

```
5  
6 # LIBRARIES ----  
7 library(tidyverse)  
8 library(tidyquant)  
9  
10 library(DataExplorer)  
11 library(correlationfunnel)  
12  
13 library(recipes)  
14  
15 library(tidygraph)  
16 library(qgraph)
```

Network Analysis

For Customer Community Detection

Difficulty: **Intermediate**

```
28  
29 # 2.1 Minimum Payments has NA (missing d
```



Matt Dancho & David Curry
Business Science Learning Lab





Learning Lab Structure

- **Presentation**
(20 min)
- **Demo's**
(30 min)
- **Pro-Tips**
(15 mins)



Matt Dancho

Founder of Business Science, Matt designs and executes educational courses and workshops that deliver immediate value to organizations. His passion is up-leveling future data scientists coming from untraditional backgrounds.



David Curry

Founder of Sure Optimize, David works with businesses to help improve website performance and SEO using data science. His passion is ethical Machine Learning initiatives.

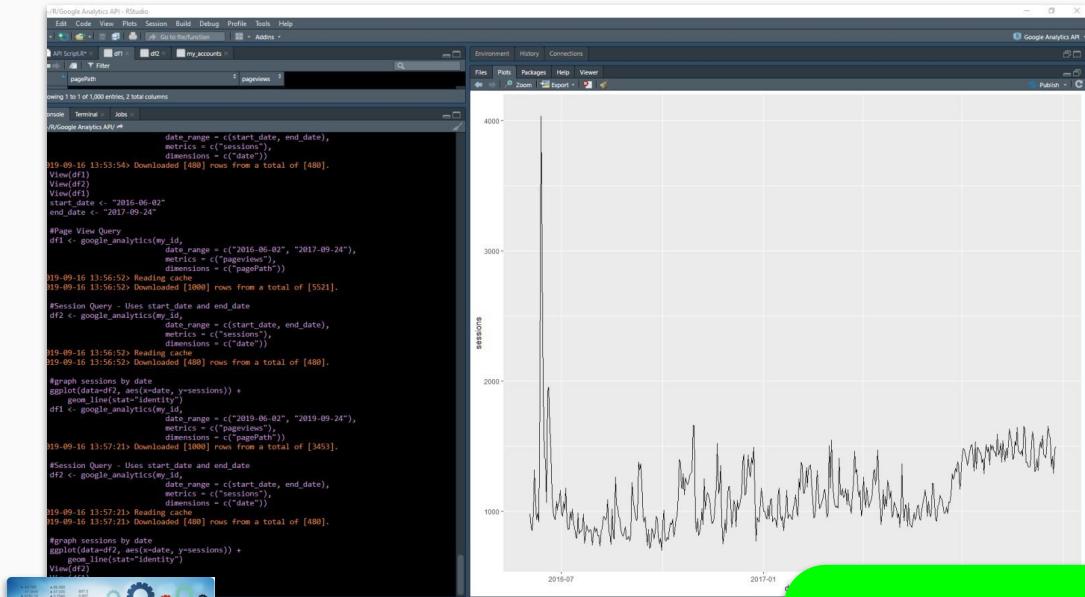
Success Story

Josh Nelson

- **Friday** - Began Jumpstart
- **Sunday** - Began 101
- **Monday - Analyzing Google Analytics API & Plotting**



*"I've been [messing] around with Python for 4 months.
I learned more in the 2 days I did Jumpstart with R."*



#Business
Science
Success

Agenda

- 
- **Business Case Study**
 - Customer History
 - **Network Analysis**
 - 2 Types
 - Key Concepts
 - **R Packages**
 - tidygraph
 - ggraph
 - **30-Min Demo**
 - Bank Customers
 - Account History
 - EDA
 - Network Analysis
 - Machine Learning
 - **Pro-Tips:**
 - Tactics to **Explain** Why Customers belong to Communities



Learning Labs PRO

Every 2-Weeks

1-Hour Course

Recordings + Code + Slack

\$19/month

university.business-science.io

Lab 18

**Time Series Anomaly Detection
with `anomalize` [HOT - 300+ Data
Scientists Attended Live!]**

Lab 17

**Anomaly Detection with H2O
Machine Learning**

Lab 16

**R's Optimization Toolchain, Part 2
- Nonlinear Programming**

Lab 15

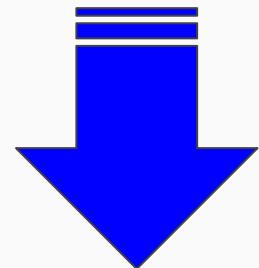
**R's Optimization Toolchain, Part 1
- Linear Programming**

Lab 14

Customer Churn Survival Analysis



Continuous Learning
Jet Fuel for your Brain



Learning Labs Pro

Community-Driven Data Science Courses

 Matt Dancho

\$19/m

Customer Communities

Business Case

Customers **Naturally** Form Communities



Can Be Profitable to Detect Communities

Customer Communities are Natural Phenomenon

Detection is really important:

1. Avoid Trap of Focusing on EVERYONE
2. Customize Products & Services for Key Groups





Customer History

Descriptive Features

Customers

```
> credit_card_tbl
# A tibble: 8,950 x 18
  CUST_ID BALANCE BALANCE_FREQUEN... PURCHASES ONEOFF_PURCHASES INSTALLMENTS_PU...
  <chr>     <dbl>      <dbl>      <dbl>          <dbl>      <dbl>      <dbl>
1 C10001    40.9       0.818     95.4           0        95.4       0
2 C10002   3202.       0.909      0             0        0        6443.
3 C10003   2495.       1          773.          773.      0          0
4 C10004   1667.       0.636     1499          1499      0        206.
5 C10005    818.       1          16            16        0          0
6 C10006   1810.       1          1333.          0        1333.      0
7 C10007    627.       1          7091.          6403.    688.       0
8 C10008   1824.       1          436.            0        436.       0
9 C10009   1015.       1          861.          661.      200        0
10 C10010   152.       0.545     1282.          1282.      0          0
# ... with 8,940 more rows, and 9 more variables: PURCHASES_INSTALLMENTS_FREQUENCY <dbl>,
#   CASH_ADVANCE_FREQUENCY <dbl>,
#   CASH_ADVANCE_TRX <dbl>, PURCHASES_TRX <dbl>, CREDIT_LIMIT <dbl>, PAYMENTS <dbl>,
#   MINIMUM_PAYMENTS <dbl>, PRC_FULL_PAYMENT <dbl>,
#   TENURE <dbl>
```

