

Stock Analyzer x + 127.0.0.1:4638

Stock Analyzer Analysis

Welcome, User One

Stock Analyzer by Business Science

This is the first mini-project completed in our Expert Shiny Applications Course (DS4B 202-R)

Favorites

- GOOG 40-Day vs 120-Day
- NFLX 40-Day vs 120-Day
- ADBE 40-Day vs 120-Day
- CSCO 40-Day vs 120-Day

Show/Hide Clear Favorites



R + Shiny + AWS
Empower your organization to make decisions at scale with the cloud

Apply & Save 2018-01 2018-07 2019-01 2019-07

Compute

- Amazon Elastic Compute Cloud (Amazon EC2)
Amazon EC2 Instance Instances AMI DB on Instance with CloudWatch Static IP Amazon Elastic MapReduce Cluster HDFS Cluster AutoScaling
- Amazon Simple Storage Service (Amazon S3) Amazon S3 Bucket Bucket with Objects Object Storage

Database

- Amazon DynamoDB
DynamoDB Table Item Items Attribute Attributes Amazon RDS RDS DB Instance RDS DB Instance (Multi-AZ) RDS DB Instance Read Replica MySQL DB Instance ORACLE DB Instance
- Amazon Relational Database Service (Amazon RDS)

Networking

- Amazon Route 53
Amazon Hosted Zone Route Table
- Amazon Elastic Load Balancing
- AWS Direct Connect
- Amazon Virtual Private Cloud (VPC)
Amazon VPC Router Internet Gateway Customer Gateway VPN Gateway VPN Connection

Amazon Simple Workflow (SWF)

- Amazon SWF Decider Worker Amazon SWF Email Notification

Monitoring

- Amazon CloudWatch
CloudWatch Metrics CloudWatch Logs CloudWatch Metrics Insights CloudWatch Metrics CloudWatch Metrics Insights

Non-Service Specific

- AWS Cloud AWS Management Console User

Compute

- Amazon Elastic Compute Cloud (Amazon EC2)
Amazon EC2 Instance Instances AMI DB on Instance with CloudWatch Static IP Amazon Elastic MapReduce Cluster HDFS Cluster AutoScaling
- Amazon Simple Storage Service (Amazon S3) Amazon S3 Bucket Bucket with Objects Object Storage

Database

- Amazon DynamoDB
DynamoDB Table Item Items Attribute Attributes Amazon RDS RDS DB Instance RDS DB Instance (Multi-AZ) RDS DB Instance Read Replica MySQL DB Instance ORACLE DB Instance
- Amazon Relational Database Service (Amazon RDS)

Networking

- Amazon Route 53
Amazon Hosted Zone Route Table
- Amazon Elastic Load Balancing
- AWS Direct Connect
- Amazon Virtual Private Cloud (VPC)
Amazon VPC Router Internet Gateway Customer Gateway VPN Gateway VPN Connection

Amazon Simple Workflow (SWF)

- Amazon SWF Decider Worker Amazon SWF Email Notification

Monitoring

- Amazon CloudWatch
CloudWatch Metrics CloudWatch Logs CloudWatch Metrics Insights CloudWatch Metrics CloudWatch Metrics Insights

Non-Service Specific

- AWS Cloud AWS Management Console User

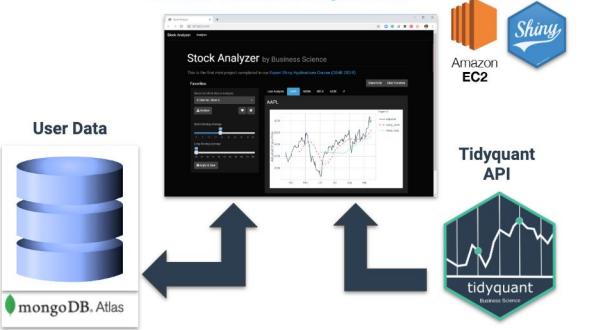
Matt Dancho & David Curry
Business Science Webinar



Agenda

Application Architecture

Course DS4B 202A-R
For Data Scientists & Programmers



- **Business Changes**
 - Predictive Apps
 - Cloud Technologies
- **Change #1**
 - Predictive Apps
- **Change #2**
 - Cloud Service
- **3 Technologies & Demos**
 - Frontend
 - Backend
 - Deployment
- **Learning Made Simple**
 - Shiny Developer with AWS Course





