

2019 Teradata Data Challenge Finalist Presentations Session 1

TEAM D1-D5

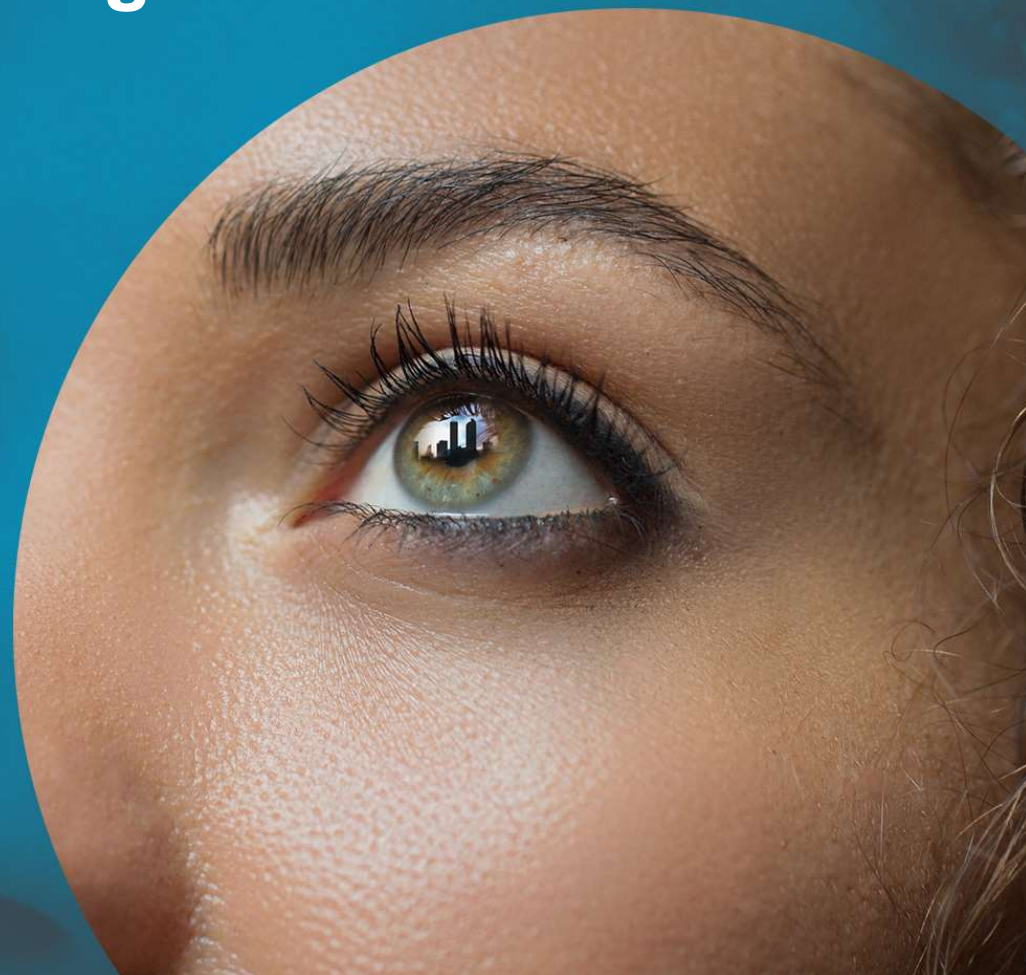
Susan Baskin – Teradata

Jason Dozier – Hire Heroes USA

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Format for Session

- Hire Heroes USA Overview
- Finalist Presentations (Team D1-D5)
- Wrap Up

Data Challenge Finalists Session 1

- D1- Carnegie Mellon Univ. Australia
- D2- ESCP Europe
- D3- NIDA Business School Thailand TEAM 1
- D4- Univ. of Alaska Anchorage
- D5- Washington Univ. St. Louis

Hire Heroes USA overview



Jason Dozier
Director of Program Operations

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HH HIRE HEROES USA



Empowers U.S. military members, veterans and their spouses to succeed in the workforce through transition workshops, personalized career coaching and employment preparation counseling at NO COST.

Mission: TRANSFORMING MILITARY SERVICE INTO CIVILIAN SUCCESS

Hire Heroes USA provided the student teams with:

- Variety of data sets from multiple technologies
- Business questions for teams to address

Over 30 Submissions from AROUND THE GLOBE!

All reviewed by HH USA and Selection Committee

Thank you.

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D1- Carnegie Mellon University Australia

Sayeesha Sridhar
Aman Agarwal
Zaidul Alam
October, 2019

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**Carnegie
Mellon
University**

Agenda

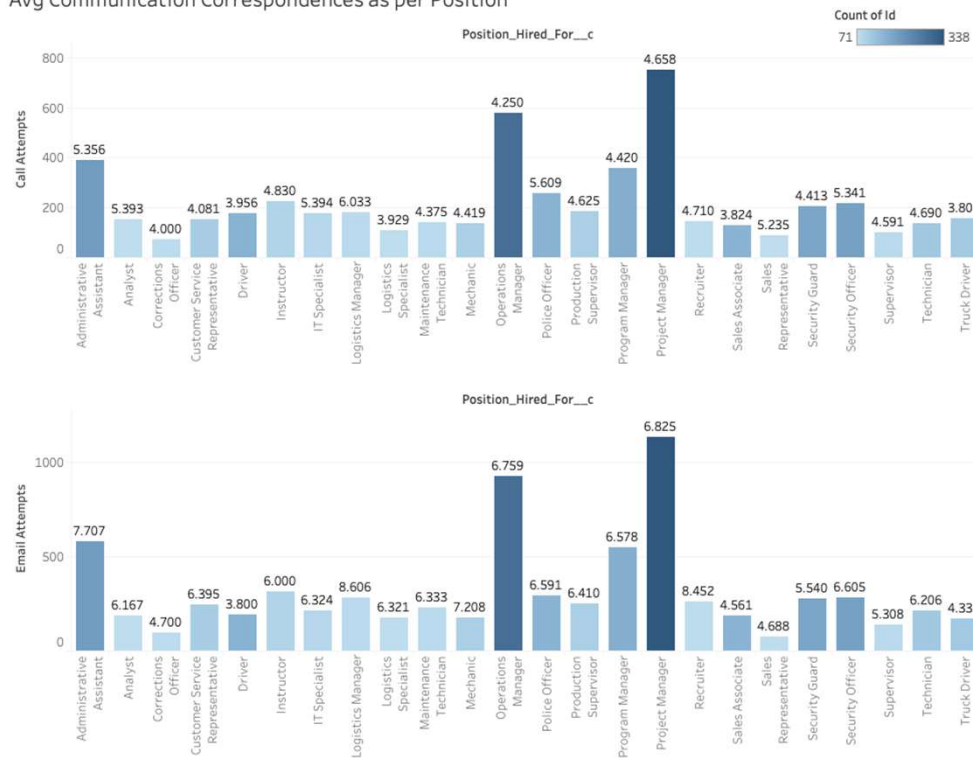
- Overview
- Communication Methods
- Modelling Results
- Volunteer Effectiveness

Overview

- Hire Heroes whose mission is to empower U.S. military members, veterans and military spouses to succeed in the civilian workforce.
- This project culminates into a concise delineation of the business intelligence insights generated from HHUSA datasets.

Communication Methods

Avg Communication Correspondences as per Position



- The average attempts in confirmed hires for:
Phone calls - 4.8
E-mails – 6.75
- Phone calls are a more intimate method to communicate – more information transfer

Best Communication Method



Call?



Email?



Texting?

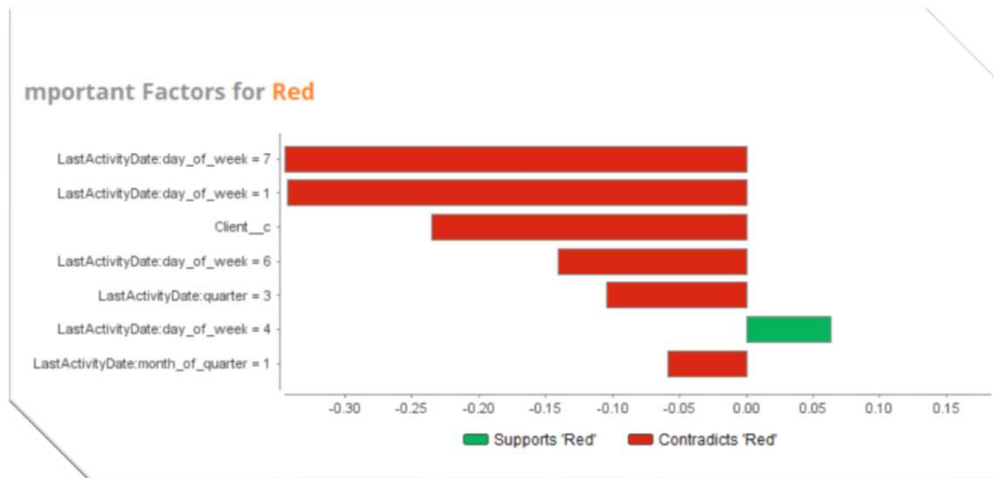
- 👤 Conducted predictive analysis to identify the outcome from each communication method

Findings:

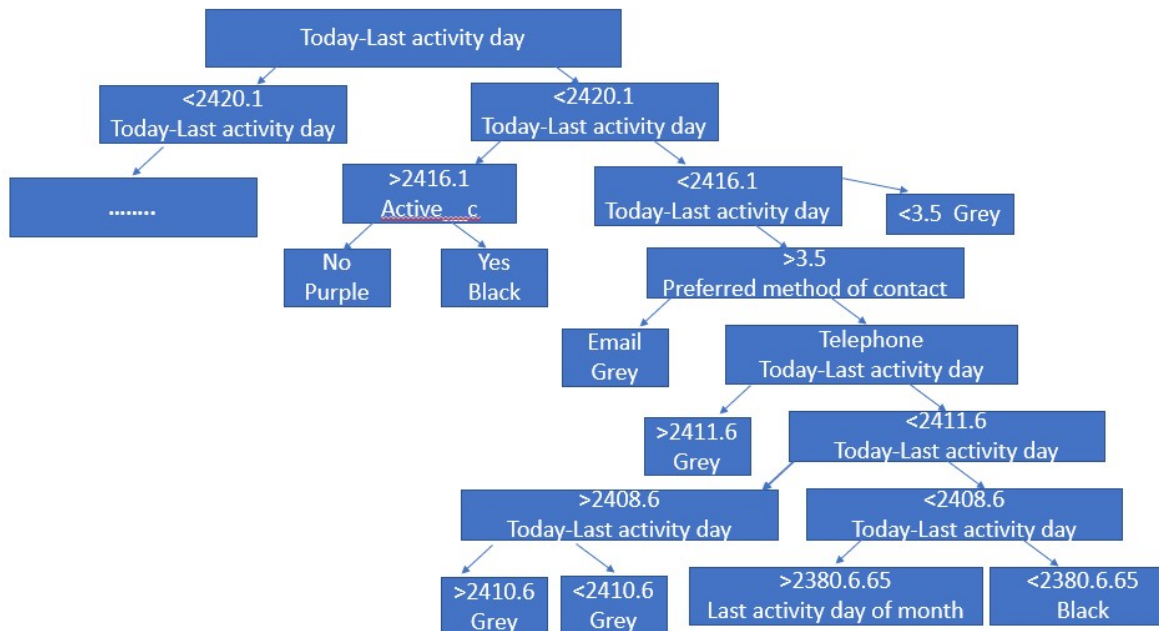
- 👤 Telephone leads to more clients getting involved with the Hire Hero's program

Attracting new clients

- 👤 Telephone works best to attract new clients, but when should the call be made?
- 👤 Naïve Bayes reveals that to involve clients into Hire Hero's program (Turning Red), telephone works best when the call made on the 4th day of the week (Thursday)
- 👤 Calling a client on Sunday (week day =7) or Monday (week day=1) works against the decision



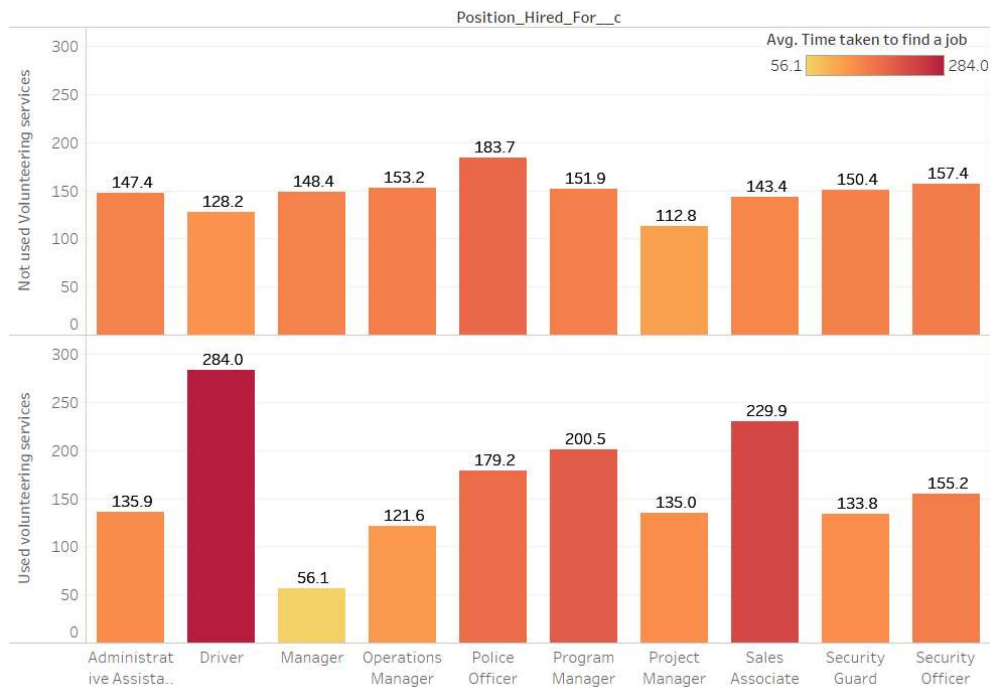
Predicting client outcome



- Decision tree predicts the outcome of a client
- Decision tree gives about 71% overall prediction accuracy and is most effective (97%) in predicting the outcome – Turning Grey
- The last activity day is the most significant parameter for prediction

Time taken to find a job

Average time taken to secure a job in the top 10 job fields using volunteering services

