

Analytics Programs at Simon

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The Pull Model

FROM RECRUITERS → LEARNING GOALS → STUDY PLAN & ADMISSIONS PROFILE

Recruiter Roundtable January 2014 NYC



What we learned...

Data Wrangling

- Integration
- Cleaning, Re-coding, and Transformation
- Filtering

Data Exploration and Visualization

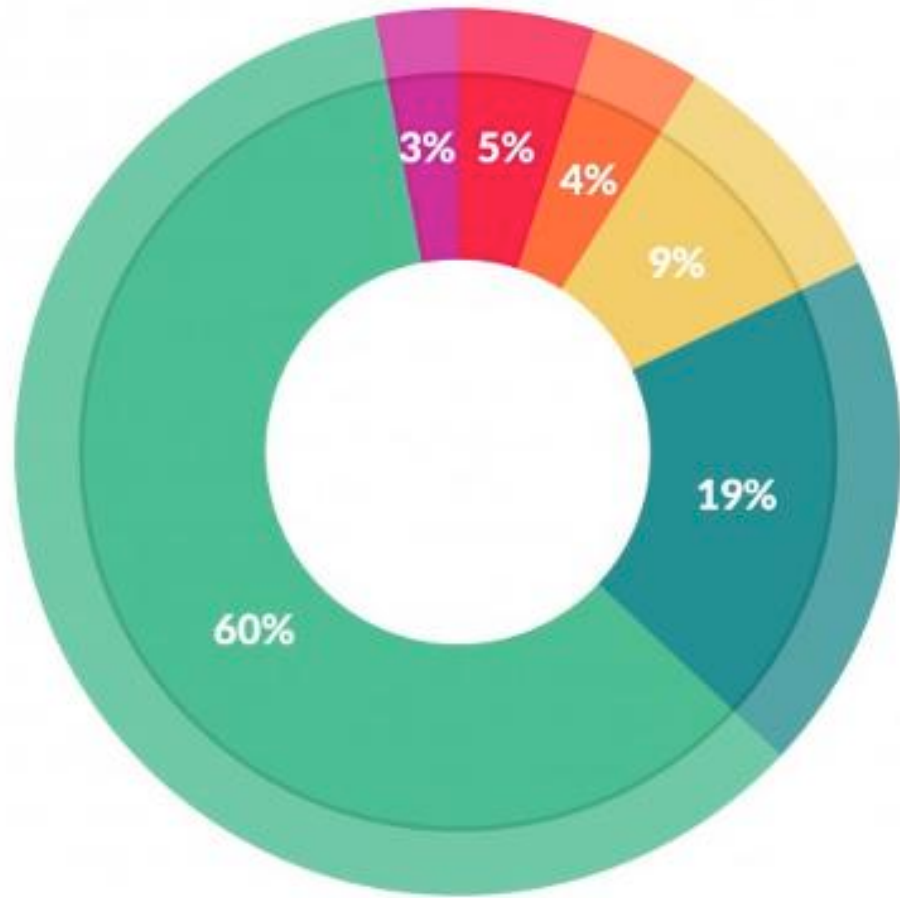
- Feature selection and generation
- Understand the scope of and basic patterns in the data
- Descriptive analytics

Predictive Modeling

- Diverse toolkit, model tuning, avoiding overfitting
- Understand the limits and risks of predictions