Network Analysis Basics

80/20 Concepts

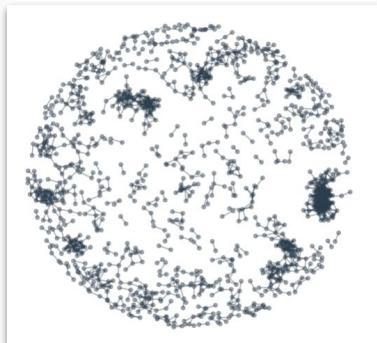
Types of Network Analysis



1

Undirected

Strength of Relationship

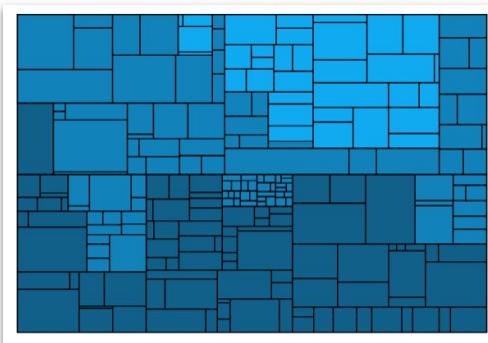


Clustering

2

Directed

Hierarchical Structure



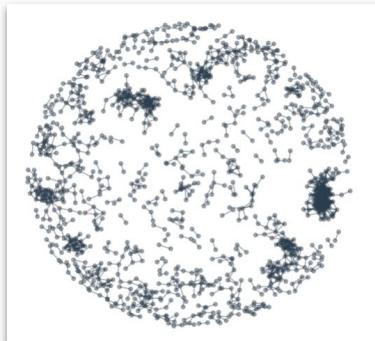
Composition of
Groups



1

Undirected

Strength of Relationship

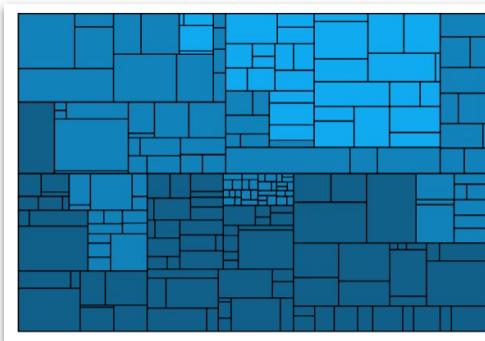


Clustering

2

Directed

Hierarchical Structure



Composition of
Groups

Core Concepts

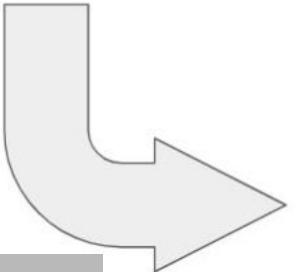
80/20

Adjacency Matrix



Customer Data

```
> credit_card_tbl
# A tibble: 8,950 × 18
  CUST_ID BALANCE_BALANCE_FREQUEN~ PURCHASES_ONEOFF_PURCHASES INSTALLE~ CASH_ADVANCE PURCHASES_FREQU~ ONEOFF_PURCHASE~<chr>   <dbl>      <dbl>      <dbl>      <dbl>      <dbl>      <dbl>      <dbl>
1 C10001    40.9     0.818     95.4       0     95.4       0     0.167       0
2 C10002    3202.     0.989      0         0     6443.      0       0         0
3 C10003    2495.     1        773.     773.      0         0       1         1
4 C10004    1667.     0.636    1499.     1499.      0     206.     0.0833     0.0833
5 C10005    818.      1        16       16       0         0     0.0833     0.0833
6 C10006    1810.     1        1333.    1333.      0         0     0.667       0
7 C10007    627.      1        2091.    6401.     688.      0       1         1
8 C10008    1824.     1        436.      0       436.      0       1         0
9 C10009    1015.     1        861.      661.     200.      0       0.333     0.0833
10 C10010   152.      0.545    1282.     1282.      0         0     0.167     0.167
# ... with 8,948 more rows, and 9 more variables: PURCHASES_INSTALLEMENTS_FREQUENCY <dbl>, CASH_ADVANCE_FREQUENCY <dbl>,
#   CASH_ADVANCE_TRX <dbl>, PURCHASES_TRX <dbl>, CREDIT_LIMIT <dbl>, PAYMENTS <dbl>, MINIMUM_PAYMENTS <dbl>, PRC_FULL_PAYMENT <dbl>,
#   TENURE <dbl>
```



Adjacency Matrix

```
# A tibble: 8,950 × 8,951
  CUST_ID C10001 C10002 C10003 C10004 C10005 C10006 C10007 C10008 C10009 C10010 C10011 C10012 C10013 C10014 C10015<chr>   <dbl>   <dbl>
1 C10001  1     0.0842 -0.171  0.125  0.807  0.386  0.0384  0.279 -0.0590  0.166  0.608  0.0828  0.00733  0.511
2 C10002  0.0842  1     -0.276  0.249  0.207 -0.351  0.444  0.469  0.0102  0.135 -0.509 -0.127 -0.738 -0.509  0.484
3 C10003  -0.171 -0.276  1     0.0913  0.0823 -0.156  0.292 -0.0132  0.266  0.226 -0.110  0.353  0.109  0.0579 -0.0055
4 C10004  0.125  0.249  0.0913  1     0.0419 -0.346  0.222 -0.496  0.464  0.860 -0.536  0.463 -0.196 -0.103  0.288
5 C10005  0.807  0.207  0.0823  0.0419  1     0.269 -0.121 -0.063  0.434 -0.168 -0.0802  0.565 -0.094 -0.115  0.792
6 C10006  0.386 -0.104 -0.348 -0.449  0.269  1     -0.0076  0.696  0.185 -0.398  0.857 -0.491  0.466  0.591  0.149
7 C10007  -0.104 -0.467  0.292  0.222 -0.321 -0.292  1     -0.0076  0.214  0.433 -0.149  0.372  0.529  0.285 -0.023
8 C10008  0.0384 -0.467 -0.0302 -0.400 -0.0078  0.696  1     0.125 -0.349  0.938 -0.259  0.685  0.548 -0.104
9 C10009  0.279  0.0102  0.266  0.464  0.454  0.185  0.214  0.125  1     0.508  0.0476  0.302  0.151  0.465  0.413
10 C10010 -0.0590  0.135  0.226  0.868 -0.106 -0.390  0.433  0.226  0.508  1     -0.481  0.303 -0.178  0.126 -0.0478
# ... with 8,940 more rows, and 8,935 more variables: C10016 <dbl>, C10017 <dbl>, C10018 <dbl>, C10019 <dbl>, C10020 <dbl>,
#   C10021 <dbl>, C10022 <dbl>, C10023 <dbl>, C10024 <dbl>, C10025 <dbl>, C10026 <dbl>, C10027 <dbl>, C10028 <dbl>, C10029 <dbl>,
#   C10030 <dbl>, C10031 <dbl>, C10032 <dbl>, C10033 <dbl>, C10034 <dbl>, C10035 <dbl>, C10036 <dbl>, C10037 <dbl>, C10038 <dbl>,
#   C10039 <dbl>, C10040 <dbl>, C10041 <dbl>, C10042 <dbl>, C10043 <dbl>, C10044 <dbl>, C10045 <dbl>, C10046 <dbl>, C10047 <dbl>, C10048 <dbl>,
#   C10049 <dbl>, C10050 <dbl>, C10051 <dbl>, C10052 <dbl>, C10053 <dbl>, C10054 <dbl>, C10055 <dbl>, C10056 <dbl>, C10057 <dbl>,
#   C10058 <dbl>, C10059 <dbl>, C10060 <dbl>, C10061 <dbl>, C10062 <dbl>, C10063 <dbl>, C10064 <dbl>, C10065 <dbl>, C10066 <dbl>,
#   C10067 <dbl>, C10068 <dbl>, C10069 <dbl>, C10070 <dbl>, C10071 <dbl>, C10072 <dbl>, C10073 <dbl>, C10074 <dbl>, C10075 <dbl>, C10076 <dbl>,
#   C10077 <dbl>, C10078 <dbl>, C10079 <dbl>, C10080 <dbl>, C10081 <dbl>, C10082 <dbl>, C10083 <dbl>, C10084 <dbl>, C10085 <dbl>, C10086 <dbl>,
#   C10087 <dbl>, C10088 <dbl>, C10089 <dbl>, C10090 <dbl>, C10091 <dbl>, C10092 <dbl>, C10093 <dbl>, C10094 <dbl>, C10095 <dbl>, C10096 <dbl>,
#   C10097 <dbl>, C10098 <dbl>, C10099 <dbl>, C10100 <dbl>, C10101 <dbl>, C10102 <dbl>, C10103 <dbl>, C10104 <dbl>, C10105 <dbl>,
#   C10106 <dbl>, C10107 <dbl>, C10108 <dbl>, C10109 <dbl>, C10110 <dbl>, C10111 <dbl>, C10112 <dbl>, C10113 <dbl>, C10114 <dbl>,...
```