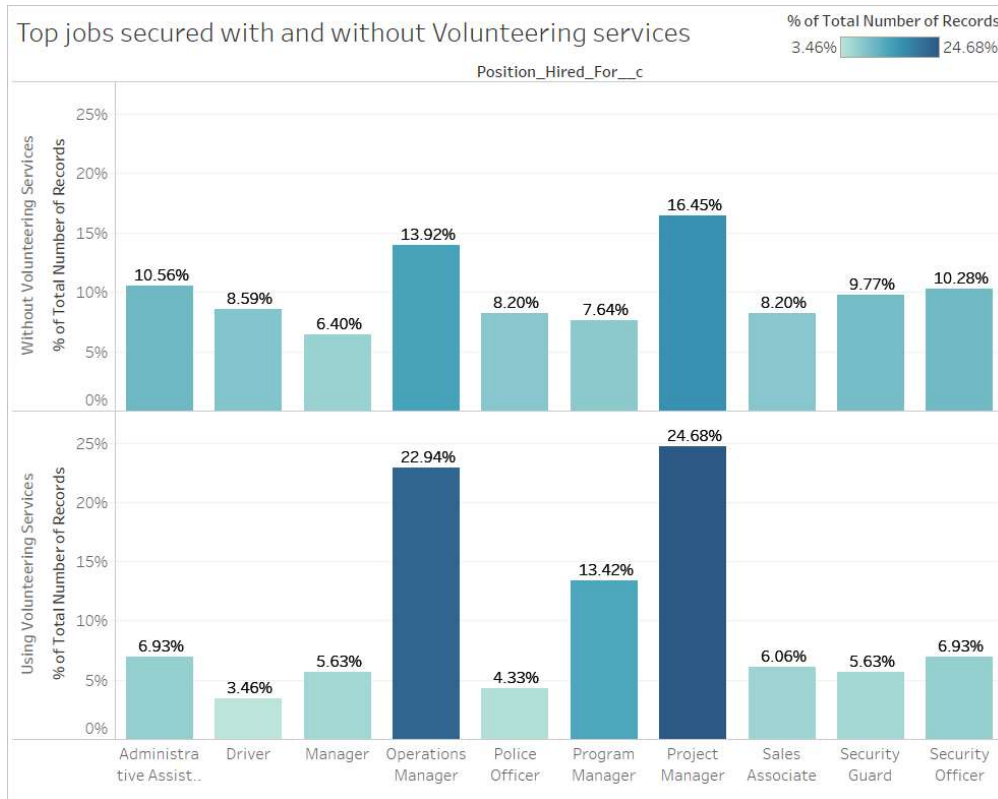


- Volunteering services significantly reduce the time taken to find high profile jobs such as a Manager
- Volunteering services prove counter productive for low profile jobs like Drivers and Sales associate

The average time taken to secure a job as a “Manager” requires on an average

- 148.4 days without volunteering services
- 56.1 days with volunteering services

Type of jobs secured



- Top jobs secured is a function of whether volunteering service was used
- Using volunteering services significantly increases the chances of getting superior roles such as Operations Manager and Project Manager.

The probability of securing a job as a Project manager is (approx.)

- 25% with volunteering services
- 16% without volunteering services

Thank you.

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D2- ESCP Europe - France

HHUSA's value proposition:
Fundamentals, Performance,
Commitment

Riccardo Briganti

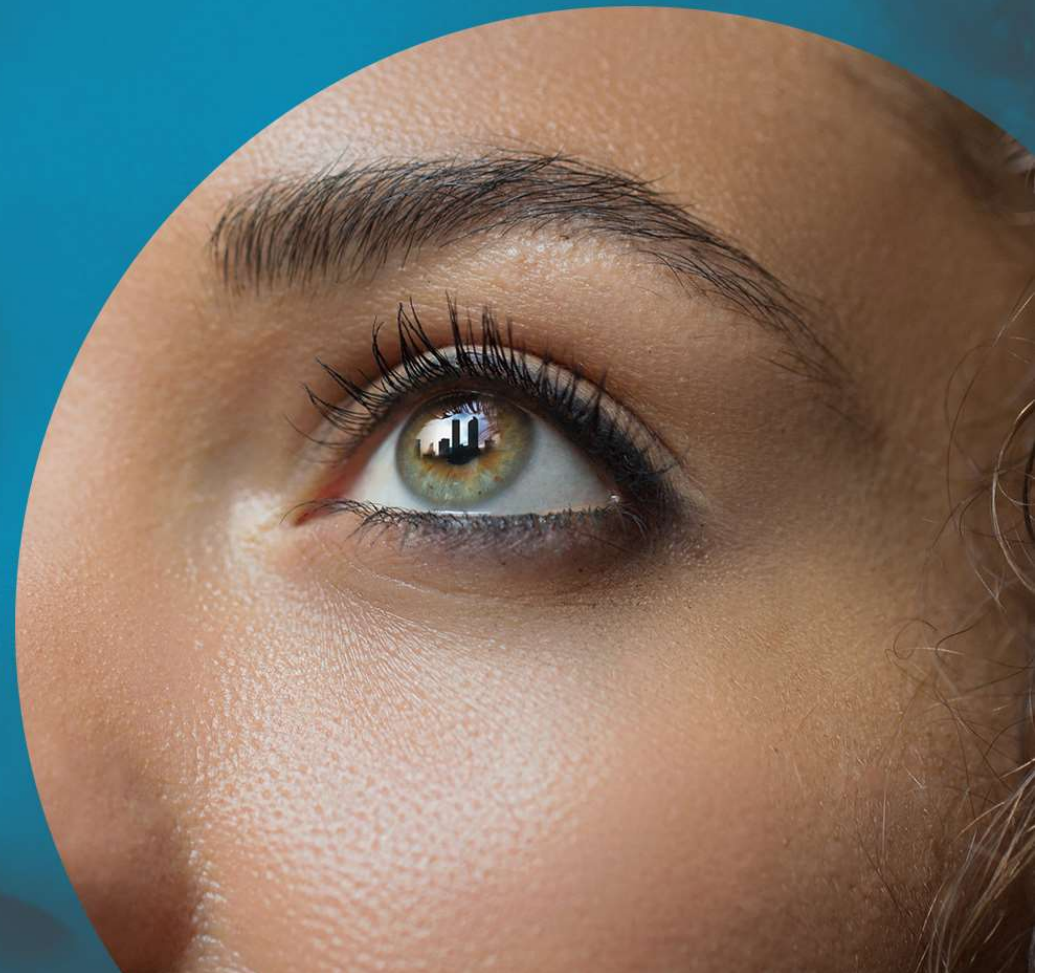
Mickael Marchi Mekari

October, 2019

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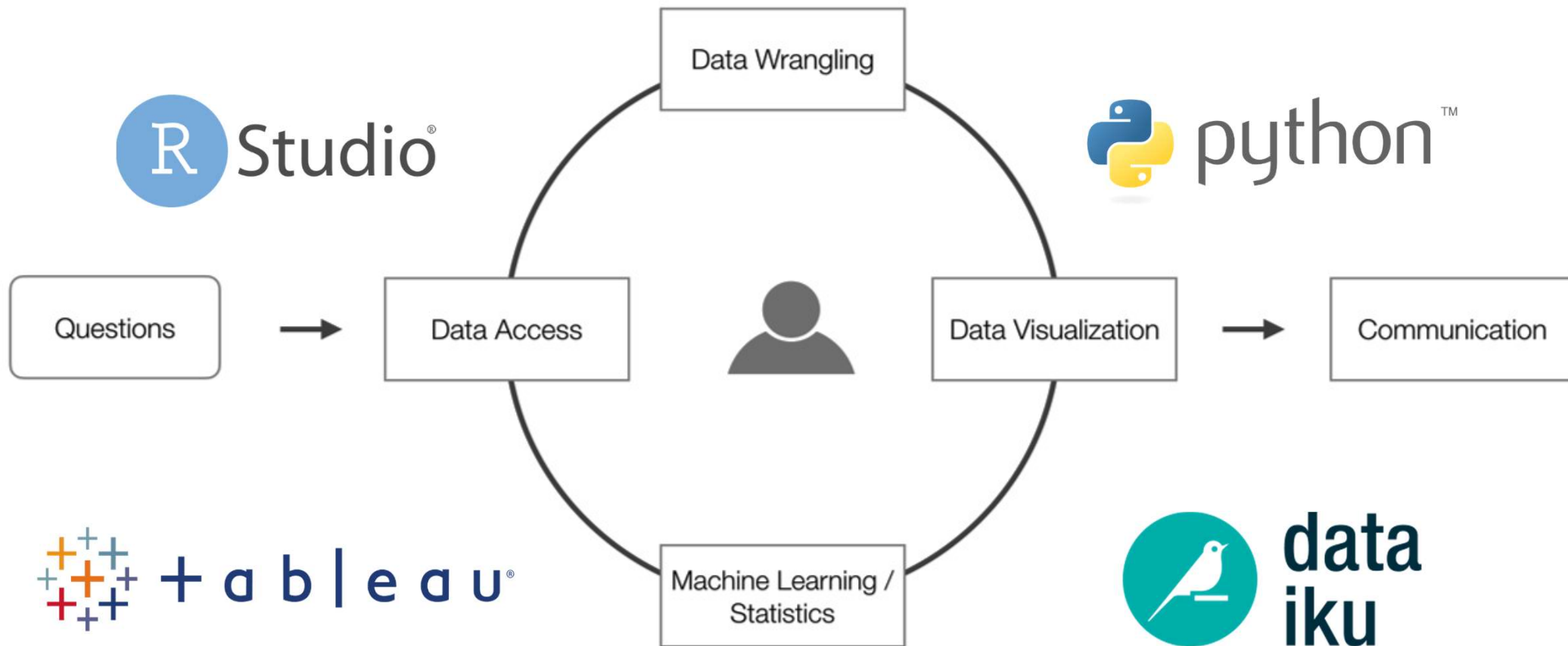
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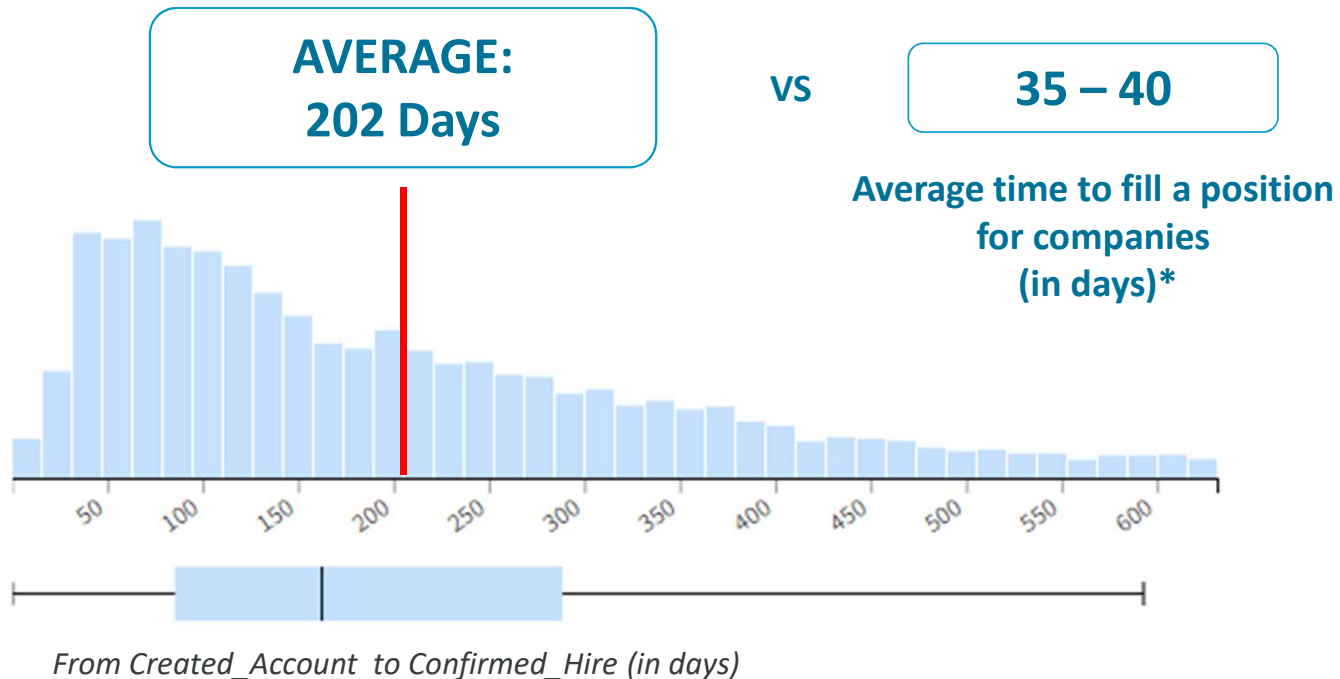
Agenda

- Methodology
- Overview
- Geographical reach
- Reasons to seek for volunteer assistance
- Impact of services on employment success
- Machine learning and results confirmation
- Recommendations

METHODOLOGY



PURPOSE OF SUPPORTING VETERANS

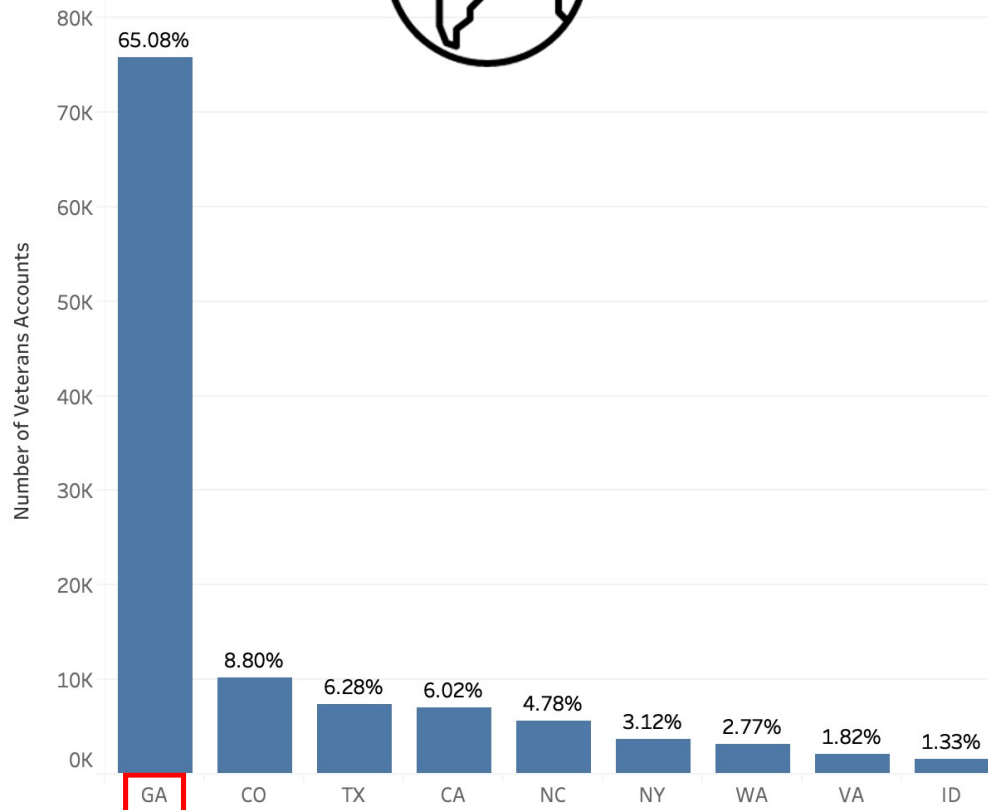


Embarking veterans can improve **diversity and flexibility** while creating a more strategically focused team.

