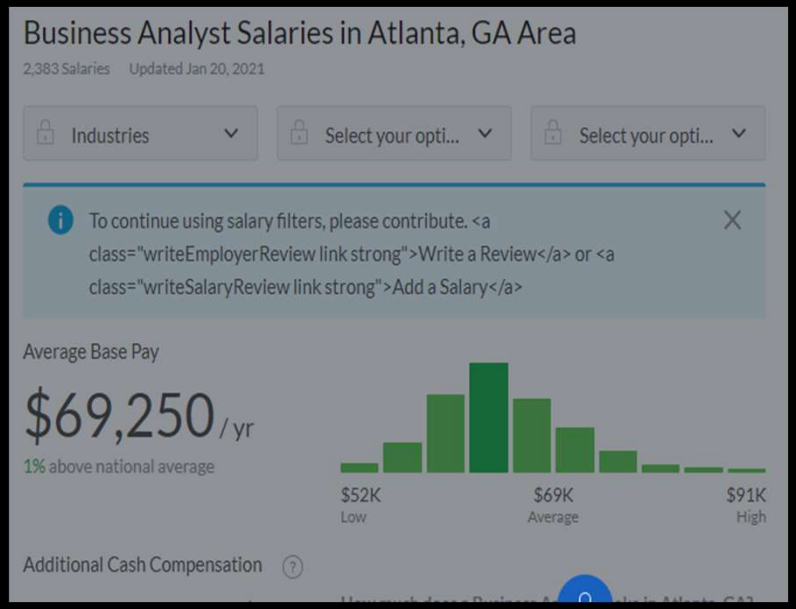
Why Transform to “ Data Side ” ?

1. Data is the “ New Oil ”
2. Job and Wage Compression.
3. World is Changing Too Fast. Don’t wait!
4. Job Growth and Opportunities Abound.
5. Best Time Ever! Really!



Did You Know … Data Scientist Salary is ?





Difference of $ 43,000. – You could buy a couple pairs of shoes / nice car!

How to Transform ? Suggestions …

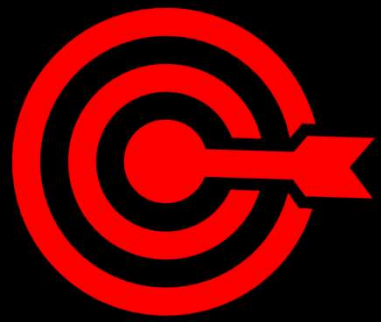
1. Deal with your “Challenges” or “Excuses”.
2. Figure out how you best learn.
3. Ask Lots of Questions. Some even Silly. ☺
4. Partner with others @ your level or higher.
5. Choose – “Start Small” or “Go Big”.

Data Science is not for everyone,
but you can find a place given your talents.

Lessons Learned and Revisited

When Learning Good Days & Bad Days.

Technical skills are developed with practice, consistency and initiative.



Deadlines are great motivators, use them to your advantage.

Success is not binary, it’s a continuum.

Where do I Start ?

ENVISION THE AREA OF YOUR EXPERTISE

LEARN BY DOING

START DABBLING BY INSTALL AN IDE

USE EXCEL DATA SCIENCE FUNCTIONS.

BRUSH UP ON STATS PROBABILITIES

PERFORM BASIC SQL QUERIES

FAMILIAR WITH STATISTICAL VISUALIZATIONS

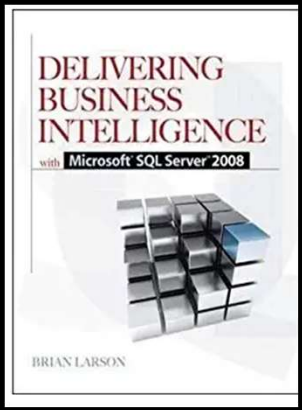
Types of Resources to Help You Transform

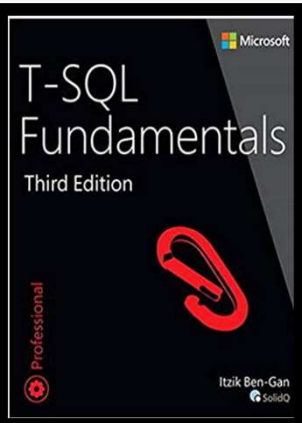
- Books
- Variety of MOOCs
- Tutorials / Blogs
- Conferences / Meetup / User Groups
- Ask your developers at your company
- College Continuing Ed classes.
- Coding Bootcamps
- Github – search author's repository for code / examples.
- Search government sites like data.gov

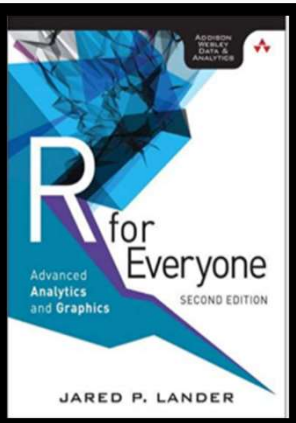
Resources used in my Journey

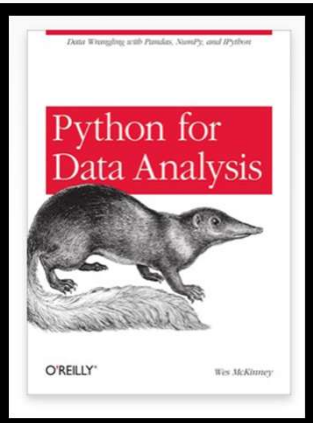
Medium

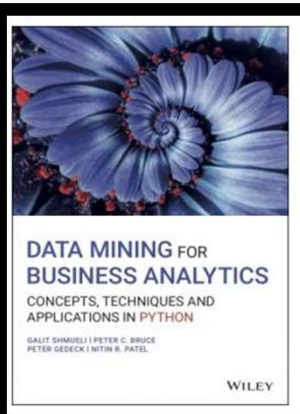
stackoverflow

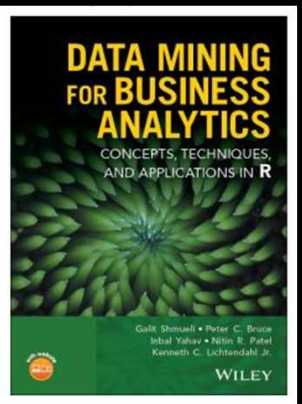












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Github:
https://github.com/jayroy1/Beyond-Analysis-Conference-ATL

- CIO / CFO / CPO
- Product Data Scientist
- Health Tech Entrepreneur
- Educator / Mentor