Key Concept

N x N matrix of Relationship
Strength (Measure)



Nodes & Edges

Nodes

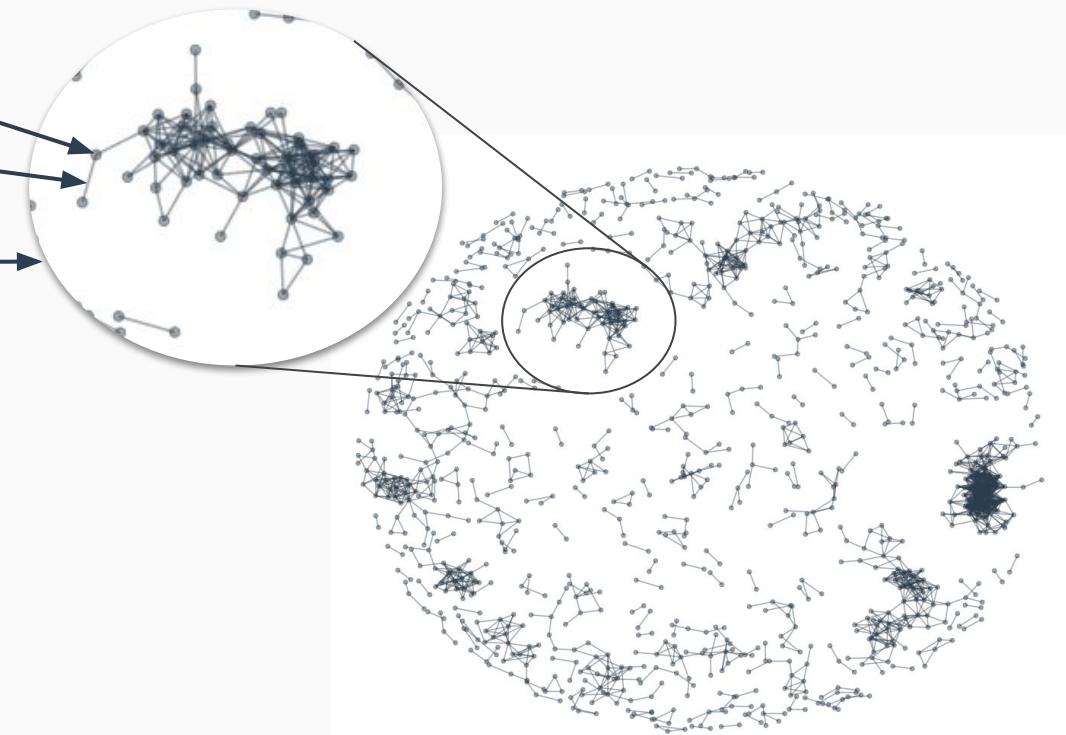
- Customers

Edges

- Relationship Strength

Clusters (Groups)

- Densely Connected Web



Key Concept

Groups (Clusters) have more edges connecting more nodes at a given relationship **threshold**.

Pruning & Threshold



Pruning

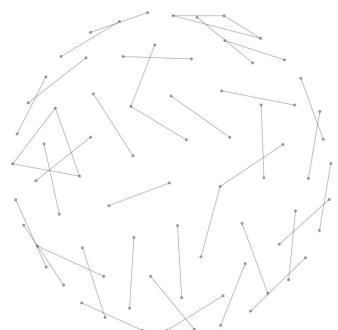
- Filtering to reduce to the most “influential” nodes
- We use a **threshold** to find an optimal visualization that explains the groups

Key Concept

Data mining is subjective.
Where do we cut off?

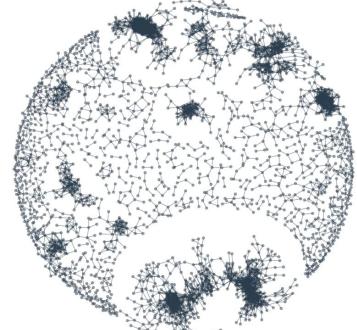
Threshold = 0.9999

Too High



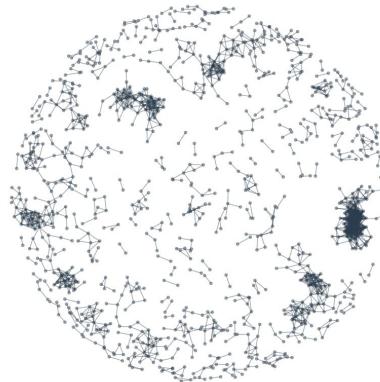
Threshold = 0.99

Too Low



Threshold = 0.996

Just Right!