Visualize models, predictions, results

- Client presentations

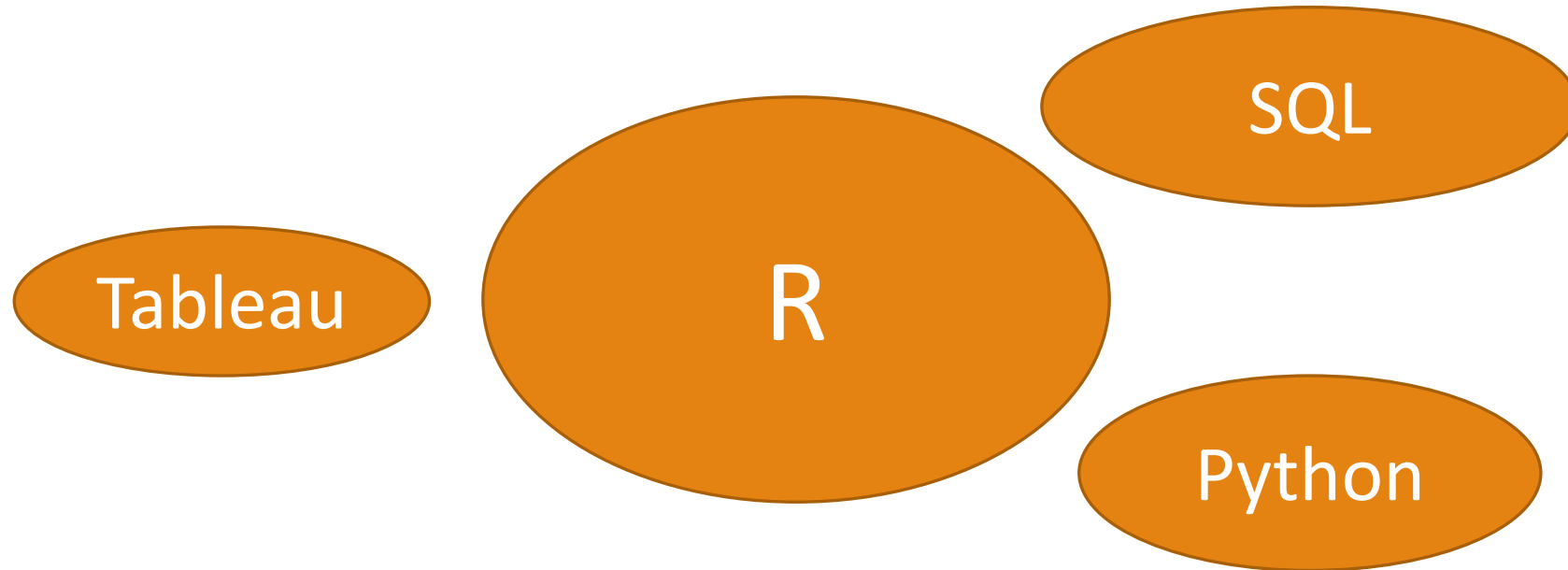


What data scientists spend the most time doing

- Building training sets: 3%
- Cleaning and organizing data: 60%
- Collecting data sets; 19%
- Mining data for patterns: 9%
- Refining algorithms: 4%
- Other: 5%

Forbes Magazine March 2016

Toolkits



What we came up with...

	MS in Business Analytics	MS in Marketing Analytics
Pre-Fall	Economics and Marketing & Programming for Analytics (R)	
Fall	Statistics (R) & Intro to Bus Analytics (Tableau, SQL, R)	
	Finance and Accounting or Data Management	Pricing
Winter	Marketing Analytics (R)	
	Advanced Business Analytics (Python)	Marketing Research (R)
	Big Data (Hadoop, Spark, R, Python)	Digital Marketing (R) or Advanced Pricing (R)
	Practicum	
Spring	Practicum continued & Social Media Analytics (R)	
	Adv. Marketing Analytics (R) or Adv. Bus Modeling or Supply Chain Analytics	Pricing Analytics (R) or Adv. Bus Modeling
All Terms	Business Communication	

Introduction to Business Analytics

Descriptive Analytics

- Tableau worksheets and dashboards;
- R plotting and descriptive methods
- Text data

SQL data retrieval (including joins and subqueries)

Supervised Predictive Models

- Trees,
- Naïve Bayes,
- Neural Nets (IBM Watson)

Evaluation of Models

- Errors, statistics, ROC curves

How to avoid overfitting

- Bias variance tradeoff, hold out samples, cross-validation

Unsupervised models

- Dimension reduction using Principal Components Analysis
- Clustering

Tableau Stories

Advanced Business Analytics

Python

Data analytics with Python:

- Data cleaning, and
- data wrangling
- Pandas module

Data visualization using

- numpy, and matplotlib.

Parallel computing and Google cloud platform;

Modeling learning problems with Python Algorithms:

- SVM,
- Ensemble methods,
- Page rank,
- recommendation systems,
- Clustering and mixture models,
- Association rules