Businesses are Shifting To

Predictive Web Applications Using Cloud Technologies

#DataDemocratization
#AtScale

Change #1

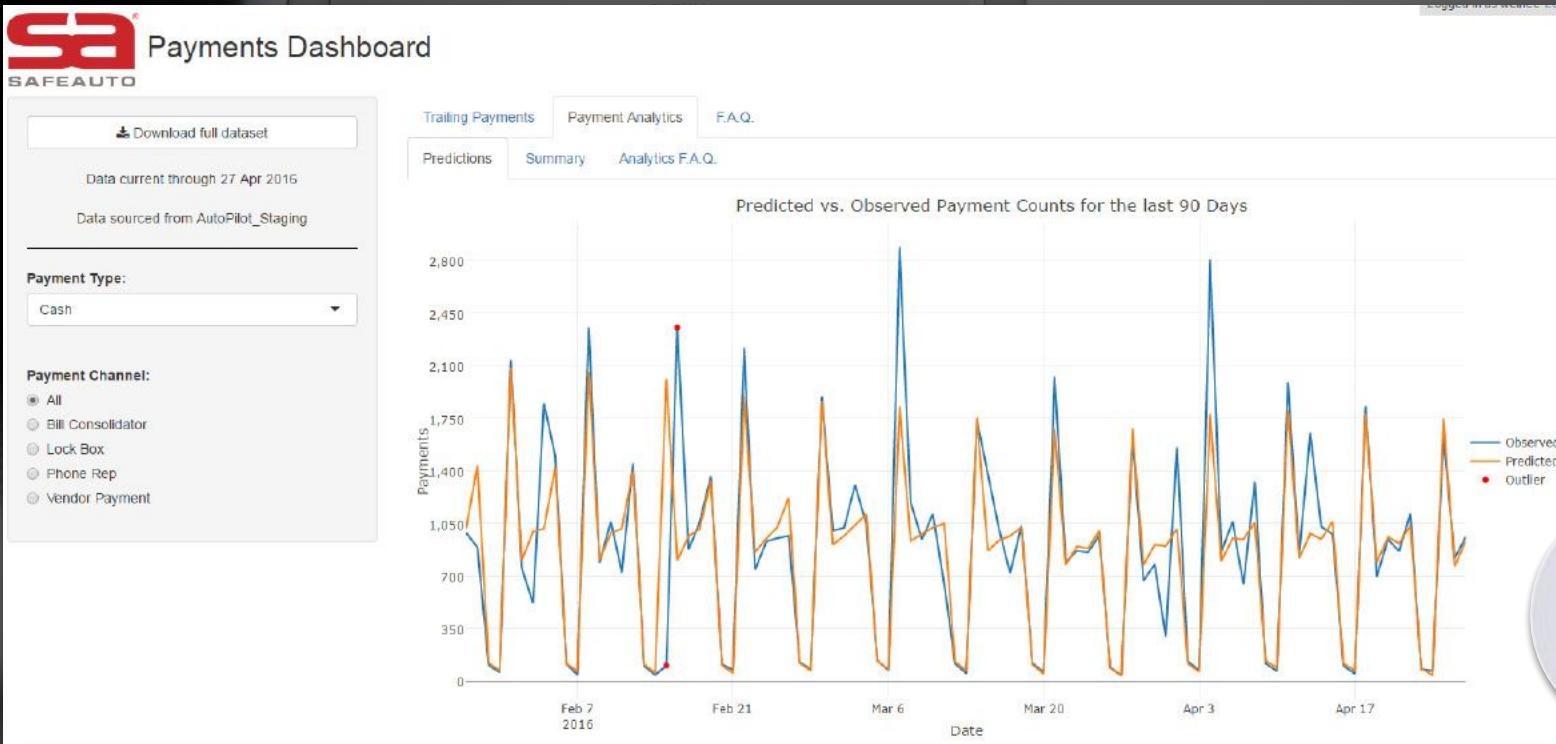
The Shift To Predictive Apps

Data Science is Changing

To Predictive Web Apps



ML-App that identifies anomalous payments





RStudio gave us what we need to deliver data science applications that our business depends on."

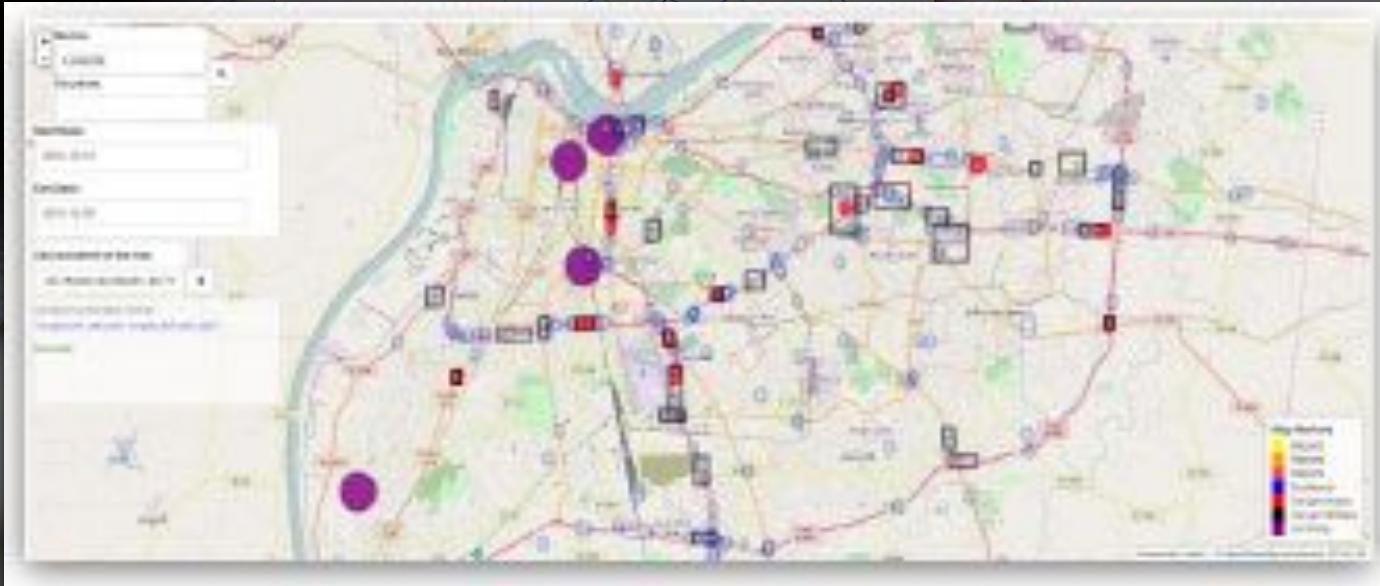
- John Kish, CIO at SafeAuto Insurance

LINE ITEMS	16.15 M\$	LINE ITEMS	13.5 M\$	LINE ITEMS	13.00 M\$
SHIPPING	0.15 M\$	SHIPPING	0.2 M\$	SHIPPING	0 \$
TAXES	0%	TAXES	0%	TAXES	0%
TOTAL	16.3 M\$	TOTAL	13.7 M\$	TOTAL	13.00 M\$





ML-App that performs Traffic Analysis





“Shiny dashboard and visualization development allowed the fastest time to market.”

- Daniel Marcus, Google, Waze Data Wizard

LINE ITEMS	16.15 M\$	LINE ITEMS	13.5 M\$	LINE ITEMS	13.00 M\$
SHIPPING	0.15 M\$	SHIPPING	0.2 M\$	SHIPPING	0 \$
TAXES	0%	TAXES	0%	TAXES	0%
TOTAL	16.3 M\$	TOTAL	13.7 M\$	TOTAL	13.00 M\$



Change #2

The Shift To Cloud Services

Infrastructure is Changing To Cloud Services

Servers On
Premise

(Costly to Scale)

Servers as a
Service

(AWS, Azure, GCP)

Microsoft snags hotly contested \$10 Billion defense contract, beating out Amazon

JEDI contract worth up to \$10B over 10 years

*"The contract will provide the Pentagon with **cloud services** for basic storage and power all the way up to **artificial intelligence, machine learning, and the ability to process mission-critical workloads.**"*

TOTAL INCOME	
LINE ITEMS	16.15 MS
SHIPPING	0.15 MS
TAXES	0%
TOTAL	16.3 MS

LINE ITEMS	
SHIPPING	0.2 MS
TAXES	0%
TOTAL	13.7 MS



Microsoft CEO Satya Nadella speaks at the Digital-Life-Design conference in Munich, Germany, on January 16, 2017.
Tobias Hase/dpa / Getty Images

Microsoft has emerged victorious in a dramatic competition for public cloud resources for the U.S. Defense Department, beating out market leader **Amazon** Web Services, the Pentagon said on Friday. The contract could be worth as much as \$10 billion over a decade, according to a [statement](#).

Microsoft stock rose as much as 3% in extended trading after the announcement, and Amazon stock dipped less than 1%.