Network Analysis Software



Tidy Network Data

- Combines Node and Edge Data inside 1 tidygraph object
- Makes it super easy to work with network data
- Can `activate()` inner node and edge tbls to manipulate them
- Can apply `special network analysis functions` like `group_components()` & `centrality_degree()`

```
# A tbl_graph: 1125 nodes and 2156 edges
#
# An undirected simple graph with 247 components
#
# Node Data: 1,125 x 1 (active)
#   name
#   <chr>
# 1 C10278
# 2 C16180
# 3 C17657
# 4 C14958
# 5 C11181
# 6 C12206
# ... with 1,119 more rows
#
# Edge Data: 2,156 x 3
#   from     to weight
#   <int> <int>  <dbl>
# 1     1     711  0.996
# 2     2     712  0.997
# 3     3     712  0.998
# ... with 2,153 more rows
```



Visualization Package for tidygraph data

An implementation of Grammatical Graphs

Reference Getting Started Articles News

Links

- Download from CRAN at <https://cloud.r-project.org/package=ggraph>
- Browse source code at <https://github.com/thomasp85/ggraph>
- Report a bug at <https://github.com/thomasp85/ggraph/issues>

License

MIT + file LICENSE

Developers

Thomas Lin Pedersen
Mathias Lindstrøm, author
All authors...

Dev status

- Build passing
- Build pending
- CRAN 3 D.O. 25 days ago
- downloads 24K/month

The core concepts

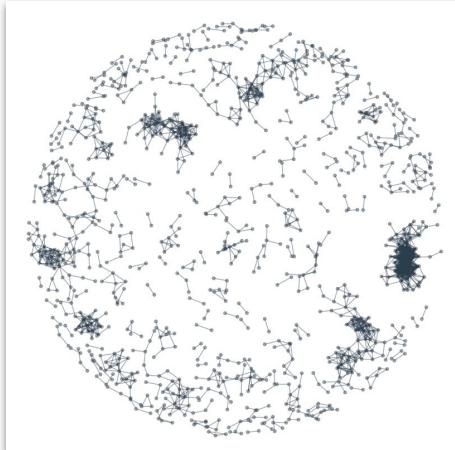
ggraph builds upon three core concepts that are quite easy to understand:

- The Layout** defines how nodes are placed on the plot, that is, it is a conversion of the relational structure into an x and y value for each node in the graph. ggraph has access to all layout functions available in igraph, and furthermore provides a large selection of its own, such as hive plots, treemaps, and circle packing.
- The Nodes** are the connected entities in the relational structure. These can be plotted using the geom_node_*() family of functions. Some are geometric shapes, e.g. geom_node_treemap() for treemaps and circle plots, while others are more general purpose, e.g. geom_node_point().
- The Edges** are the connections between the entities in the relational structure. These can be visualized using the geom_edge_*() family of geoms that contain a lot of different edge types for different scenarios. Sometimes the edges are implied by the layout (e.g. with treemaps) and need not be plotted, but often some sort of line is warranted.

```

152 # 7.0 NETWORK VISUALIZATION ----
153
154 customer_correlation_matrix %>%
155
156     prep_corr_matrix_for_tbl_graph(edge_limit = 0.996) %>%
157
158     as_tbl_graph(directed = FALSE) %>%
159
160     ggraph(layout = "kk") +
161     geom_edge_link(alpha = 0.5, color = palette_light()["blue"]) +
162     geom_node_point(alpha = 0.5, color = palette_light()["blue"]) +
163     theme_graph(background = "white")
164

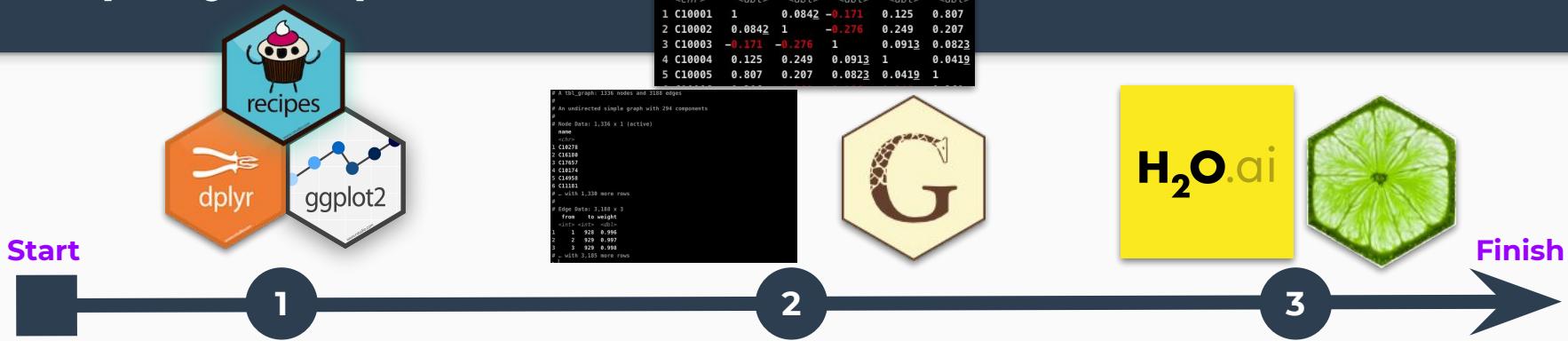
```