Programs can help not only to prepare for **interviews**, but also to set **strategic goals**, review **personal branding** and train for the recruitment process.



GEOGRAPHIC REACH

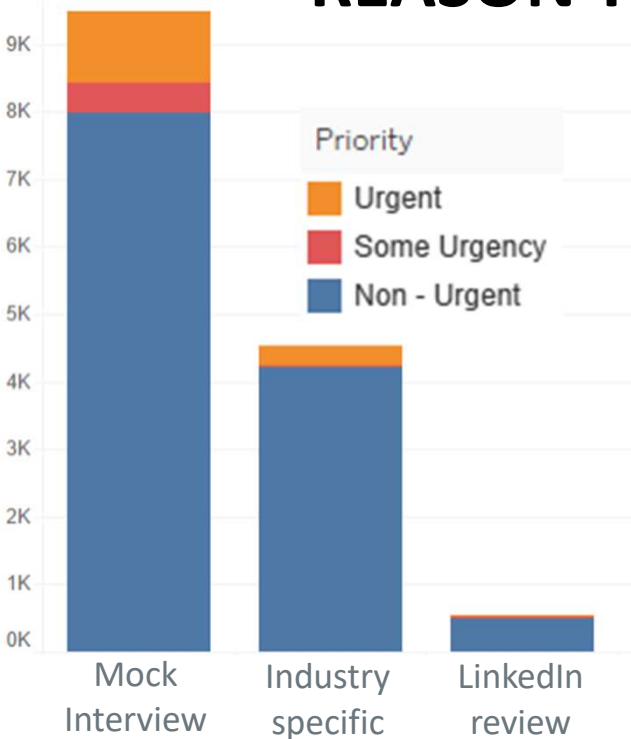


Georgia (GA) has the most clients, predicted 6th State with most Veterans in 2017

Rank	2017	2027	2037
1	CALIFORNIA	TEXAS	TEXAS
2	TEXAS	CALIFORNIA	FLORIDA
3	FLORIDA	FLORIDA	CALIFORNIA
4	PENNSYLVANIA	N CAROLINA	N. CAROLINA
5	NEW YORK	VIRGINIA	VIRGINIA
6	OHIO	<u>GEORGIA</u>	<u>GEORGIA</u>
7	N. CAROLINA	PENNSYLVANIA	OHIO
8	VIRGINIA	OHIO	PENNSYLVANIA
9	<u>GEORGIA</u>	NEW YORK	WASHINGTON
10	ILLINOIS	WASHINGTON	NEW YORK

States with the most Veterans in 2027*

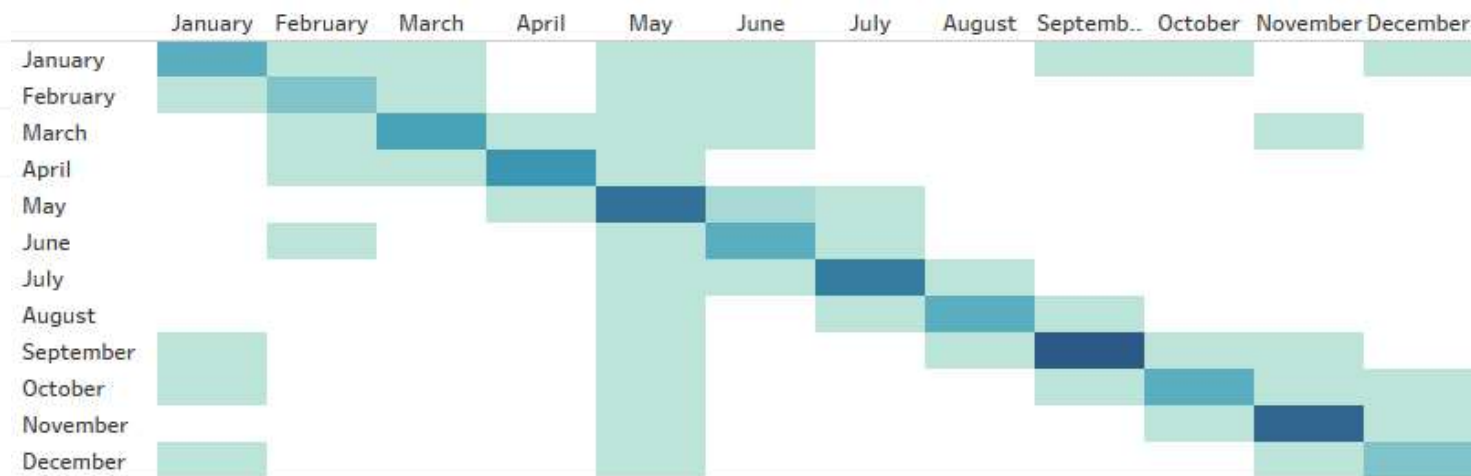
REASON TO SEEK FOR VOLUNTEER ASSISTANCE



We can notice how the peaks are consistent with **recruitment cycles**: summer, immediately after and end of the year.

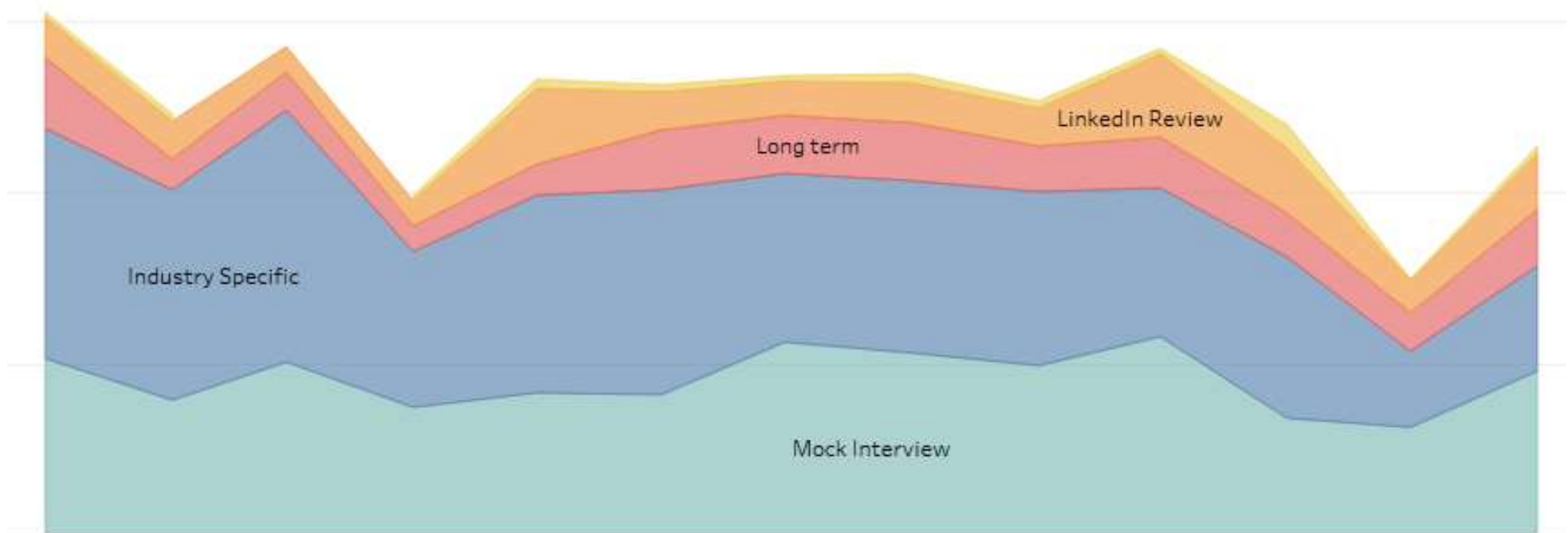


Number of assistance requests by account creation date

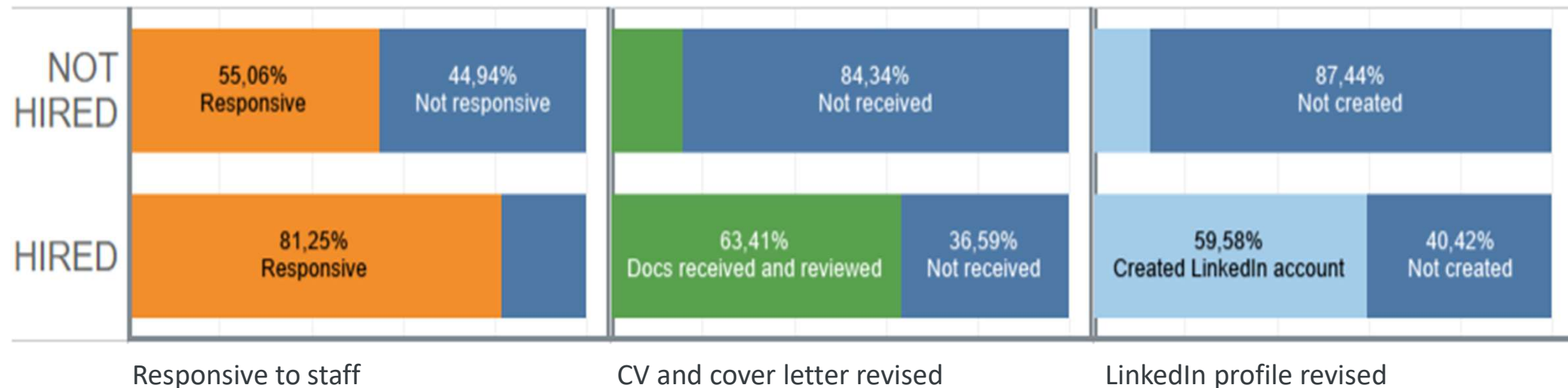


Most of the requests come in the same month of the creation of the account.

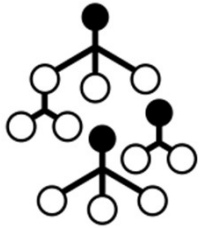
Most of the requests seems to come from candidates seeking help for **imminent interviews** (prescheduled without HHUSA).
We will try to find out if other services that focus on **personal profiling** (CV, LinkedIn profile, etc.) significantly **improve success** in job-seeking.



IMPACT OF SERVICES ON EMPLOYMENT SUCCESS, MEASURED AS % OF SERVICE USERS



*We show how use of **HHUSA's services** improve success' probability. The effect is statistically significant only for clients who signed up at least 3 months before being available to start working*

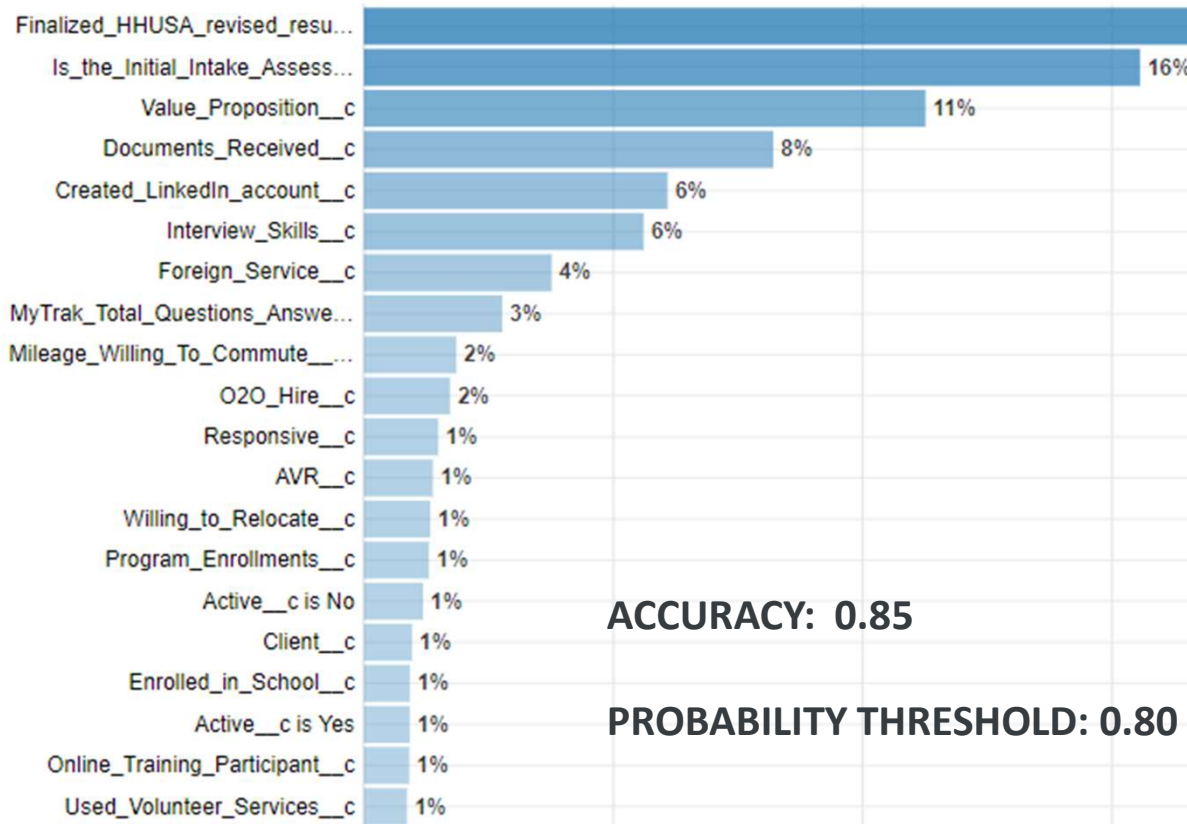


RANDOM FOREST

Type: prediction

Target: Hired/Not Hired (0 - 1)