SHARE Microsoft wins \$10 billion JEDI contract, beating out Amazon

working world

TRENDING NOW



US GDP rose a better-than-expected 1.9% in the third quarter as the consumer continued to spend



'House of the Dragon': HBO confirms 10 episodes of 'Game of Thrones' prequel



General Electric shares jump after earnings beat, company raises 2019 cash flow forecast



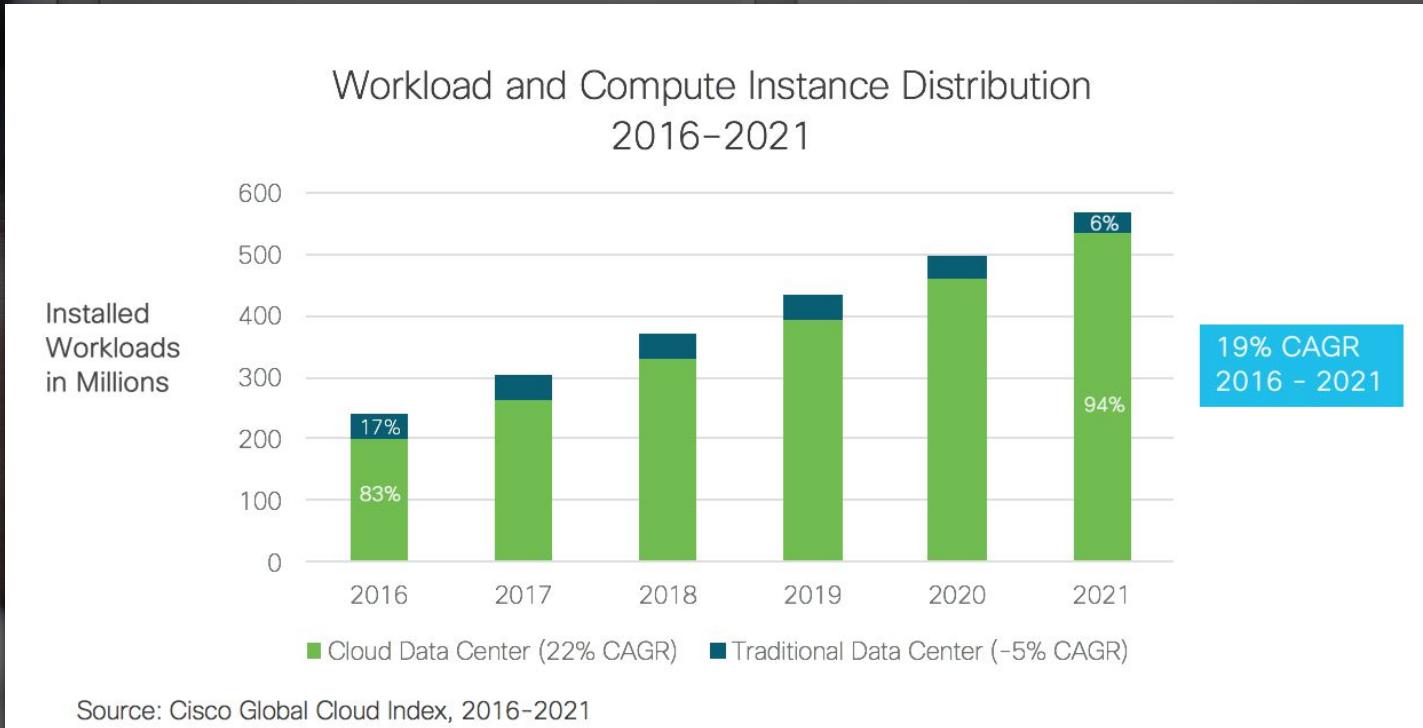
Goldman analyst after GrubHub's 40% plunge: 'We got this wrong'