Customer Segmentation Workflow

Step-By-Step



Data Clean & Transform

Exploratory Data Analysis

**Adjacency Matrix,
tidygraph, & ggraph
Visualizations**

Develop Segments

H₂O & LIME

Predict & Explain
Customer Segments

30-Min Demo

Analyze Customer Networks

Secret Tactics for

Network Analysis

Use these tips to
increase your customer segmentation explainability

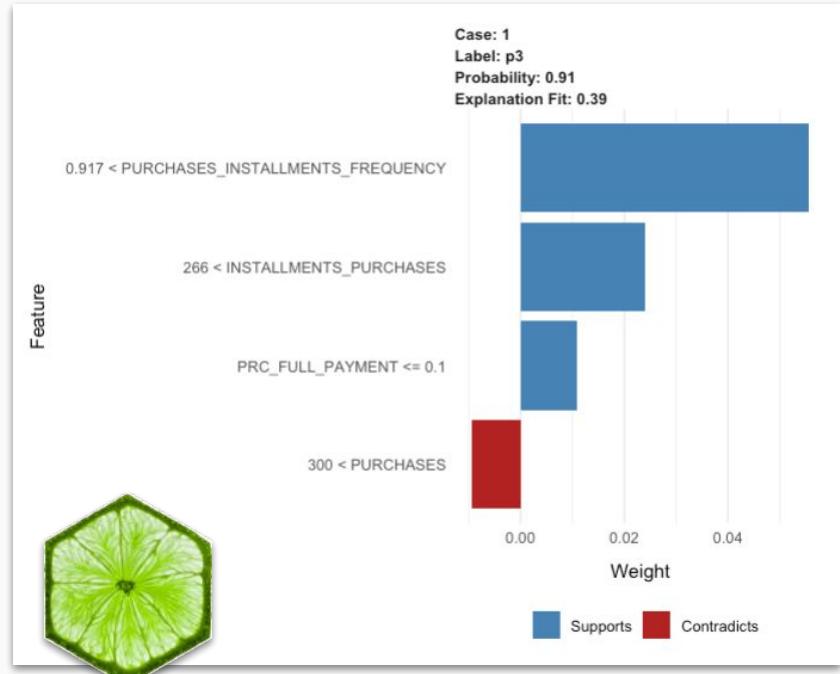


Pro Tip

Use H2O & LIME to EXPLAIN WHY

```
> h2o.predict(h2o_model, newdata = as.h2o(credit_card_group_tbl)) %>%
+   as_tibble()
|=====
|=====
# A tibble: 1,125 x 7
  predict     p1      p2      p3      p4      p5    Other
  <fct>    <dbl>    <dbl>    <dbl>    <dbl>    <dbl>    <dbl>
1 Other     0     0.0000704  0.0228     0       0     0.977
2 Other    0.0232  0.0000717  0.0000553  0       0.00376  0.973
3 Other     0     0.0000737  0.0238     0       0.000107  0.976
4 Other    0.00643 0.0000724  0.0000558  0.00343  0.000105  0.990
5 Other     0     0.0000720  0.0000555  0       0.000104  1.000
6 3         0     0.0000704  0.909      0       0.000102  0.0909
7 3         0     0.0000761  0.995      0       0.000110  0.00491
8 1         0.984  0.0000735  0.0000567  0.00349  0.000106  0.000000
9 Other    0.195  0.0000602  0.0000464  0.00285  0.000085  0.000000
10 Other    0      0.0000737  0.0000568  0       0       0.000000
# ... with 1,115 more rows
```

H₂O.ai



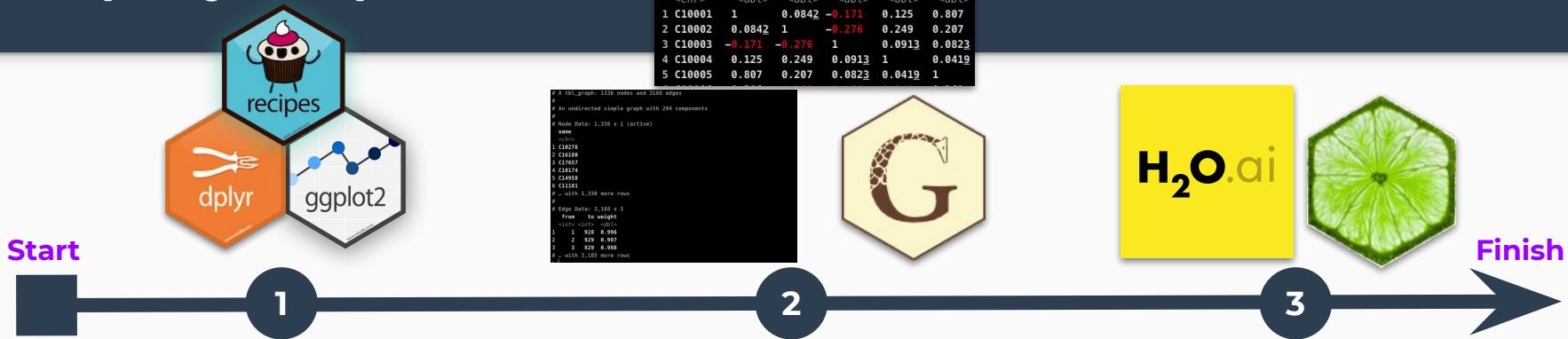
Data Science Transformation

Skills that are needed to do what we just did



Customer Segmentation Workflow

Step-By-Step



Data Clean & Transform

Exploratory Data Analysis

101 & 201

Adjacency Matrix, tidygraph, & ggraph Visualizations

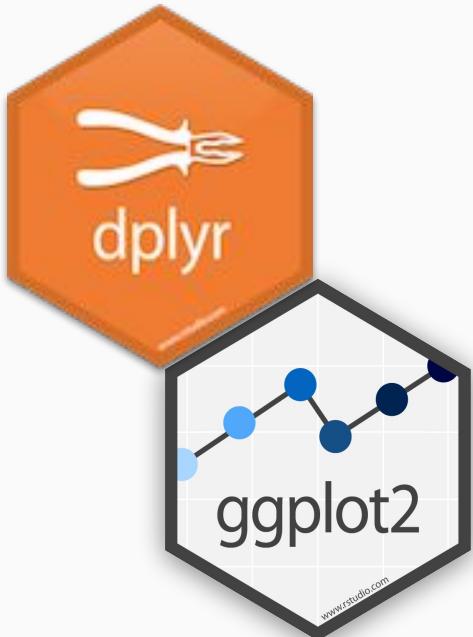
Lab 19

H2O & LIME

Predict & Explain
Customer Segments

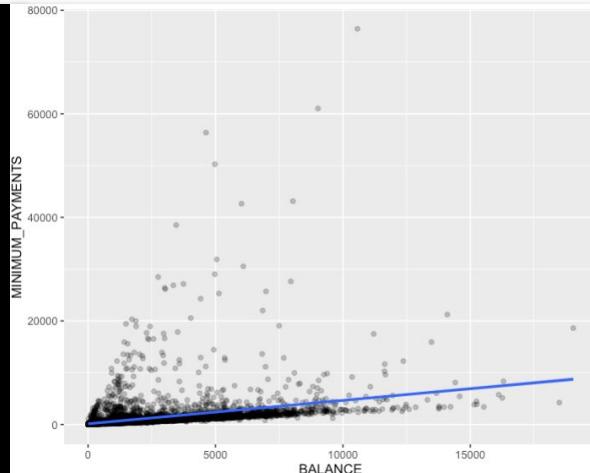
201

dplyr, ggplot2



```
29  
30 # 2.1 Minimum Payments has NA (missing data)  
31  
32 credit_card_tbl %>%  
33   pull(MINIMUM_PAYMENTS) %>%  
34   quantile(na.rm = TRUE)  
35  
36 credit_card_no_missing_tbl <- credit_card_tbl %>%  
37   select_if(is.numeric) %>%  
38   filter(!is.na(MINIMUM_PAYMENTS)) %>%  
39   filter(!is.na(CREDIT_LIMIT))  
40  
41 credit_card_no_missing_tbl %>%  
42   binarize() %>%  
43   correlate(target = MINIMUM_PAYMENTS_825.49646275_Inf) %>%  
44   plot_correlation_funnel()  
45  
46 credit_card_tbl %>%  
47   ggplot(aes(BALANCE, MINIMUM_PAYMENTS)) +  
48   geom_point(alpha = 0.25) +  
49   geom_smooth(method = "lm")  
50
```