The prediction model **confirms** what we found through analytics, which is that **long-term profile branding assistance strongly increases employability success**

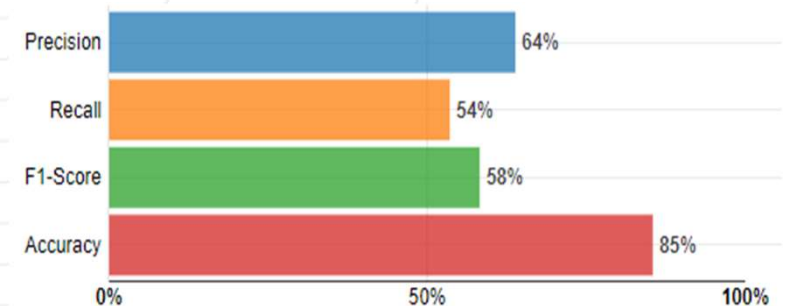


ACCURACY: 0.85

PROBABILITY THRESHOLD: 0.80

6 MOST IMPORTANT FEATURES:

- Revised resume
- Initial Intake Assessment completed
- Candidates' Value Proposition updated
- Documentation revised
- Created LinkedIn Account
- Interview skills revised



RECOMMENDATIONS

- Services that focus on building a long-term relationship with the client are the ones providing the highest value to both parties;
- These results can be used to communicate clients the importance of establishing not only a strong and durable relationship using profile reviewing services but also that doing so in advance is crucial to succeeding. Transparency in the tools' effectiveness and their strategic use has the possibility of improving clients' success, satisfaction, communication clarity and set more clear strategic goals;
- The model implemented (Random Forest) has proved useful to both confirm the previous statement and making predictions on the success probability of candidates. This rating can be used to identify qualified candidates (therefore setting a personalized strategy or recommendation) and to further explore the underlying drivers of candidates' success.

Thank you.

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D3- NIDA Business School Thailand

Transforming Military Service into
Civilian Success

Jantima Jakpraneewirath (Presenter)

Tanisorn Manodamrongtham

Putisek Charoenrungruang

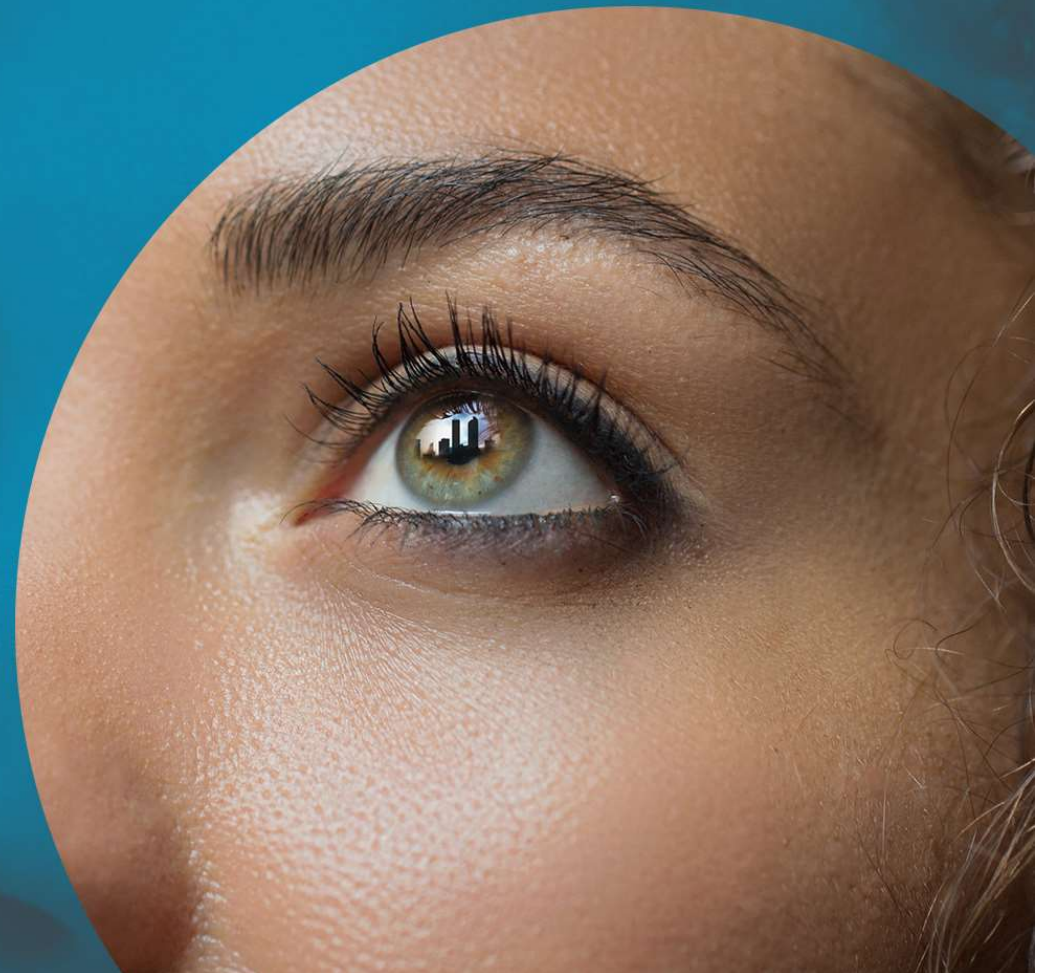
Advisor: Dr. Jongsawas Chongwatpol

October 20, 2019

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AGENDA

-  1 Problem and Motivation
-  2 Client-Services Analysis
-  3 Development Analysis
-  4 Salesforce-Activities Analysis
-  5 Marketing Analysis
-  6 Conclusion

PROBLEM AND MOTIVATION

Analytical Framework

Goal

To empower U.S. military members, veterans and military spouses to succeed in the civilian workforce.

Current Situation

10,112 Veterans and Military Spouses on Job Board

16,467 Jobs on Job Board

33,000 Confirmed Hires

60,245 Revised Resumes

685 Volunteers

Questions

What factors affect each stage of the application status?

What main factors affect the flow of application status from red status to either grey or blue status?

Do the applicants get the job whose requirements match their qualifications?

Do most of our individual donors come from one geographic location within the US?

Do we know the average lifespan of a monthly donor?

What activities should be done by a sales force team within 1 day?

What are the most popular channels for customer contact?
What is the main discussion topic?
What is the average consulting time?

Tools

Client Services

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1

Development

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2

Salesforce Activities

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sas

3

Outcome

Improving Hiring Process

Increasing Donation Amount

Increasing Productivity and Efficiency of Salesforce Activities

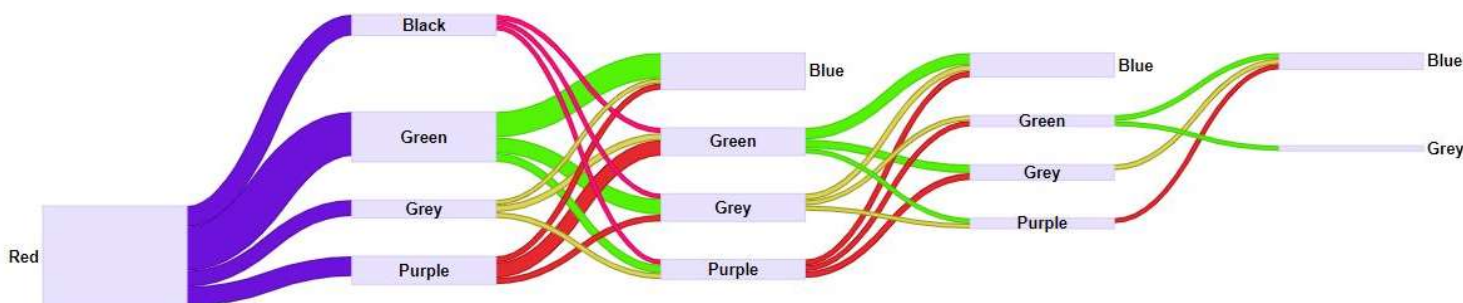


HIRE HEROES
USA



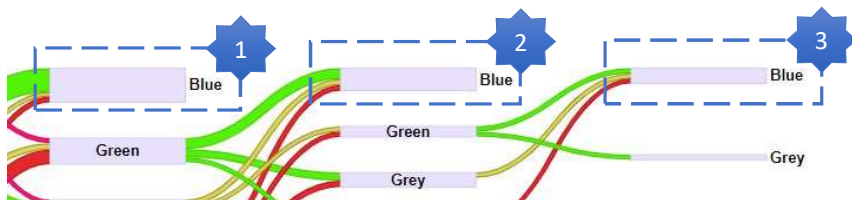
CLIENT-SERVICES ANALYSIS

Path Analysis - Changing Status



Blue Color

1 Average Duration: 187 days

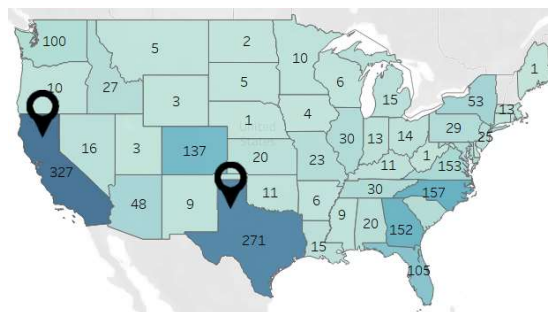


Blue Profile

Texas, California

Male

Bachelor Degree



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Key Finding

Blue color and the pathway of changing color from others into blue color are the key element for investigating and analyzing the efficiency and support for job searching of Hire Heroes organization.

Number of Observations (Blue Color)

Path	No. of Observations
1. [Red, Green, Blue]	17,666
2. [Red, Purple, Blue]	1,064
3. [Red, Grey, Blue]	57



Average Duration: 360 days



Average Duration: 578 days

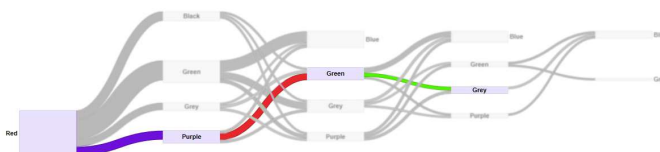
CLIENT-SERVICES ANALYSIS

Grey Color

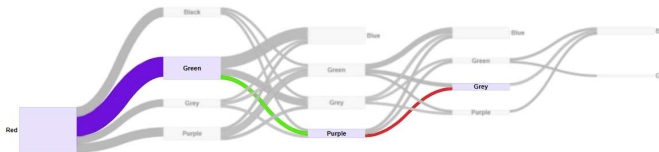


High Priority (25%),
Average Duration: 517 Days

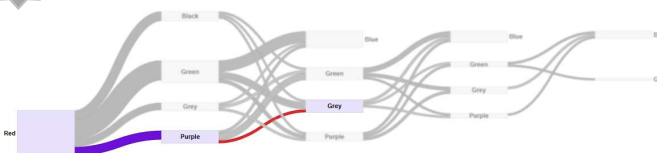
1 Path: Red -> Purple -> Green -> Grey



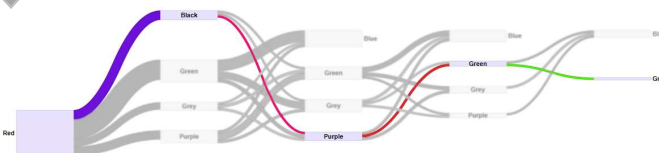
3 Path: Red -> Green -> Purple -> Grey



2 Path: Red -> Purple -> Grey



4 Path: Red -> Black -> Purple -> Green -> Grey



High Priority Profile

High School
Male
Texas, California

Salary
Not Used Volunteer Service
Word of Mouth

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Key Finding

The grey color and the pathway for changing the other colors into grey is the key for investigating and analyzing the losing resources of the Hire Heroes organization.

Number of Observations (High Priority)

Path	No. of Observations
1. [Red, Purple, Green, Grey]	2,690
2. [Red, Green, Purple, Grey]	1,318
3. [Red, Purple, Grey]	993
4. [Red, Black, Purple, Green, Grey]	16



Medium Priority (41%),
Average Duration: 239 Days

1 Path: Red -> Green -> Grey

2 Path: Red -> Black -> Green -> Grey



Low Priority (34%),
Average Duration: 46 Days

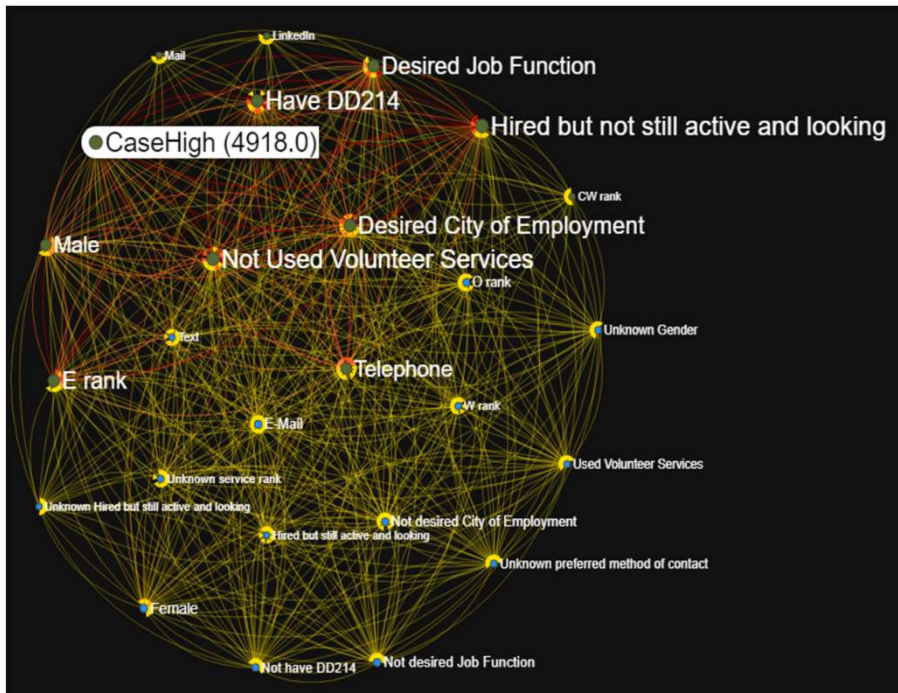
1 Path: Red -> Grey

CLIENT-SERVICES ANALYSIS

Predictive Significant Factors – Grey color

1

High Priority



Predictive Models

The 3 Important Information Group for Prediction

- 1 Client Information
- 2 Client Requirements
- 3 Duration of Color Changing Status