The wrong kind of stocks are leading the stock market to records

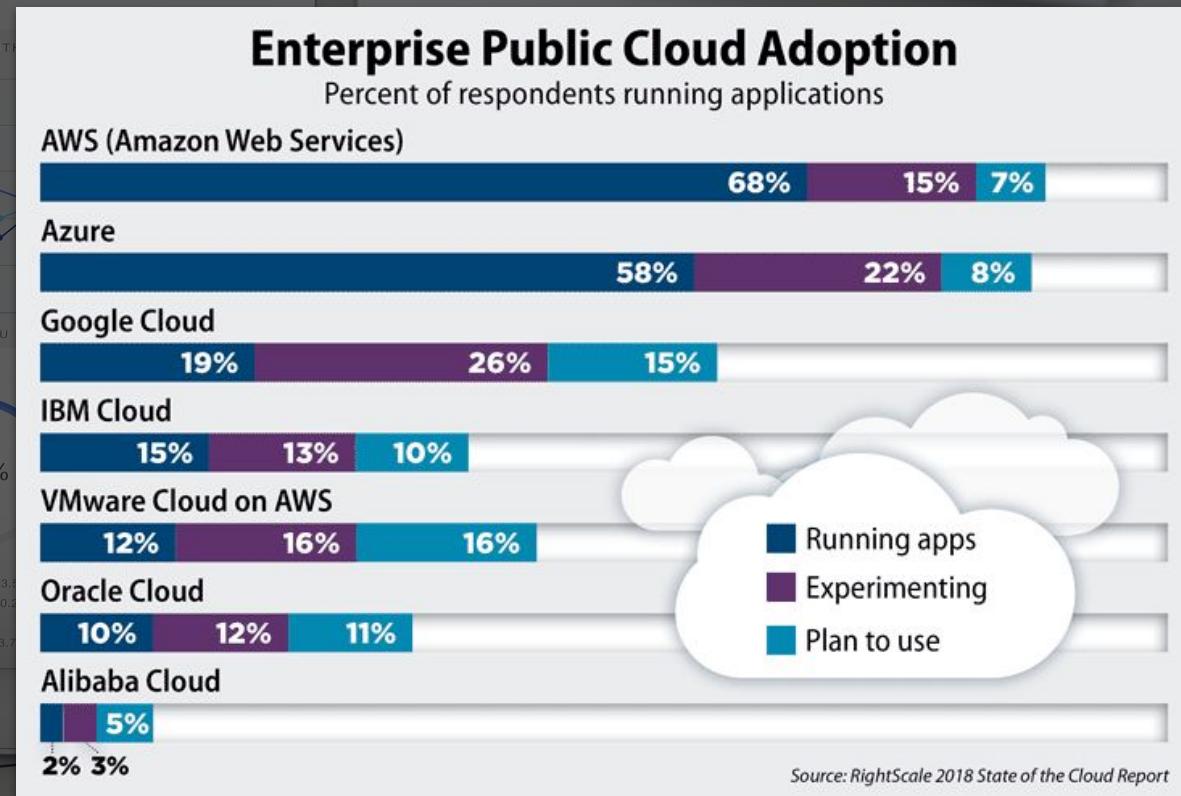
Global Cloud Index

22% Annual Growth Rate vs -5% Data Center Growth



Cloud Players at a Glance

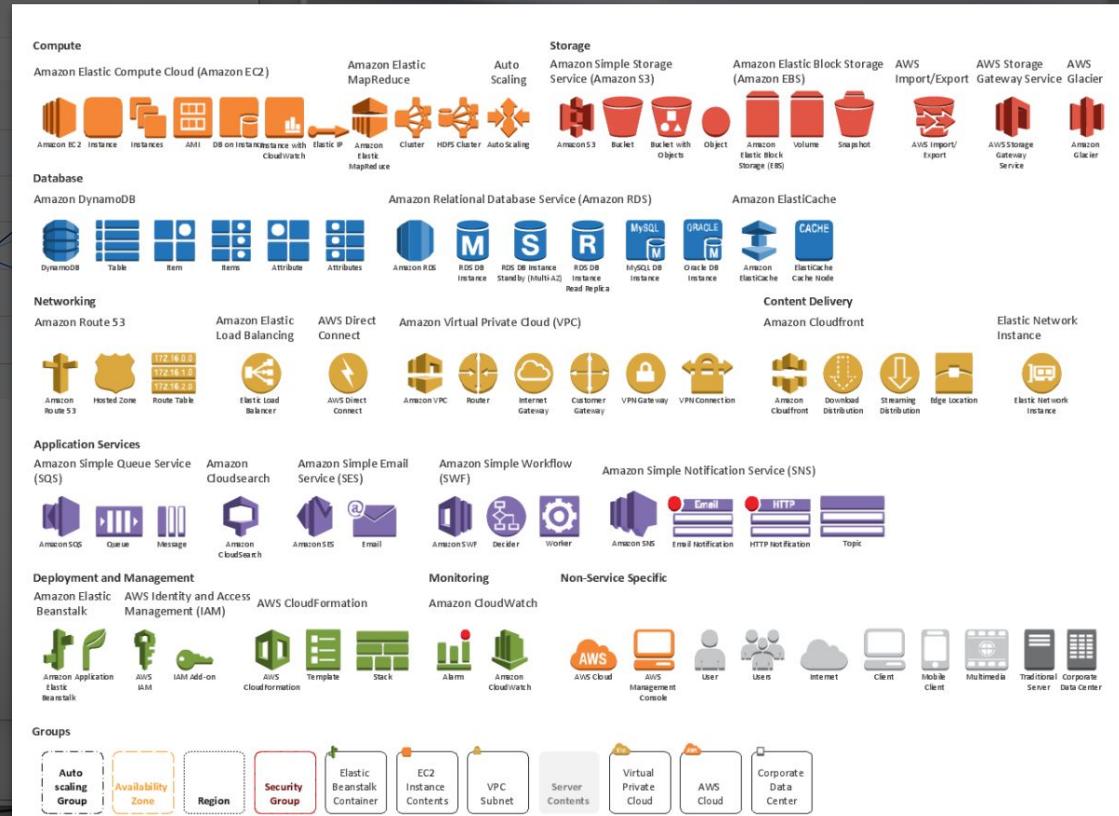
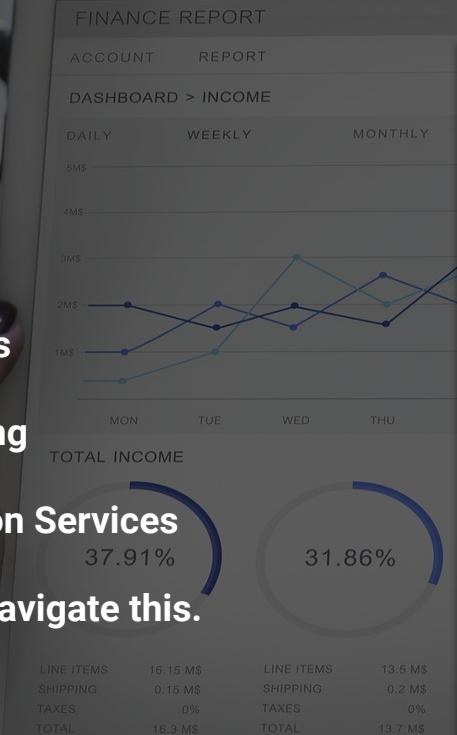
- **Amazon Web Services (AWS)** - The market leader in enterprise & beyond
- **Microsoft Azure** - 2nd in Popularity; Popular with Enterprise
- **Google Cloud Platform (GCP)** - Popular with Digital Marketing because of integration with Google Analytics



Problem #1: Cloud is a lot to learn

- Compute
- Databases
- Networking
- Application Services

I will help you navigate this.



Problem #2: Which to learn?

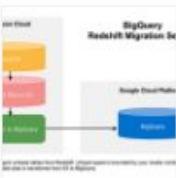
Marketplace

AWS service	Azure service	Description
AWS Marketplace	Azure Marketplace	Easy-to-deploy and automatically configured third-party applications, including single virtual machine or multiple virtual machine solutions.

AI and machine learning

AWS service	Azure service	Description
SageMaker	Azure Machine Learning Service	A cloud service to train, deploy, automate, and manage machine learning models.
SageMaker	Azure Machine Learning Studio	A collaborative, drag-and-drop tool to build, test, and deploy predictive analytics solutions on your data.
Alexa Skills Kit	Microsoft Bot Framework	Build and connect intelligent bots that interact with your users using text/SMS, Skype, Teams, Slack, Office 365 mail, Twitter, and other popular services.
Amazon Lex	Speech Services	API capable of converting speech to text, understanding intent, and converting text back to speech for natural responsiveness.
Amazon Lex	Language Understanding (LUIS)	Allows your applications to understand user commands contextually.

Quick reads



Data Migration to GCP : Redshift Migration to GCP BigQuery

Proof of Concept We started the process with a POC in which we considered existing running infra...

Sam Kadam in Petabytz ★ 4 min read

- Problem: We don't know what organizations will pick
- Solution: Learn 1 Cloud Service. Switching guides make transitioning simple.