101 & 201





Adjacency Matrix, tidygraph, & ggraph

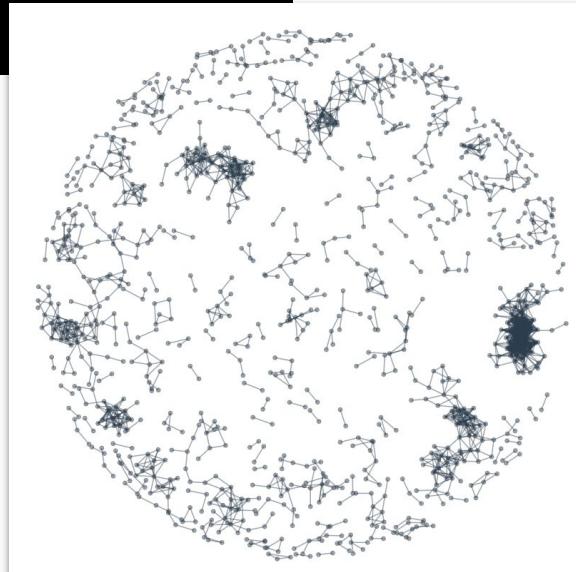
```
CUST_ID C10001 C10002 C10003 C10004 C10005
<chr>   <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
1 C10001  1     0.0842 -0.171  0.125  0.807
2 C10002  0.0842 1     -0.276  0.249  0.207
3 C10003  -0.171 -0.276  1     0.0913 0.0823
4 C10004  0.125  0.249  0.0913 1     0.0419
5 C10005  0.807  0.207  0.0823 0.0419 1
```

```
# A tbl_graph: 1336 nodes and 3188 edges
#
# An undirected simple graph with 294 components
#
# Node Data: 1,336 x 1 (active)
# name
<chr>
1 C10278
2 C16180
3 C17657
4 C10174
5 C14958
6 C11181
# ... with 1,330 more rows
#
# Edge Data: 3,188 x 3
#   from    to weight
#   <int> <int> <dbl>
1     1    928  0.996
2     2    929  0.997
3     3    929  0.998
# ... with 3,185 more rows
|
```



```
153 # 7.0 NETWORK VISUALIZATION ----
154
155 customer_correlation_matrix %>%
156
157   prep_corr_matrix_for_tbl_graph(edge_limit = 0.996) %>%
158
159   as_tbl_graph(directed = FALSE) %>%
160
161   ggraph(layout = "kk") +
162     geom_edge_link(alpha = 0.5, color = palette_light()["blue"]) +
163     geom_node_point(alpha = 0.5, color = palette_light()["blue"]) +
164     theme_graph(background = "white")
165
166
167
168
```

Lab 19





ggplot2 & purrr

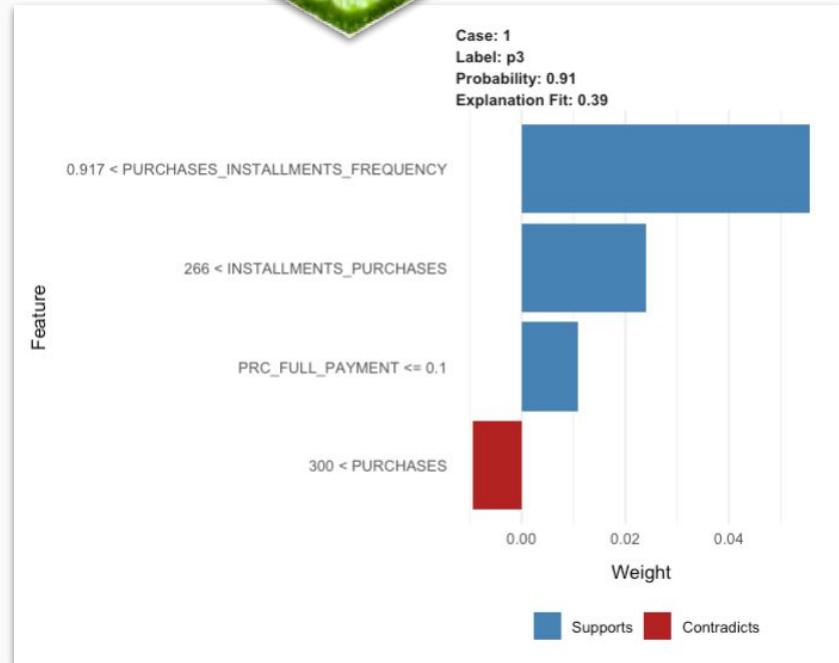


```
> h2o.predict(h2o_model, newdata = as.h2o(credit_card_group_tbl)) %>%
+   as_tibble()
|=====
|=====
```

A tibble: 1,125 x 7

	predict	p1	p2	p3	p4	p5	Other
1	Other	0	0.0000704	0.0228	0	0	0.977
2	Other	0.0232	0.0000717	0.0000553	0	0.00376	0.973
3	Other	0	0.0000737	0.0238	0	0.000107	0.976
4	Other	0.00643	0.0000724	0.0000558	0.00343	0.000105	0.990
5	Other	0	0.0000720	0.0000555	0	0.000104	1.000
6	3	0	0.0000704	0.909	0	0.000102	0.0909
7	3	0	0.0000761	0.995	0	0.000110	0.00491
8	1	0.984	0.0000735	0.0000567	0.00349	0.000106	0.0127
9	Other	0.195	0.0000602	0.0000464	0.00285	0.0000870	0.802
10	Other	0	0.0000737	0.0000568	0	0	1.000