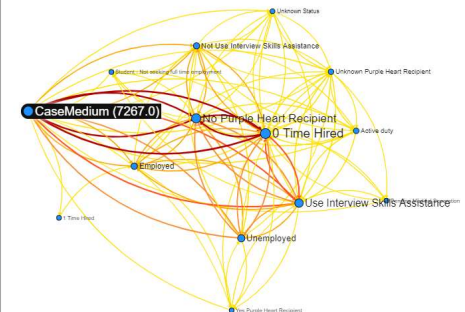
“High Priority” Significant Factors

“High Priority” Significant Factors		
Variable	Condition	Probability
DD214	No	↓
Desired City of Employment	No	↓
Desired Job Function	No	↓
Prefer Method of Contract	E-mail	↑
Prefer Method of Contract	Text	↓
Purple Heart Recipient	No	↑
Service Rank	E Rank	↓
Used Volunteer Service	No	↑

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2

Medium Priority



“Medium Priority” Significant Factors

Variable	Condition	Probability
DD214	No	↓
Desired City of Employment	No	↓
Purple Heart Recipient	No	↑
Status	Employed	↑
Status	Student	↑

3

Low Priority

“Low Priority” Significant Factors

Variable	Condition	Probability
DD214	No	↑
Desired City of Employment	No	↓
Prefer Method of Contract	E-mail	↑
Prefer Method of Contract	Text	↓
Purple Heart Recipient	No	↑
Status	Student	↑
Used Volunteer Service	No	↑

DEVELOPMENT ANALYSIS

Donation Year (2016 – 2018)

Insight



Highest Donation Amount: **New York state**

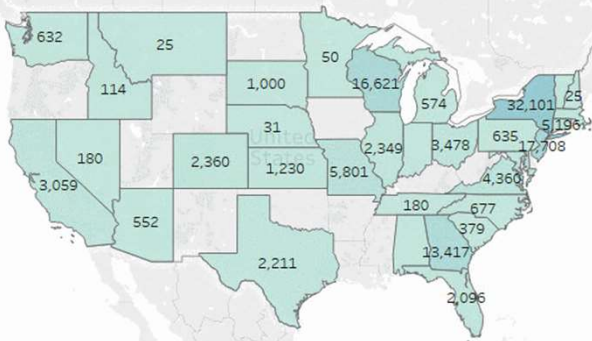
Highest Donation Growth Rate: **Northwest region**

Highest New Donors Growth Rate: **Southeast region**

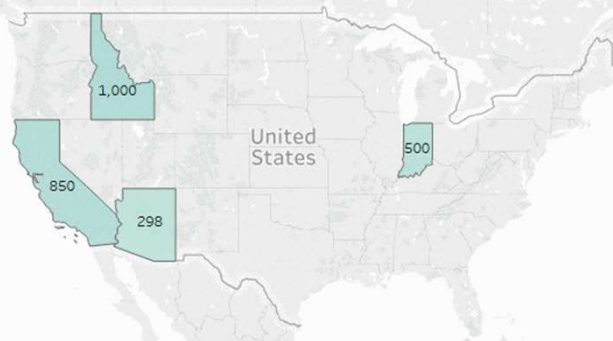
Highest Corporate Donors and Donations: **California and Arizona**

Highest Individual Donors and Donations: **California and Texas**

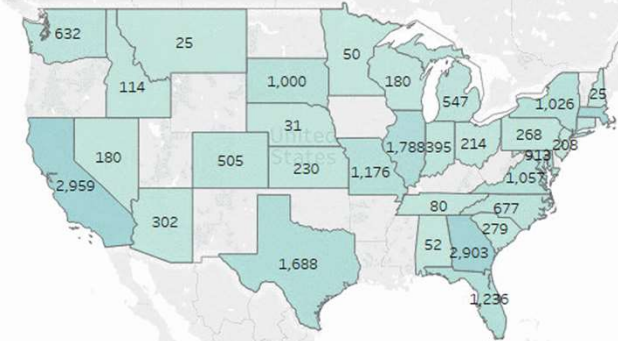
Total Donation : Year 2016



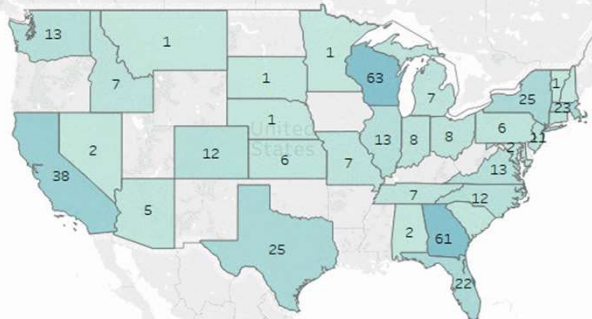
Corporate Donation : Year 2017



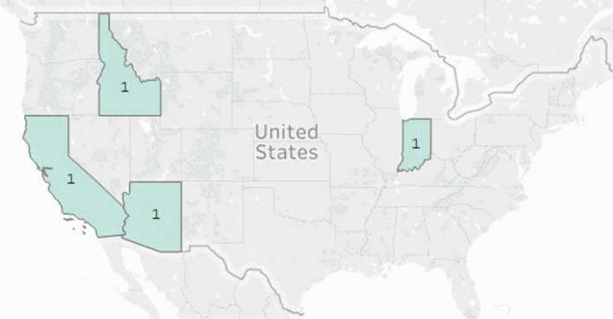
Individual Donation : Year 2016



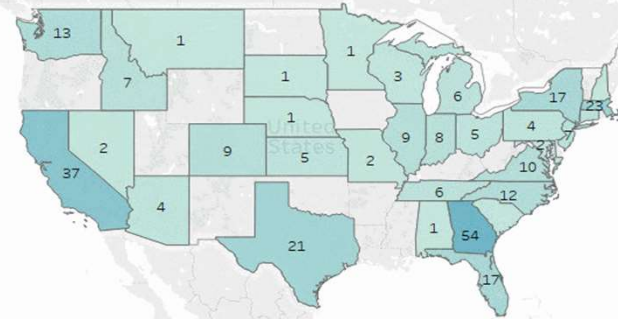
Total Donor : Year 2016



Corporate Donor : Year 2017

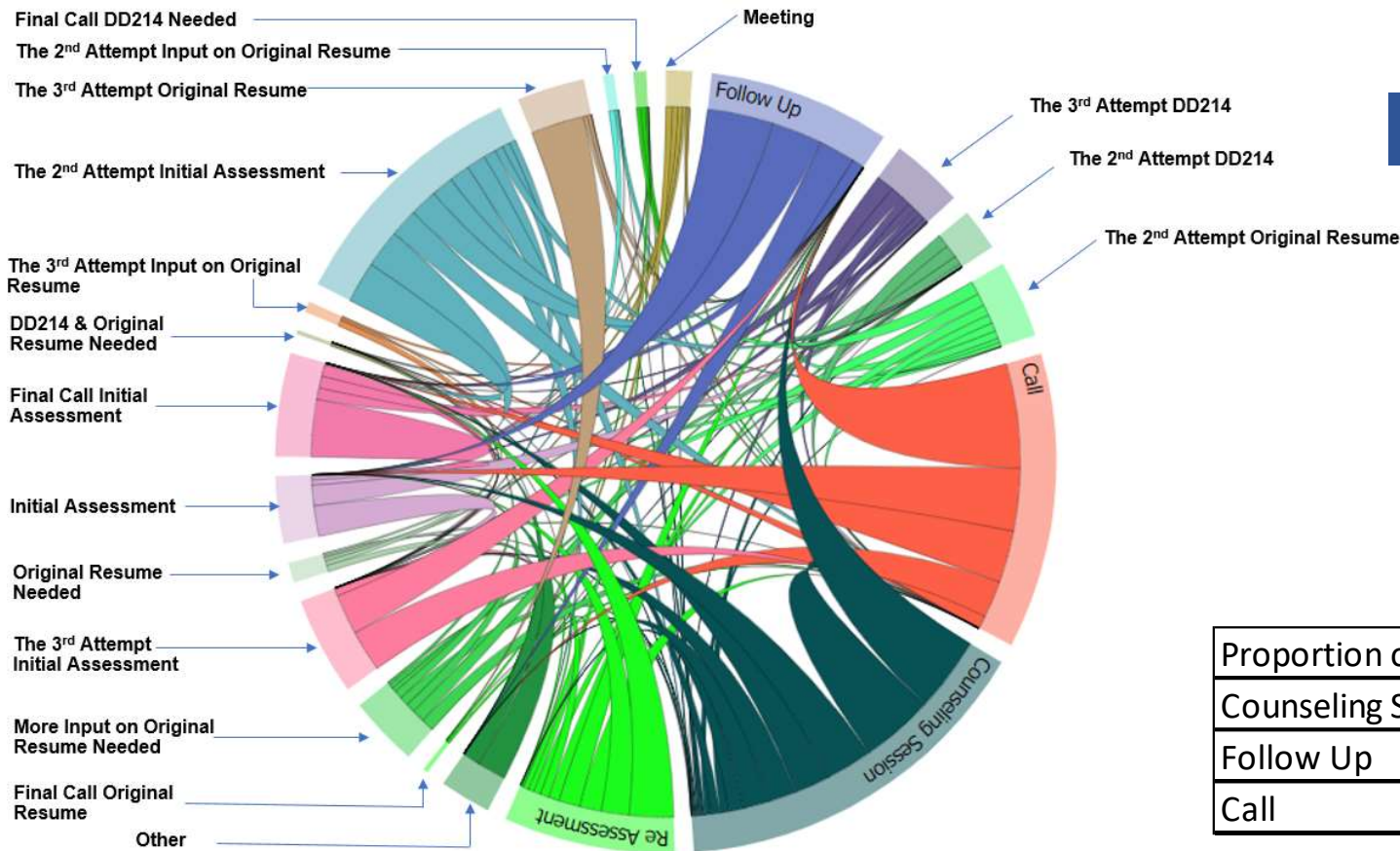


Individual Donor : Year 2016



SALESFORCE-ACTIVITIES ANALYSIS

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Activities Completed in 2018

Insight

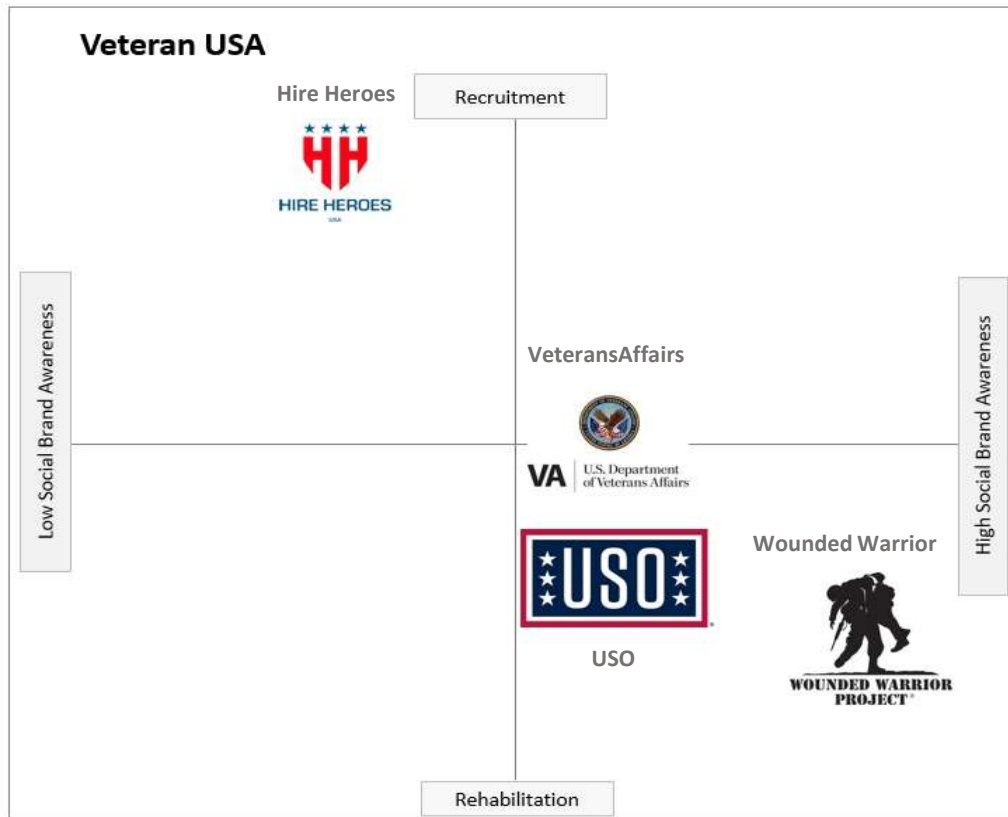
Based on the market basket analysis, the most common activity is Counseling Session, Follow Up and Call. These activities account for approximately 50% of overall activities in each quarter.