You learn one cloud, you learn all clouds

What Businesses Now Expect

Business now need apps + cloud



2015

Reports + Servers

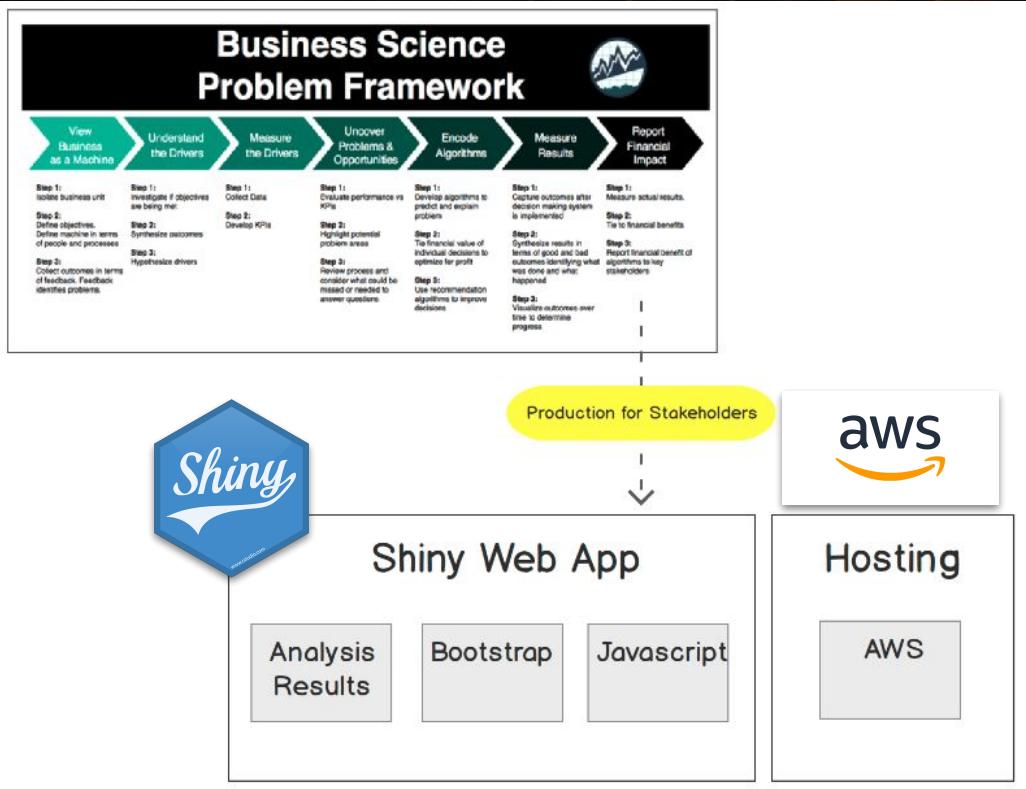
2020

Apps + Cloud

The Plan

R + Shiny + AWS

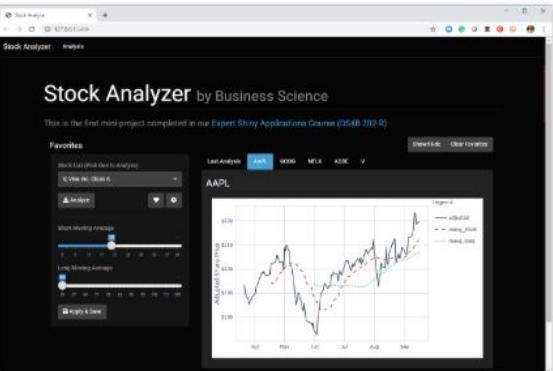
Learn to Flow from Analysis to Application to Cloud Hosting



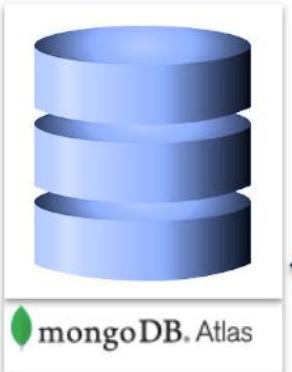
Learn by building & deploying

Application Architecture

Course DS4B 202A-R
For Data Scientists & Programmers



User Data



Tidyquant
API



Technology #1

Frontend: Shiny + Bootstrap



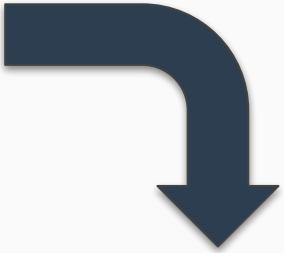
Frontend

Shiny + Bootstrap

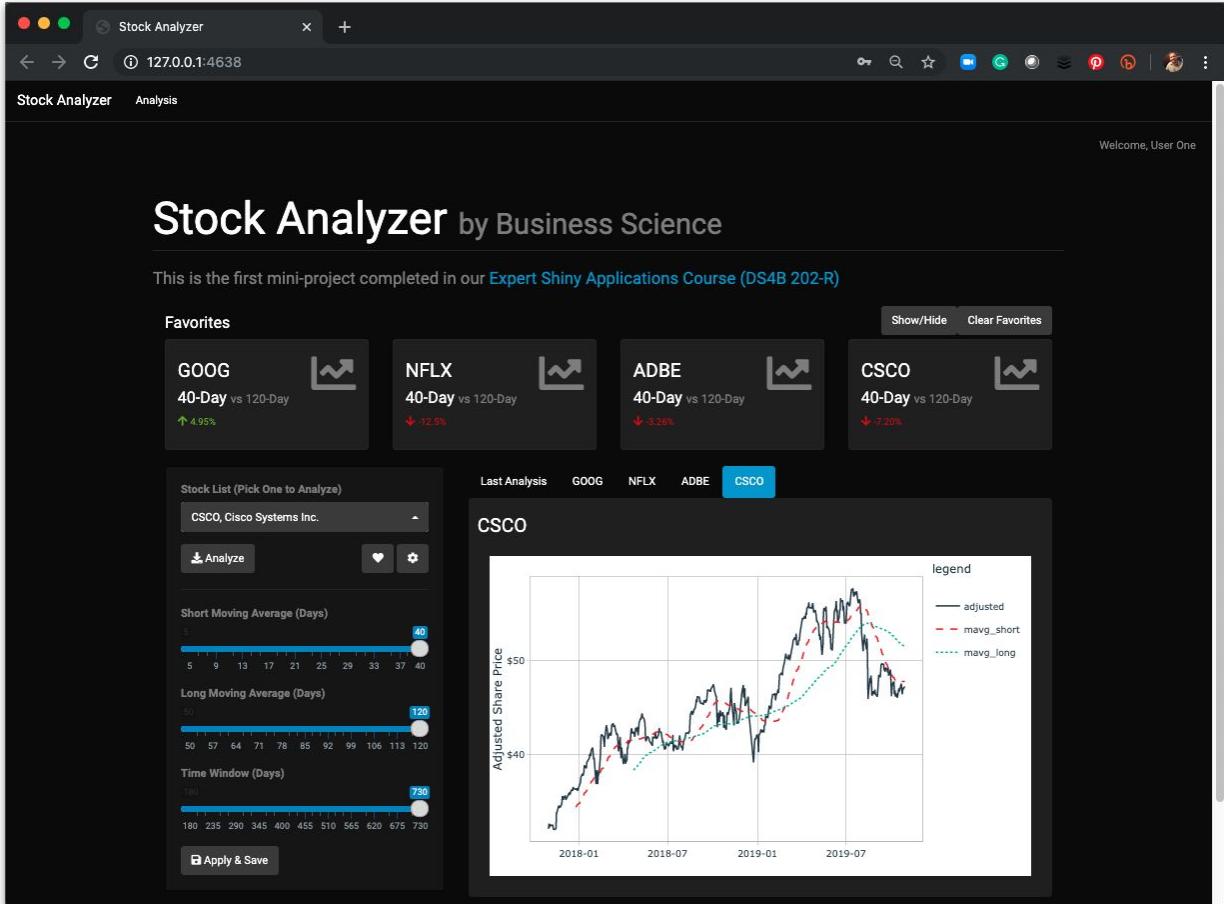
```
1 info_card <- function(title, value, sub_value,
2                         main_icon = "chart-line", sub_icon = "arrow-up",
3                         bg_color = "default", text_color = "default", sub_text_color = "success") {
4
5   div(
6     class = "panel panel-default",
7     style = "padding: 0px;",
8     div(
9       class = str_glue("panel-body bg-{bg_color} text-{text_color}"),
10      p(class = "pull-right", icon(class = "fa-4x", main_icon)),
11      h4(title),
12      h5(value),
13      p(
14        class = str_glue("text-{sub_text_color}"),
15        icon(sub_icon),
16        tags(sub_value)
17      )
18    )
19  )
20 }
21 }
```



```
> info_card("AAPL", value = "5.2%",
+           sub_value = "20-Day Vs 50-Day Moving Average")
<div class="panel panel-default" style="padding: 0px;">
  <div class="panel-body bg-default text-default">
    <p class="pull-right">
      <i class="fa fa-chart-line fa-4x"></i>
    </p>
    <h4>AAPL</h4>
    <h5>5.2%</h5>
    <p class="text-success">
      <i class="fa fa-arrow-up"></i>
      <small>20-Day Vs 50-Day Moving Average</small>
    </p>
  </div>
</div>
```