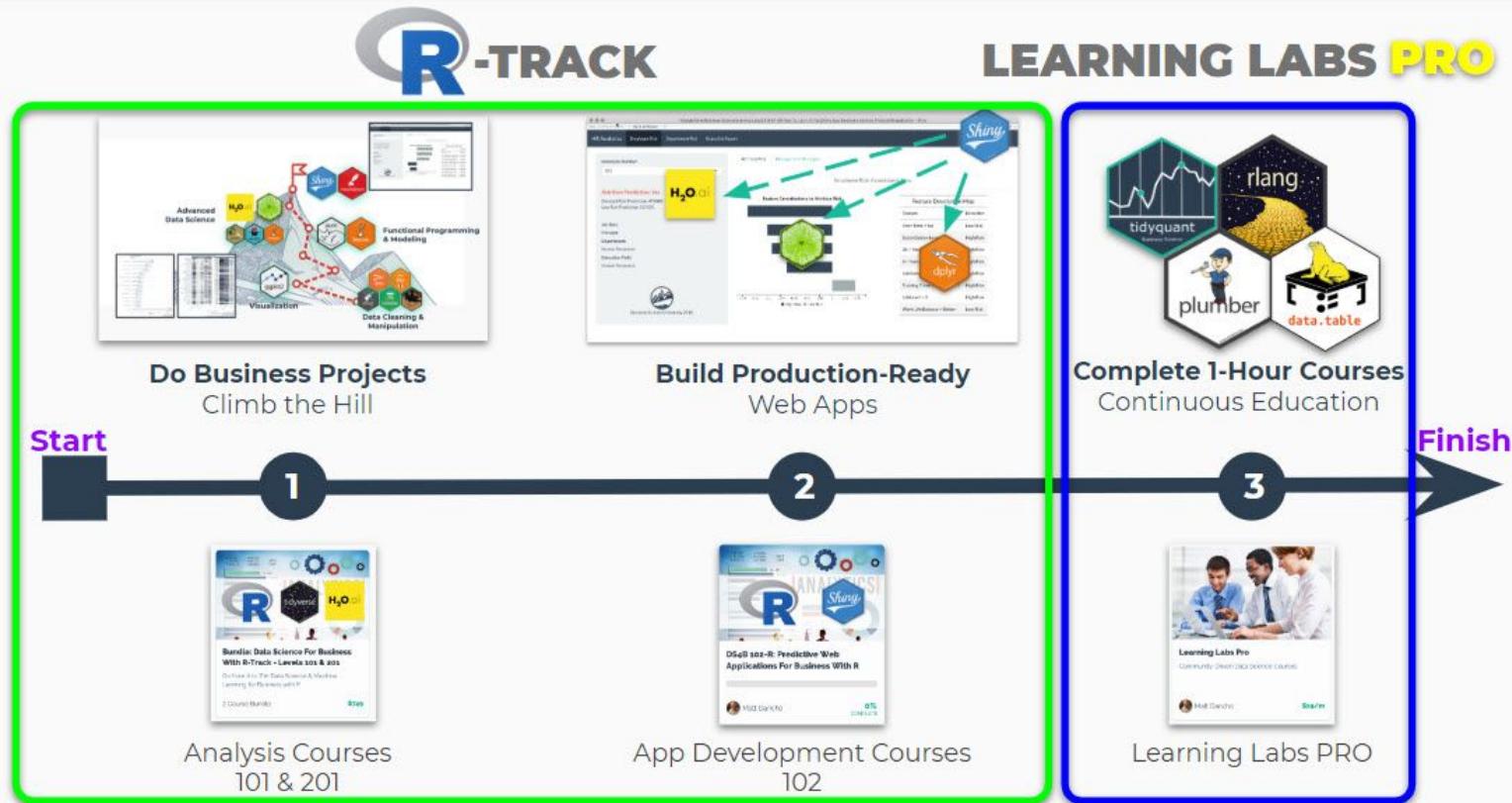
... with 1,115 more rows



Business Science University

Our program that will TRANSFORM YOU in weeks, not years.

The program that will deliver YOUR Transformation



Everything is **Taken Care of** For You in Our Platform

3-Course R-Track System



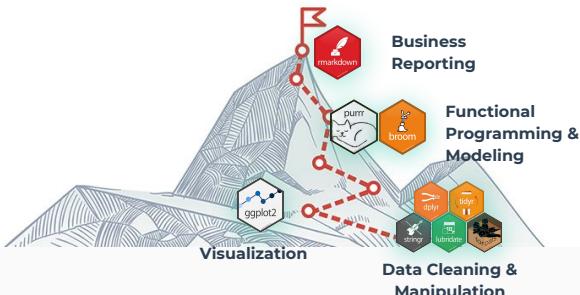
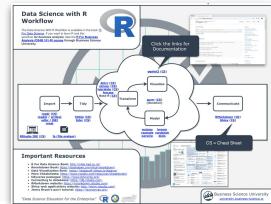
Business Analysis with R (DS4B 101-R)

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

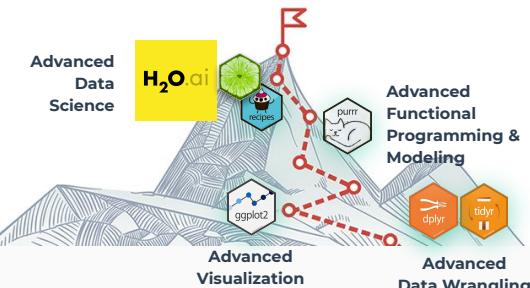
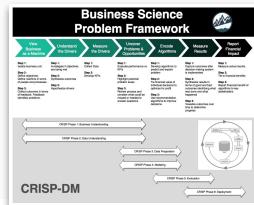
R Shiny Web Apps For Business (DS4B 102-R)

Project-Based Courses with Business Application

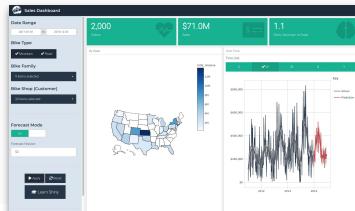
Data Science Foundations
7 Weeks



Machine Learning & Business Consulting
10 Weeks



Web Application Development
4 Weeks

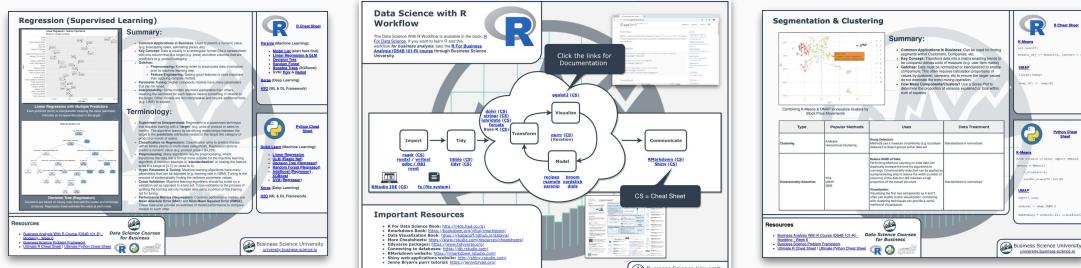


Key Benefits

- Fundamentals - Weeks 1-5 (25 hours of Video Lessons)
 - Data Manipulation (dplyr)
 - Time series (lubridate)
 - Text (stringr)
 - Categorical (forcats)
 - Visualization (ggplot2)
 - Programming & Iteration (purrr)
 - 3 Challenges
- **Machine Learning - Week 6 (8 hours of Video Lessons)**
 - Clustering (3 hours)
 - Regression (5 hours)
 - 2 Challenges
- Learn Business Reporting - Week 7
 - RMarkdown & plotly
 - 2 Project Reports:
 1. Product Pricing Algo
 2. Customer Segmentation