Proportion of activities	Q1	Q2	Q3	Q4
Counseling Session	22%	25%	22%	30%
Follow Up	16%	18%	15%	17%
Call	15%	17%	14%	13%


MARKETING ANALYSIS

Brand Positioning

Perceptual Map



Brand Awareness in Social Media (Unit: Person)

				
	Hire Heroes	Wounded Warrior	USO	VeteransAffairs
	50,059	3,110,629	1,045,023	1,175,625
	3,643	91,200	81,600	127,000
	1,392	190,000	163,000	625,000
	94	5,600	2,897	29,698
	139,651	98,321	29,956	-

As of : 28/05/2019

CONCLUSION



Transforming Military Service into Civilian Success

Subject	Key Findings	Recommendations
Client Services	<ul style="list-style-type: none">Volunteer Service and Purple Heart Recipients <u>Reduce the Probability</u> of High Priority of Grey Color Status Creation.E-mail <u>Increases the Probability</u> of High priority of Grey Color Case Creation	<ul style="list-style-type: none">Promote Volunteer Services for All Clients Except in TX and CAUse Purple Heart Recipient for Applying the Application
Development	<ul style="list-style-type: none"><u>Highest Donation</u> Growth Rate in the Northwest<u>Highest New-Donor</u> Growth Rate in the Southeast<u>Growth Trend in Recurring Donations</u> Every YearRecurring Donations Mostly Through the <u>Website</u>	<ul style="list-style-type: none">Promote Donation Campaign on Website and Social Media
Salesforce Activities	<ul style="list-style-type: none">Initial Assessment Activity Indicates <u>Seasonal Trend</u><ul style="list-style-type: none">Quarter 1 to 2 (→ Increasing Trend)Quarter 2 to 3 (→ Decreasing Trend)Quarter 3 to 4 (→ Increasing Trend)Counseling Session Activity Only in Quarter 1 and Quarter 3, Seldom in Quarter 2 and Quarter 4	<ul style="list-style-type: none">Implement Chatbot or AI Technology to Reduce the Load of the Salesforce Team

Thank you.

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Client Services Analysis

Presented By: Geoffrey D. Tomm

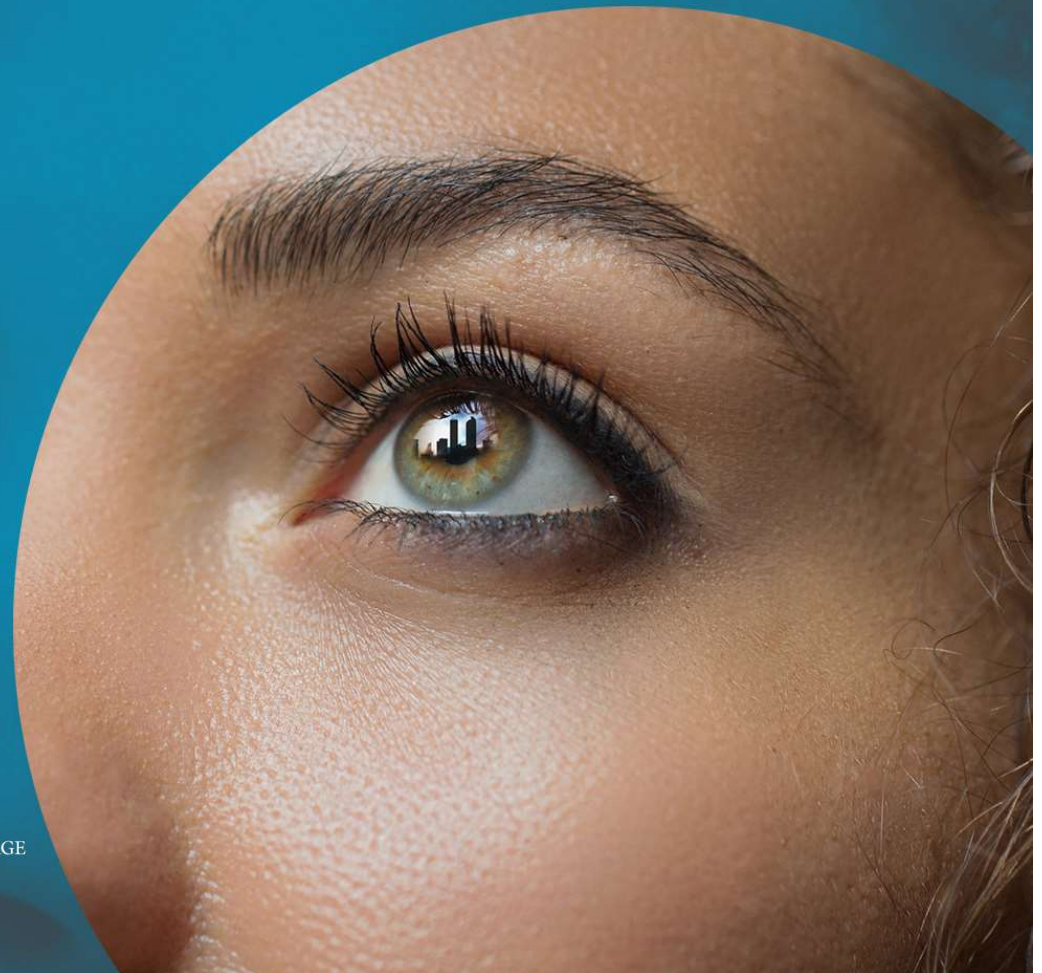
Team Members: Tamra Aguilar, Gavin M. Northey,
and Random Reamey

D4 – University of Alaska Anchorage

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College of Business
and Public Policy
UNIVERSITY of ALASKA ANCHORAGE



Agenda



Methodology



Disability Rating



Time In Service



Education



Rank









Additional Analysis

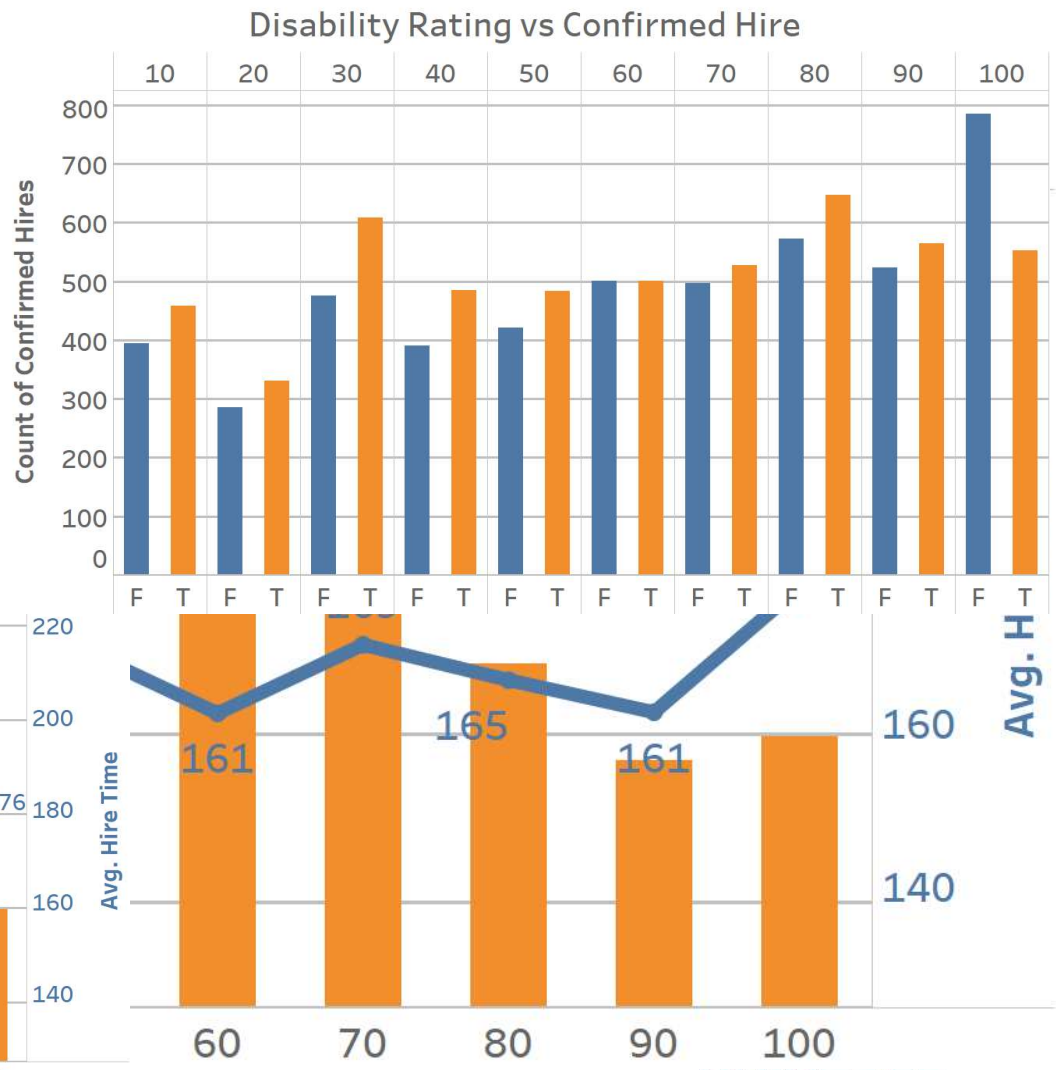
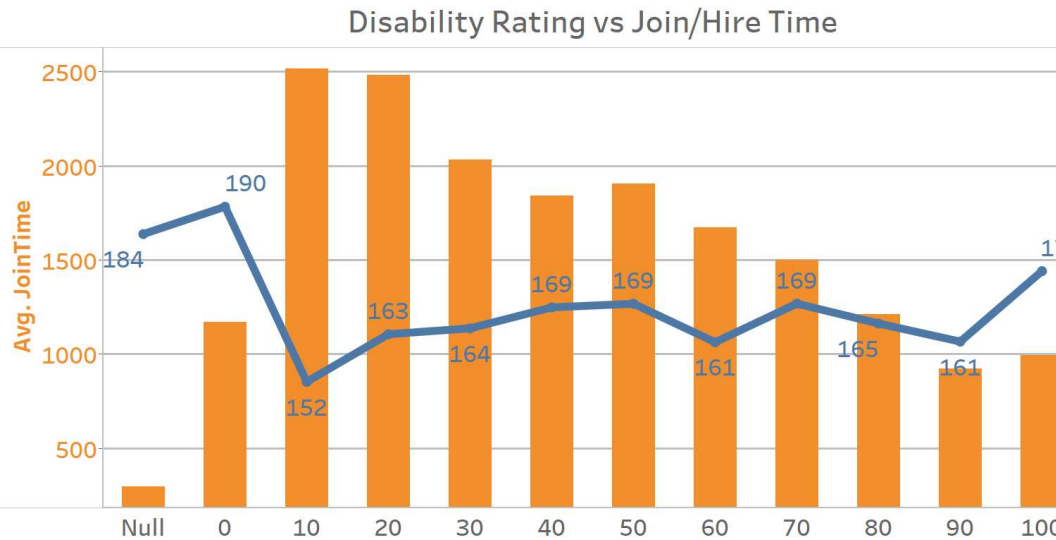
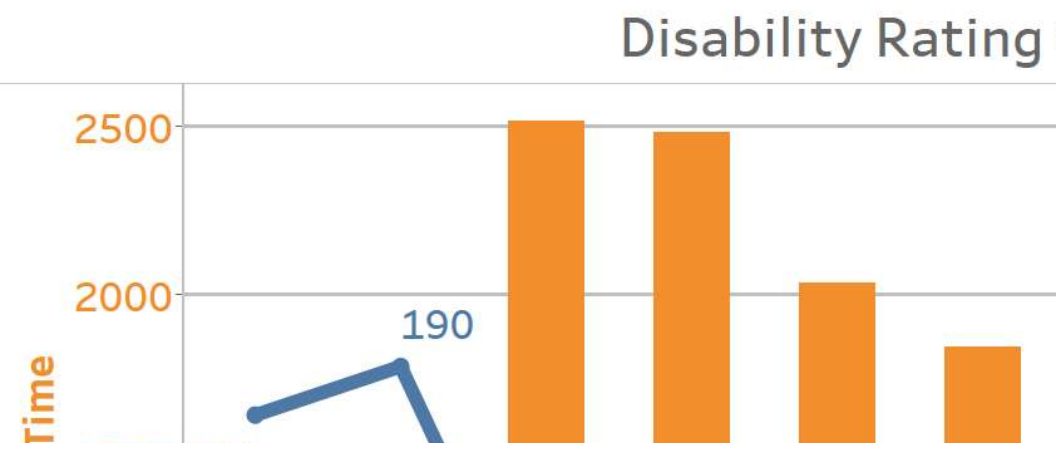