Aesthetics: Control Our User Interface



Technology #2

Backend: Databases & Users

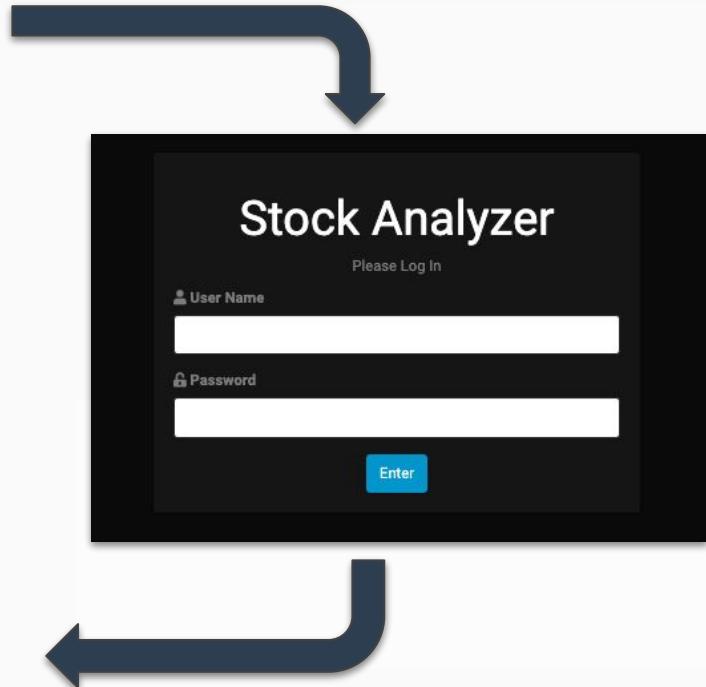


Authentication

Security & User Management

```
54 shinyauthr::loginUI(  
55     id = "login",  
56     title = tagList(h2(class = "text-center", "Stock Analyzer"),  
57                         p(class = "text-center", "Please Log In")),  
58     login_title = "Enter"  
59 ),
```

```
# 0.3 Instantiating User Information ----  
reactive_values <- reactiveValues()  
  
observe({  
  if (credentials()$user_auth) {  
  
    user_data_tbl <- credentials()$info  
  
    reactive_values$permissions  <- user_data_tbl$permissions  
    reactive_values$user_name    <- user_data_tbl$name  
    reactive_values$favorites_list <- user_data_tbl %>% pull(favorites) %>% pluck(1)  
    reactive_values$last_symbol   <- user_data_tbl$last_symbol  
    reactive_values$user_settings <- user_data_tbl$user_settings  
  }  
})
```





MongoDB

NoSQL Database

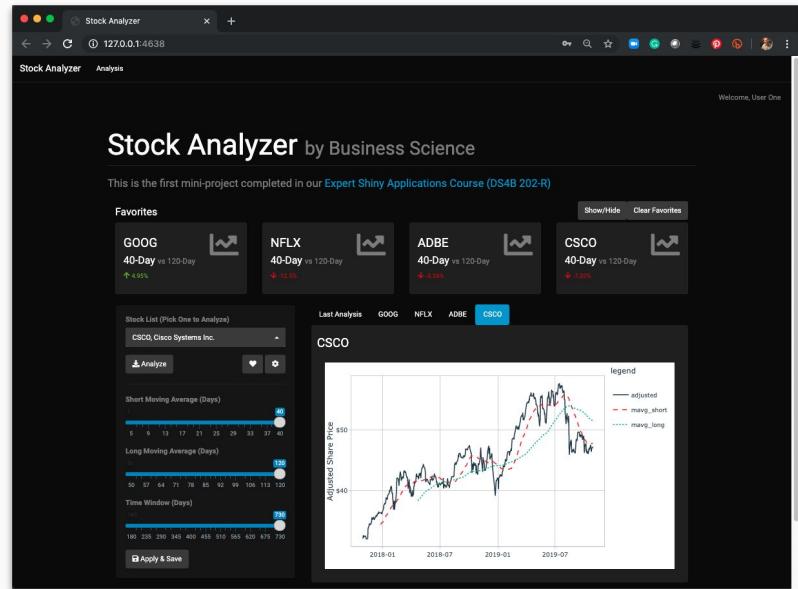
```
50 # Query String
51 query_string <- str_c('{"user": "' , user_name, '"}')
52
53 # Update String
54 update_string <- user_base_tbl %>%
55   filter(user == user_name) %>%
56   select(-user, -password, -permissions) %>%
57   toJSON(POSIXt = "mongo") %>%
58   str_remove_all(pattern = "^\\[|\\]$")
59
60 # Update
61 mongo_connection$update(
62   query = query_string,
63   update = str_c('{"$set" : ', update_string, ' }')
64 )
65
```