Business Analysis with R (DS4B 101-R)

Data Science Foundations
7 Weeks



Key Benefits

End-to-End Churn Project

Understanding the Problem & Preparing Data - Weeks 1-4

- Project Setup & Framework
- Business Understanding / Sizing Problem
- Tidy Evaluation - rlang
- EDA - Exploring Data -GGally, skimr
- Data Preparation - recipes
- Correlation Analysis
- 3 Challenges

Machine Learning - Weeks 5, 6, 7

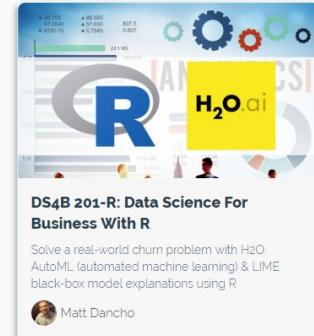
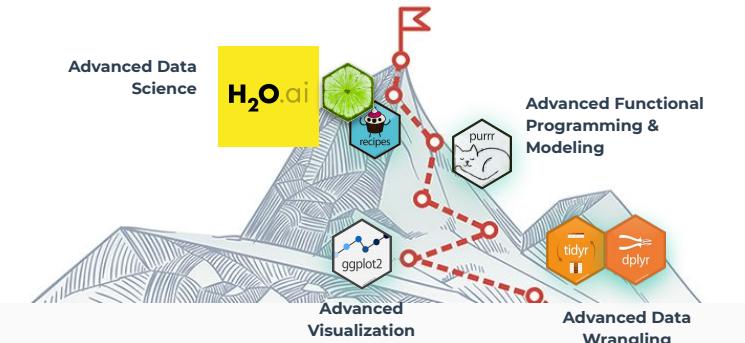
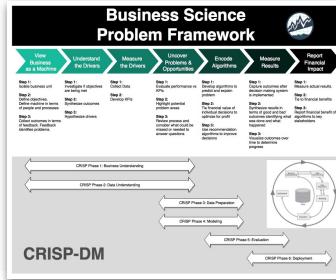
- H2O AutoML - Modeling Churn
- ML Performance
- LIME Feature Explanation

Return-On-Investment - Weeks 7, 8, 9

- Expected Value Framework
- Threshold Optimization
- Sensitivity Analysis
- Recommendation Algorithm

Data Science For Business (DS4B 201-R)

Machine Learning & Business Consulting
10 Weeks



Key Benefits

Learn Shiny & Flexdashboard

- Build Applications
- Learn Reactive Programming
- Integrate Machine Learning

App #1: Predictive Pricing App

- Model Product Portfolio
- XGBoost Pricing Prediction
- Generate new products instantly

App #2: Sales Dashboard with Demand Forecasting

- Model Demand History
- Segment Forecasts by Product & Customer
- XGBoost Time Series Forecast
- Generate new forecasts instantly

Shiny Apps for Business (DS4B 102-R)



Web Application Development
4 Weeks

The collage includes:

- A "Data Science with R" course page featuring a "Predictive Pricing App" dashboard.
- A "Flexdashboard Apps" section showing a dashboard with a map of the US and time series plots.
- A "Shiny Apps" section showing a dashboard with a scatter plot and a histogram.
- A "Themes, Dashboards, & Examples" section showing a dashboard with multiple panels and a sidebar.
- A "Business Analytics" section showing a dashboard with a map and a bar chart.
- A "Machine Learning" section showing a dashboard with a scatter plot and a sidebar.
- A "Data Science with R" course page featuring a "Sales Dashboard with Demand Forecasting" dashboard.



The collage includes:

- A "Shiny" logo and a bar chart.
- A "DATA ANALYTICS" section with a large blue "R" icon.
- A "Machine Learning" section with a green gear icon.
- A "Shiny" logo and a bar chart.
- A "DS4B 102-R: Shiny Web Applications for Business (Level 1)" course page.
- A "Build a predictive web application using Shiny, Flexdashboard, and XGBoost" section.
- A photo of Matt Dancho.

Success Story

Masatake Hirono

- Took DS4B 201-R
- Completed the 10-Week Course
- **Landed a Job at one of the most Prestigious Management Consulting Firms**



"This course showed me how to place data analytics in real business settings."



Masatake Hirono • 1st
Data Scientist at 株式会社進研アド
4d

After struggling to balance with my work for many months, I've finally completed the Business Science University DS4B 201-R: Data Science For Business With R, taught by [Matt Dancho](#). Unlike other MOOCs, this course showed me how to place data analytics in real business settings. Without this course, I would have never attempted to pay attention to business/financial impacts, generated through my analysis. His instruction turned me a more advanced data scientist and helped me find a new career opportunity. I will start to work at one of the most prestigious management consulting firms in October as a cognitive & analytics consultant. Highly recommended if you would like to use R as a professional business person!

#business_science_success #dataanalysis #machinelearningtraining

CERTIFICATE OF COMPLETION
Business Science University
MASATAKE HIRONO
Course Title: DS4B 201-R: Data Science For Business With R

Reactions: 21 - 4 Comments

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2d ...

How did it help you find another career opportunity? Did he place you in touch with hiring firms?

1 Reply

Masatake Hirono • 1st
Data Scientist at 株式会社進研アド
1d ...

Of course not. In a job interview, I was able to draw interviewer's attention because of my experiences to formulate some insight from analytics for driving business, which I had developed through his course.

**#Business
Science
Success**

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R-TRACK BUNDLE

R-TRACK BUNDLE

DS4B 101-R: Business Analysis With R
Your Data Science Journey Starts Now! Learn the fundamentals of data science for business with the tidyverse.

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

DS4B 102-R: Shiny Web Applications For Business (Level 1)
Build a predictive web application using Shiny, Flexdashboard, and XGBoost

Bundle - DS For Business + Web Apps (Level 1): R-Track - Courses 101, 102,

3 Course Bundle

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<input type="radio"/>	6 Low Monthly Payments 15% COUPON DISCOUNT 6X Payment Plan	6 payments of \$24.99/m	6 payments of \$198.90/m
<input type="radio"/>	12 Low Monthly Payments 15% COUPON DISCOUNT 12X Plan	12 payments of \$12.50/m	12 payments of \$106.25/m

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