Recommendations

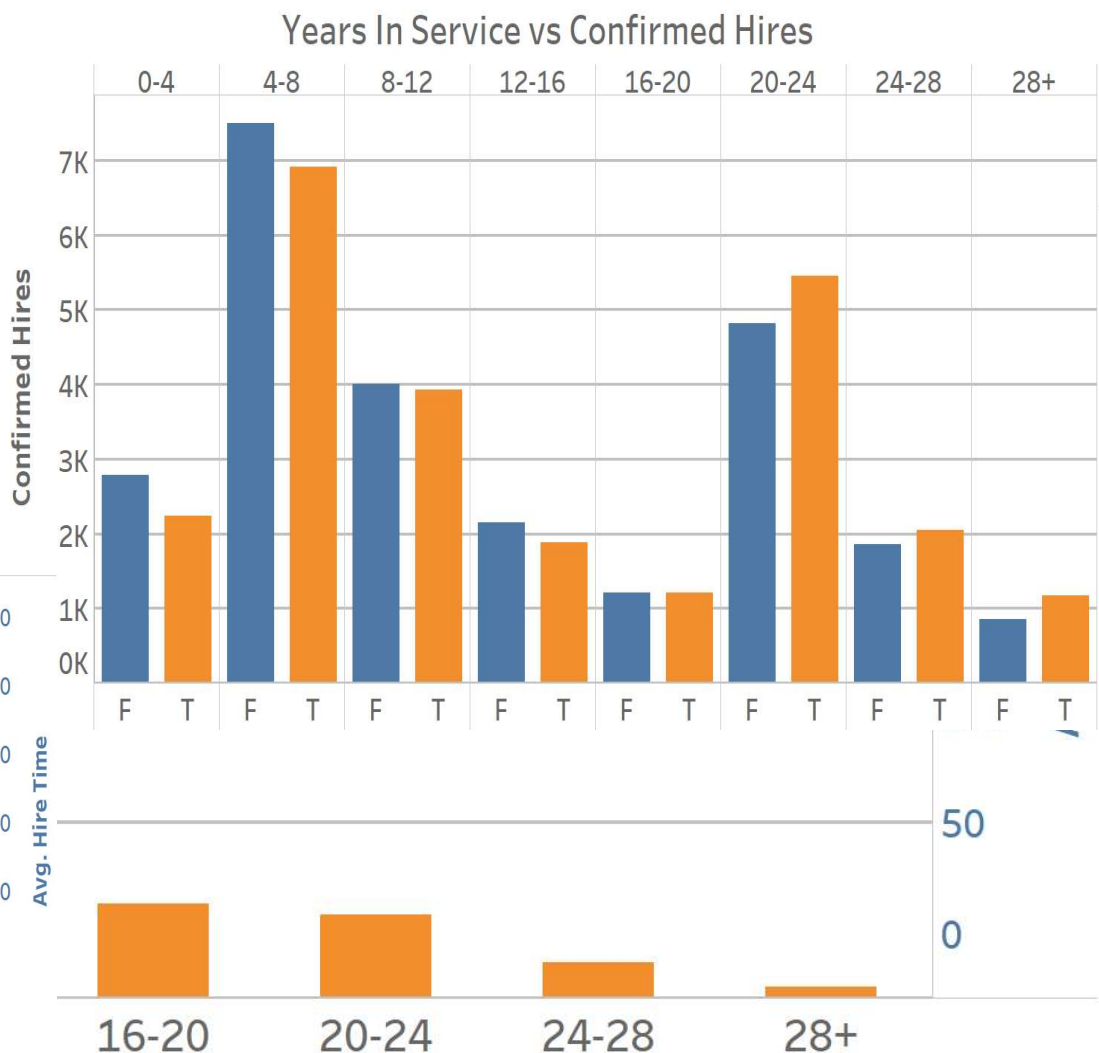
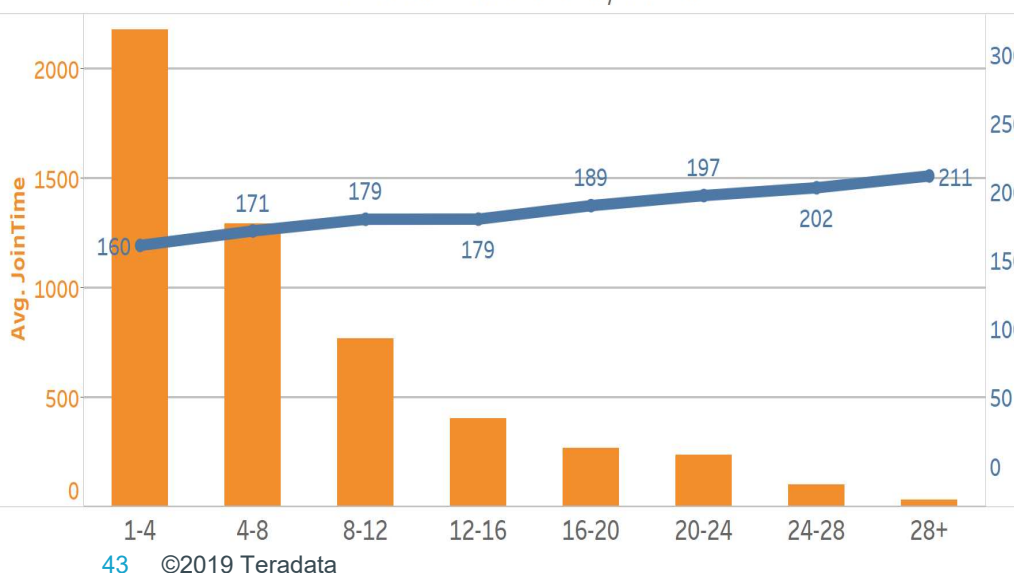
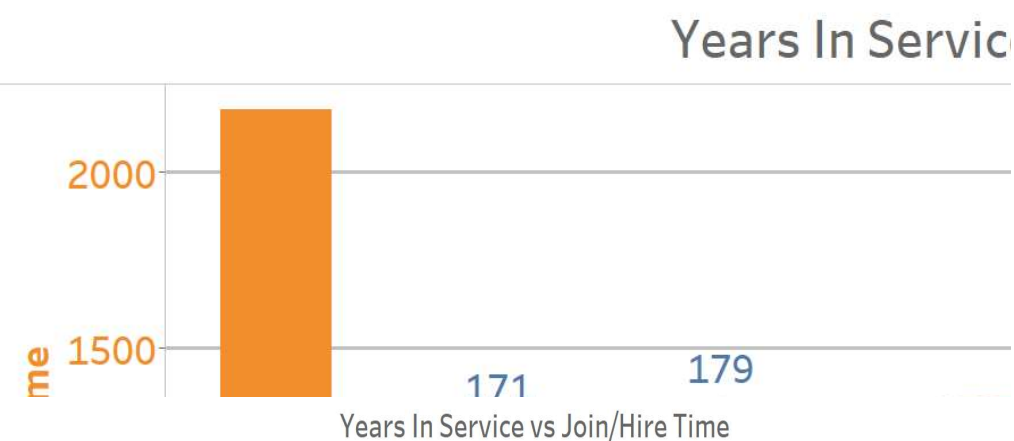
Methodology

Objective	Approach	Tools	Key Factors
Relationship Between Client Demographics & Confirmed Hires	Logistic Regression		Time in Service, Disability Rating, Interview Skills, Desired Employment Industry
	Microsoft Naïve Bayes Algorithm		
Relationship Between Client Demographics & Hire Time	Microsoft Naïve Bayes Algorithm		Rank, Time in Service, Education, Employment Status
	Linear Regression		
Relationship Between Client Demographics & HHUSA Join Time	Microsoft Naïve Bayes Algorithm		Time in Service, Rank, Disability Rating
	Linear Regression		

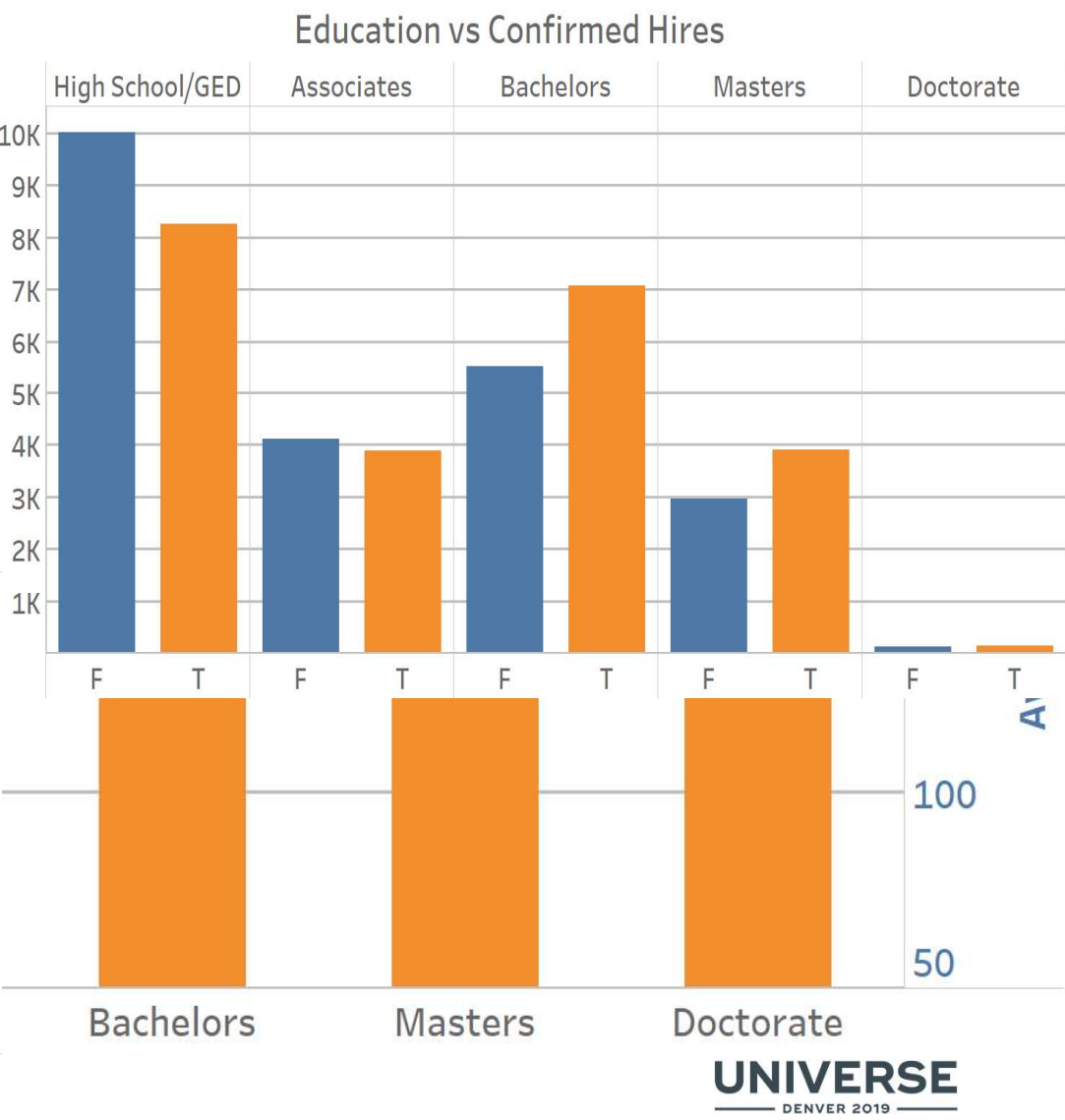
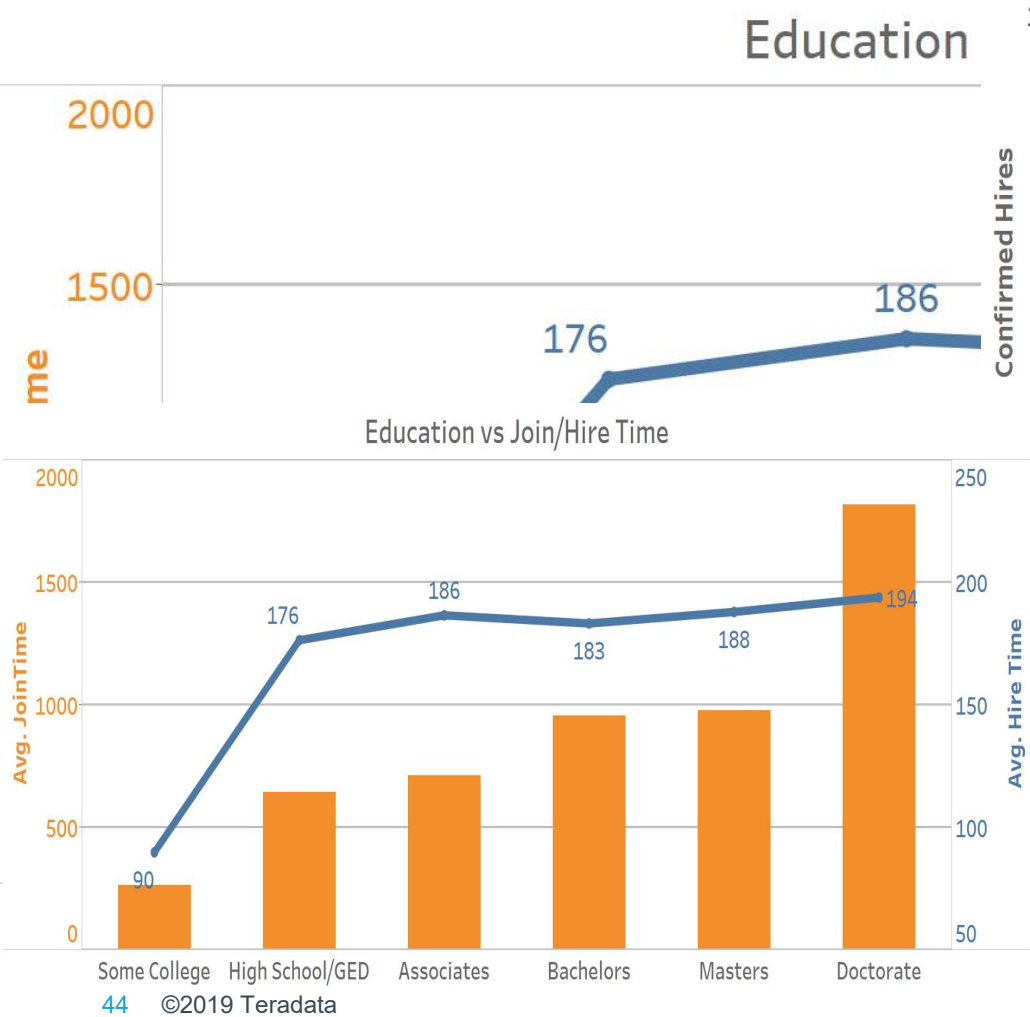
Disability Rating