Technology #3

Deployment: Cloud

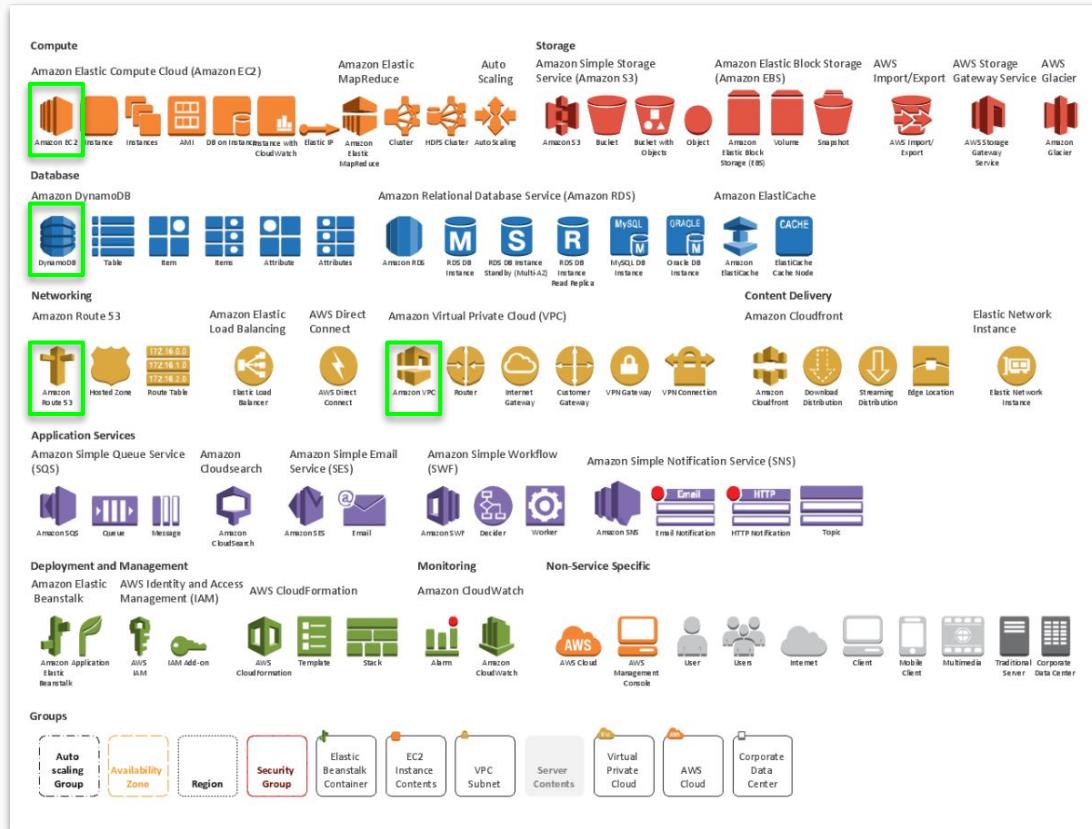
AWS Cloud Hosting



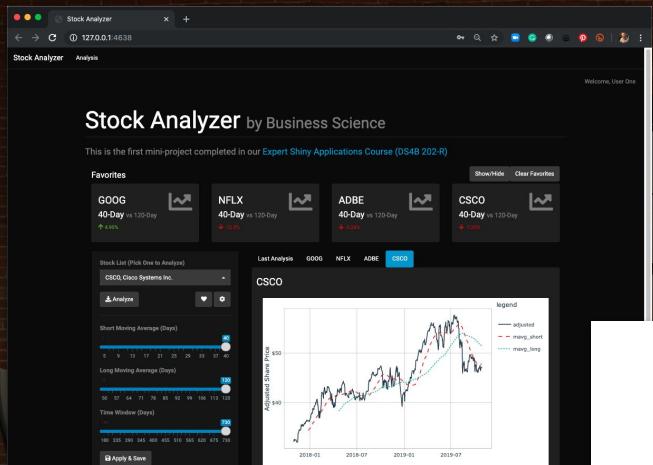
AWS Cloud Hosting



- **Compute**
 - Amazon EC2
- **Networking**
 - Virtual Private Cloud
 - Route 53
- **Database**
 - MongoDB Atlas
(External to AWS)
 - FREE DynamoDB Equivalent



Give businesses what they need



2020
Apps + Cloud

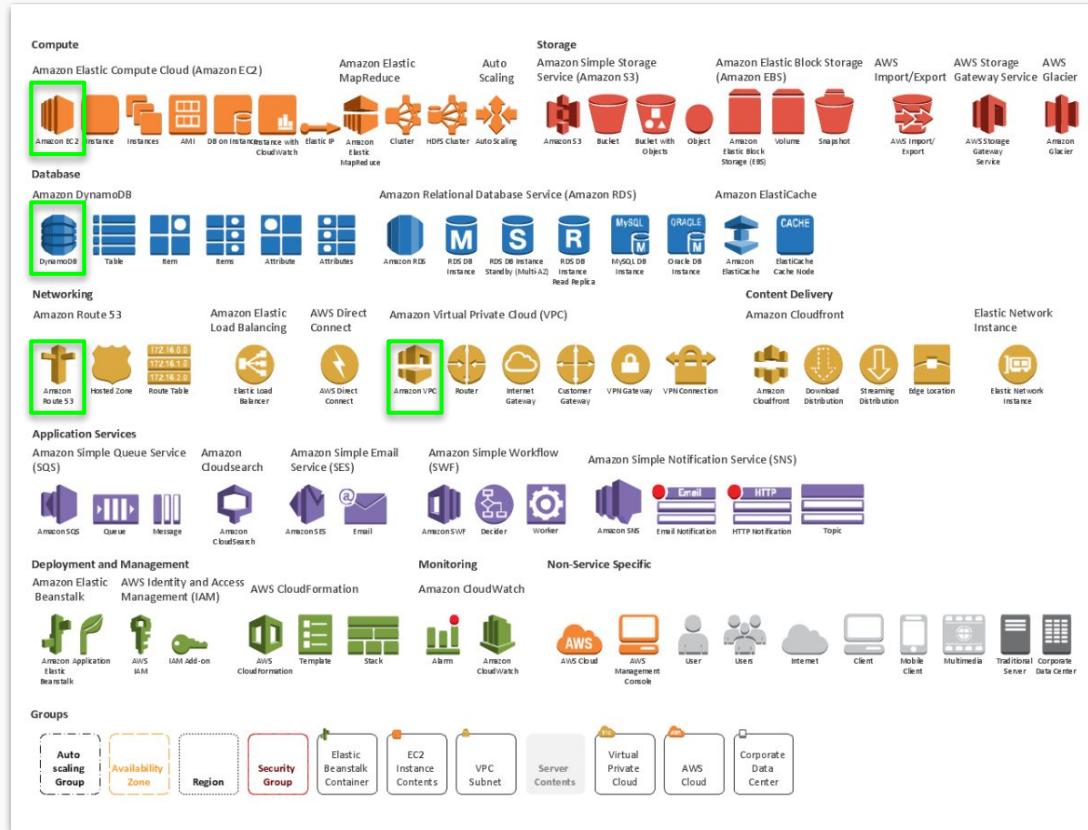
A lot to learn



Cloud



Server





Learning made simple

Shiny Developer with AWS



Shiny Jumpstart

The screenshot shows the RStudio interface with the Shiny code for the "Stock Analyzer" application. The code includes a header, sidebar navigation, and a main plot area. The plot displays adjusted share prices for AAPL Apple Inc. from May to October, comparing a 20-day moving average (red dashed line) and a 50-day moving average (green dotted line). A legend indicates the lines for "adjusted", "ma_20", and "ma_50". Below the plot, there's an "Analyst Commentary" section with a note about the positive trend.

Frontend

The screenshot shows the "Stock Analyzer by Business Science" application running in a browser. It features a header with the title and subtitle, a dropdown menu for selecting a stock, and a button to "Analyze". The main content area displays a line chart titled "AAPL: Adjusted Share Prices for Past 180 Days" showing the price over time with moving averages. The chart includes a legend for "adjusted", "ma_20", and "ma_50". The Shiny and Bootstrap logos are visible at the bottom right.

Backend

The screenshot shows the MongoDB interface with the "stock_analyzer.user_base" collection selected. It displays a list of documents with fields like "id", "email", "password", and "created". Below the list, there are sections for "QUERIES" and "COLLECTIONS & DATABASES". The MongoDB logo is prominently displayed at the bottom.

Production

The screenshot shows the AWS Management Console with multiple service panels visible. A prominent banner at the bottom right reads "DS4B 202-A: Expert Shiny Developer with AWS". The banner features logos for R, Shiny, AWS, and Docker, along with a small portrait of Matt Dancho.

Follow a Step-By-Step Build & Deployment Process

This promotional banner for the DS4B 202-A course highlights the integration of R, Shiny, and AWS. It features large icons for R, Shiny, and AWS, along with smaller icons for Docker, MongoDB, and other technologies. The text "DS4B 202-A: Expert Shiny Developer with AWS" is at the top, followed by the subtext "Learn how to build Scalable Data Science Applications using R, Shiny, and AWS Cloud Technology". A portrait of Matt Dancho is at the bottom right.

Key Benefits

Frontend + Backend + Production Deployment

Frontend for Shiny

- Bootstrap

Backend for Shiny

- MongoDB
- Dynamic UI
- User Authentication
- Store & Write User Data

Production Deployment

- AWS
- EC2 Server
- VPC Connection
- URL Routing

Shiny Apps for Business (DS4B 202A-R)



Web Application Development
6 Weeks





Businesses are Shifting To
Predictive Web Applications
Using Cloud Technologies

#DataDemocratization
#AtScale

*"The **perfect course** for learning how to develop advanced and amazing looking Shiny web apps."*

-Miguel Eersel, Consultant



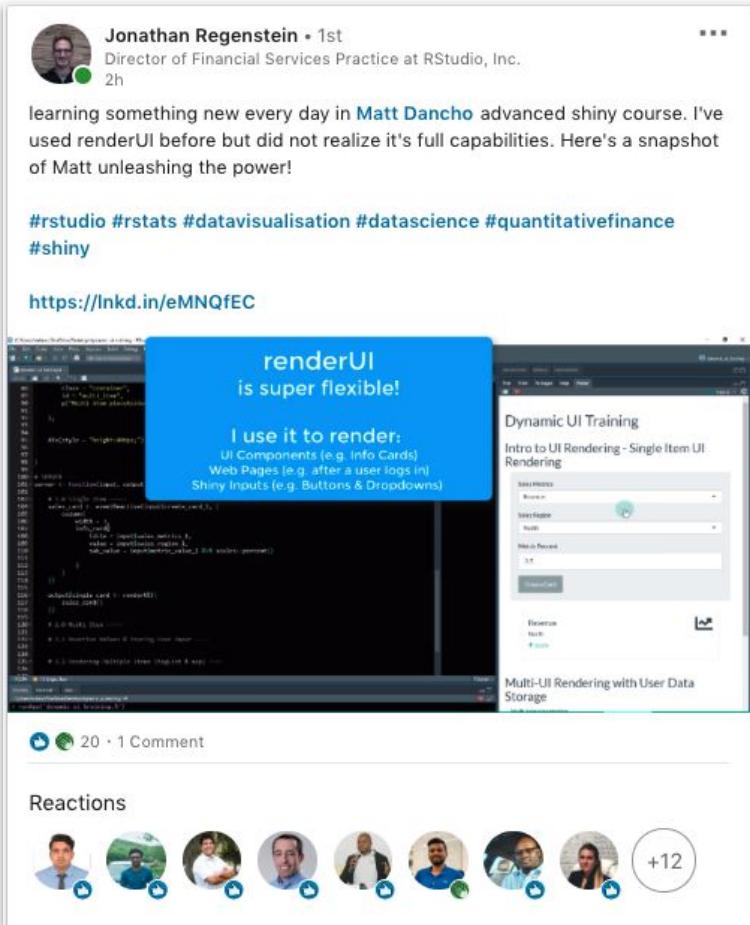
Miguel Eersel 11:03 AM

I have enrolled after finishing BSU-101 and 102 courses. The 202A-R course is the perfect course for learning how to develop advanced and amazing looking Shiny web apps.



*“I’m learning
something new
every day.”*

-Jonathan Regenstein, RStudio



Jonathan Regenstein • 1st
Director of Financial Services Practice at RStudio, Inc.
2h

learning something new every day in **Matt Dancho** advanced shiny course. I've used renderUI before but did not realize it's full capabilities. Here's a snapshot of Matt unleashing the power!

#rstudio #rstats #datavisualisation #datascience #quantitativefinance
#shiny

<https://lnkd.in/eMNQfEC>

renderUI
is super flexible!

I use it to render:
UI Components (e.g. Info Cards)
Web Pages (e.g. after a user logs in)
Shiny Inputs (e.g. Buttons & Dropdowns)

Dynamic UI Training
Intro to UI Rendering - Single Item UI Rendering

Multi-UI Rendering with User Data Storage

20 • 1 Comment

Reactions

+12



Business Science University

Data Science for Business Transformation in 6-Months

4-Course R-Track System



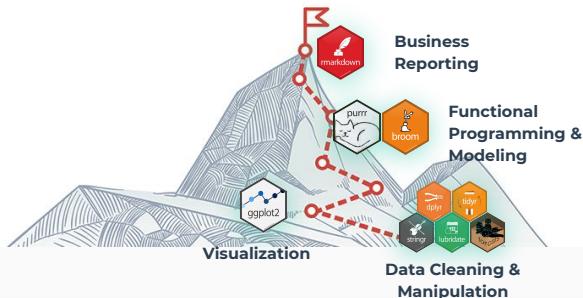
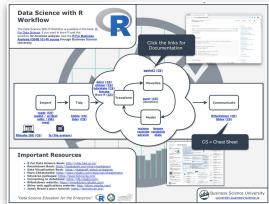
Business Analysis with R (DS4B 101-R)

Data Science For Business with R (DS4B 201-R)

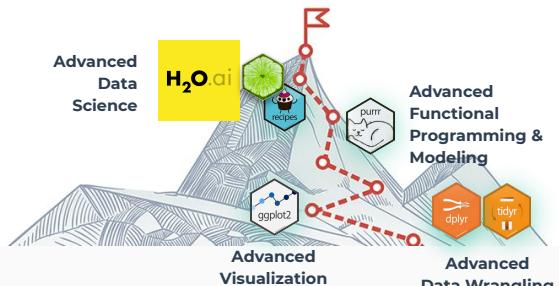
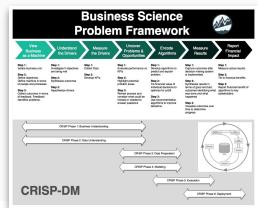
Web Apps & Shiny Developer (DS4B 102-R + DS4B 202A-R)

Project-Based Courses with Business Application

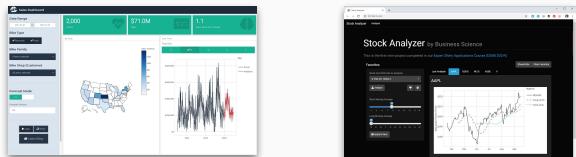
Data Science Foundations
7 Weeks



Machine Learning & Business Consulting
10 Weeks



Web Application Development
12 Weeks



20% OFF PROMO Code: SHINYDEVLAUNCH



R-TRACK BUNDLE

4-Course Bundle - Machine Learning + Expert Web Applications (R-Track)

Go from Beginner to Expert Data Scientist & Shiny Developer in Under 6-Months

4 Course Bundle ~~\$1,500~~

**\$119/mo
Expires Nov 1**

DS4B 101-R: Business Analysis With R

Your Data Science Journey Starts Now! Learn the fundamentals of data science for business with the tidyverse.

Matt Dancho

DS4B 102-R: Shiny Web Applications For Business (Level 1)

Build a predictive web application using Shiny, Flexdashboard, and XGBoost.

Matt Dancho

DS4B 201-R: Data Science For Business With R

Solve a real-world churn problem with H2O AutoML (automated machine learning) & LIME black-box model explanations using R.

Matt Dancho

DS4B 202A-R: Expert Shiny Developer with AWS

Learn how to build Scalable Data Science Applications using R, Shiny, and AWS Cloud Technology.

Matt Dancho

<input type="radio"/>	Paid Course 20% COUPON DISCOUNT	\$1,500 \$1,276.80
<input checked="" type="radio"/>	12 Low Monthly Payments 20% COUPON DISCOUNT 12X Payment Plan	12 payments of \$149.44 12 payments of \$119.20/m

Begin Learning Today

university.business-science.io