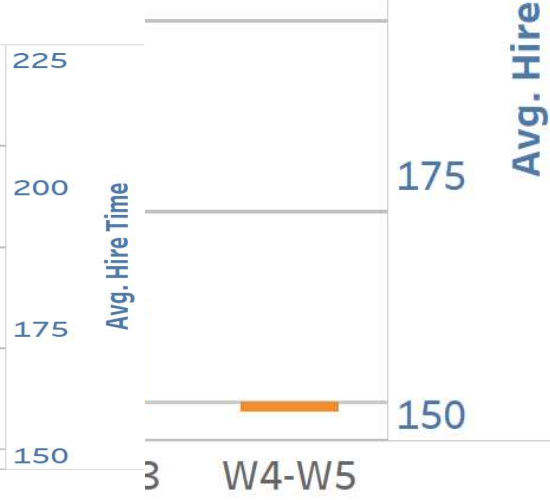
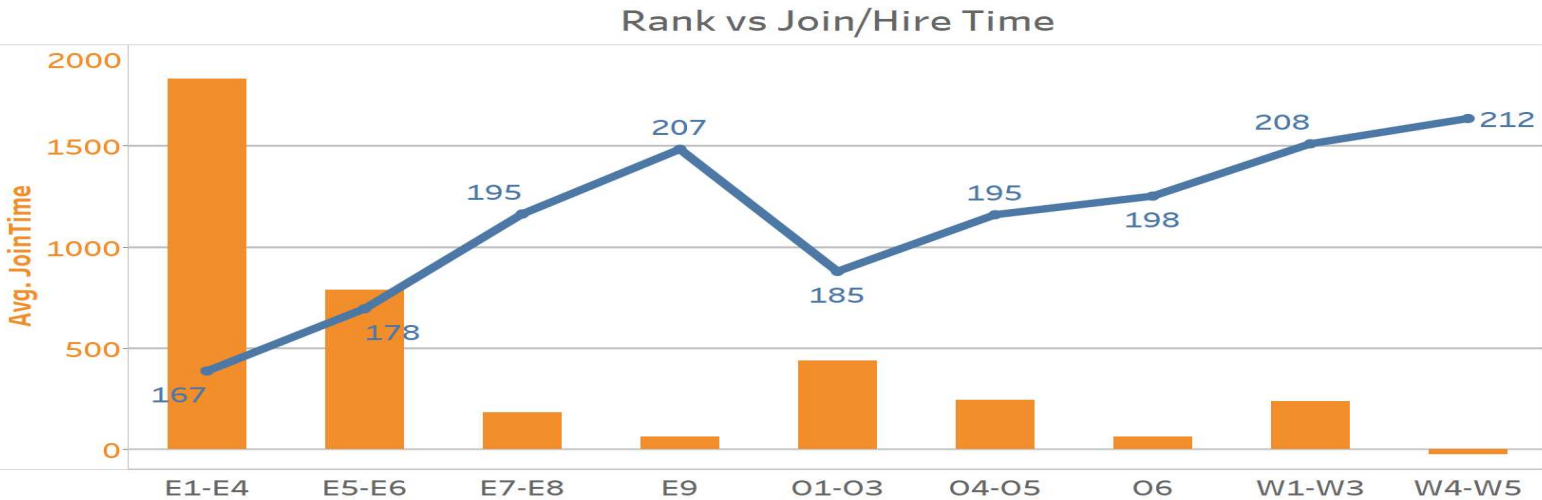
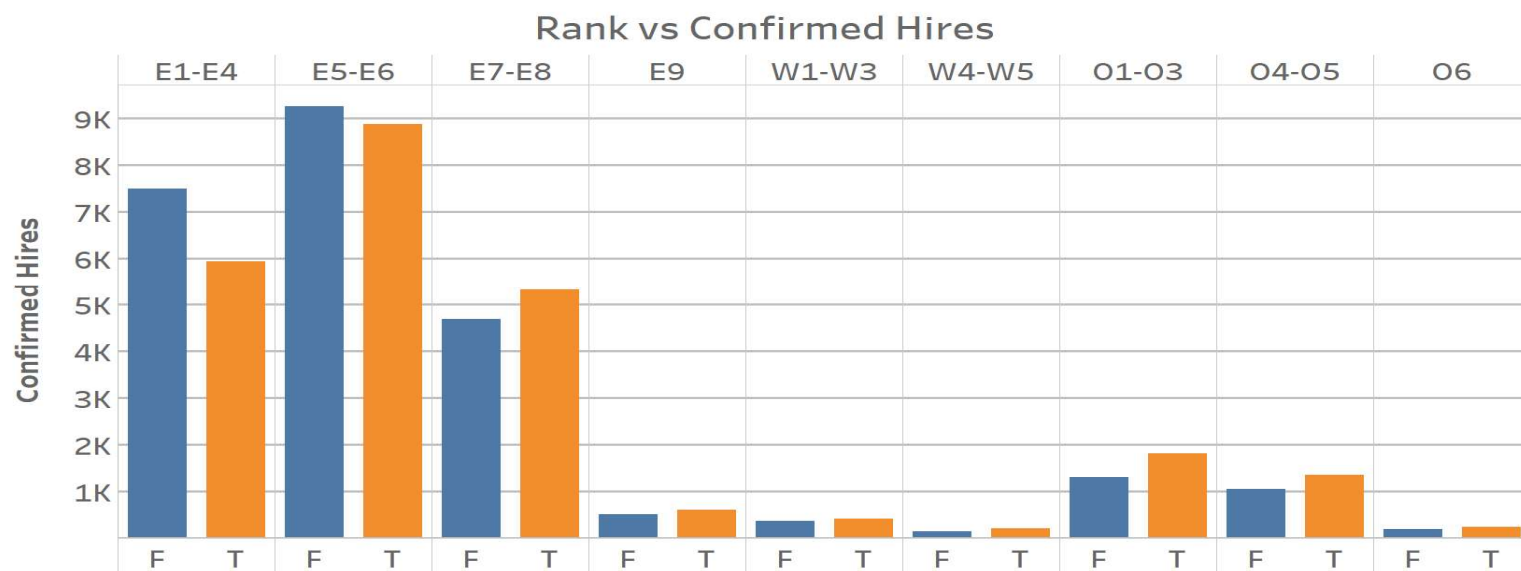
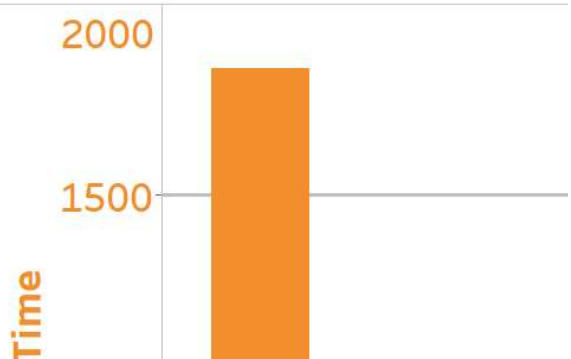
Time In Service



Education

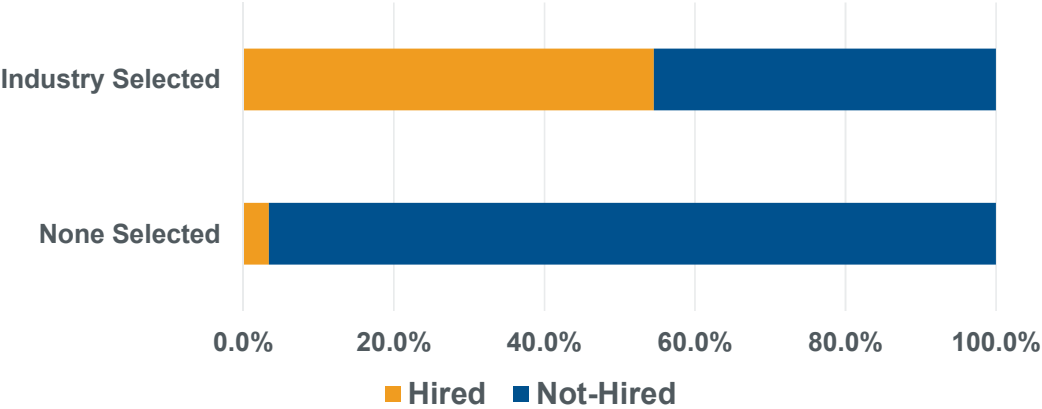


Rank

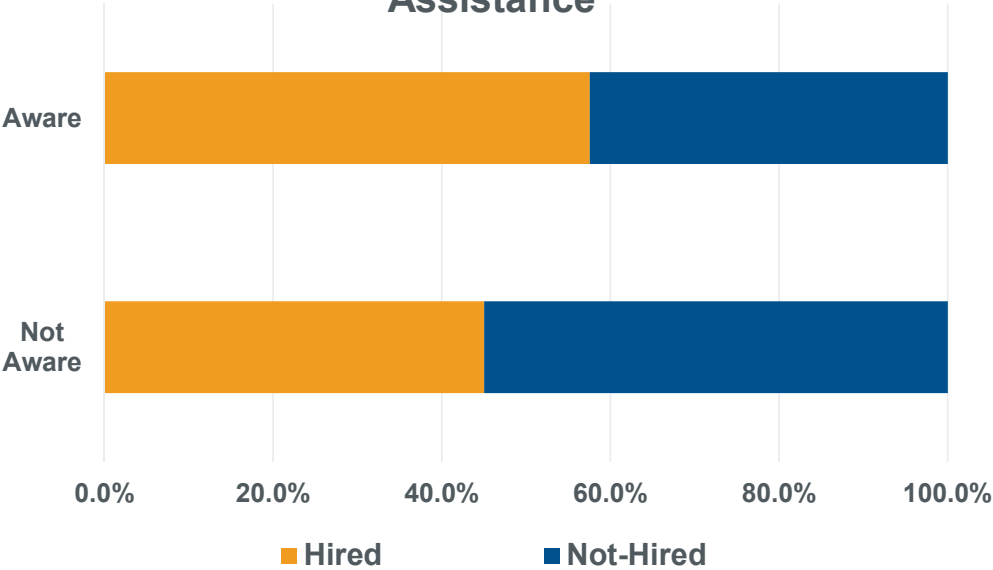


Additional Analysis

Percent of Confirmed Hires Among Clients Who Selected a Desired Industry



Percent of Confirmed Hires Among Clients Who Were Made Aware of Interview Skills Assistance



Recommendations



HHUSA Interview Skills Services

Ensure all clients are made aware of the interview skills services to improve chances of becoming a confirmed hire



Desired Industry for Employment

Emphasize the importance of researching industries that interest veterans prior to starting the job search



Disability Rating

Increase services to help connect disabled veterans with job opportunities that fit their needs



Limit the number of free text entry fields

This will improve data richness and reduce ambiguity



Limit the data you collect

Most client profiles were less than 25% complete



Create and use fields the organization values and can utilize in a meaningful way

Annotate whether clients utilized services rather than if they were aware of the service



Client Services Analysis

Thank you.

Presented By: Geoffrey D. Tomm

Team Members: Tamra Aguilar, Gavin M. Northey, and Random Reamey

D4 – University of Alaska Anchorage

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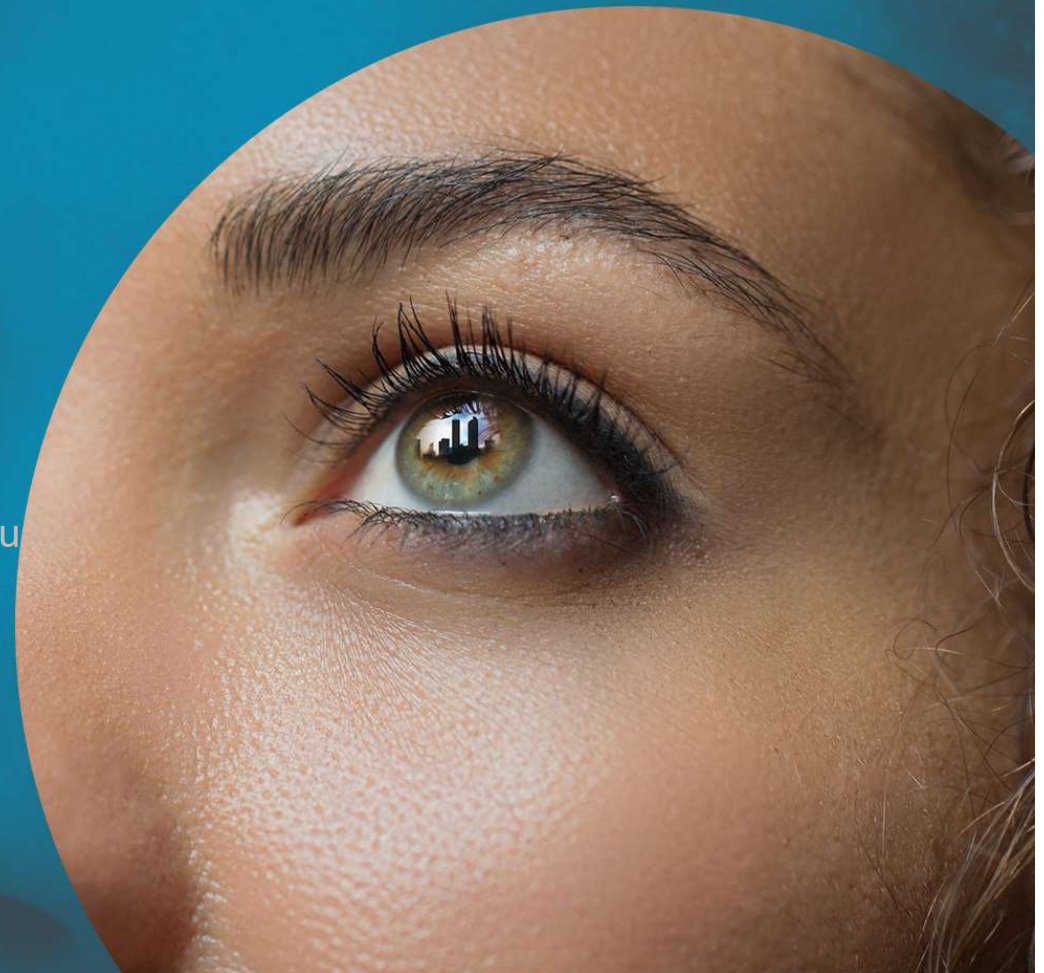
College of Business
and Public Policy
UNIVERSITY of ALASKA ANCHORAGE

D5- Washington University in St. Louis USA

Volunteer Program Empowers U.S.
Military Workforce

Caroline Yang, Lucas Jiang, Kevin Qian, Vivian Chu
Team 5
October, 2019

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Agenda

Introduction	3
Objective & Challenges	4
Methodology - Matching	5
Hire Heroes USA's Client Information	6
Analysis - All Client	7
Analysis - Post-Hire Client	8
Conclusion & Recommendations	9

53% of Veterans Struggle to Find Jobs in Their Desired Fields



Objective & Challenges

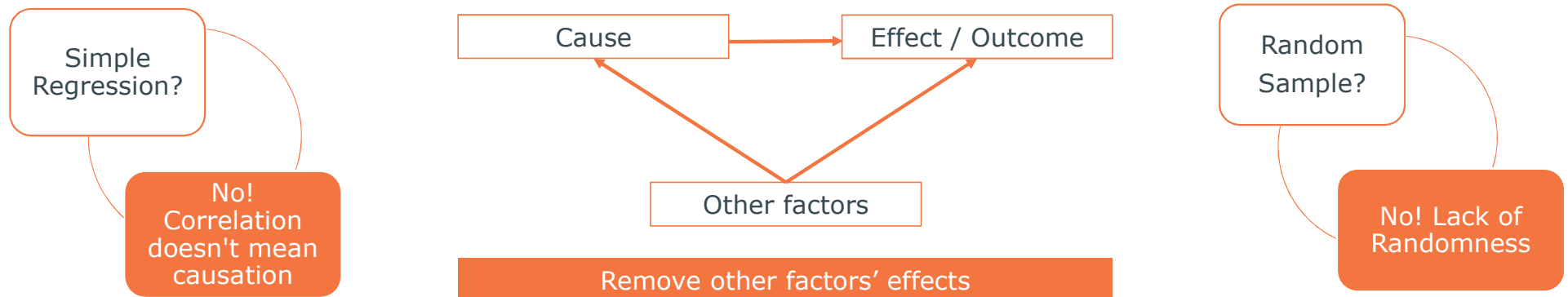
Objective

How can we find out the **true effect** of Hire Heroes' Volunteer Program?

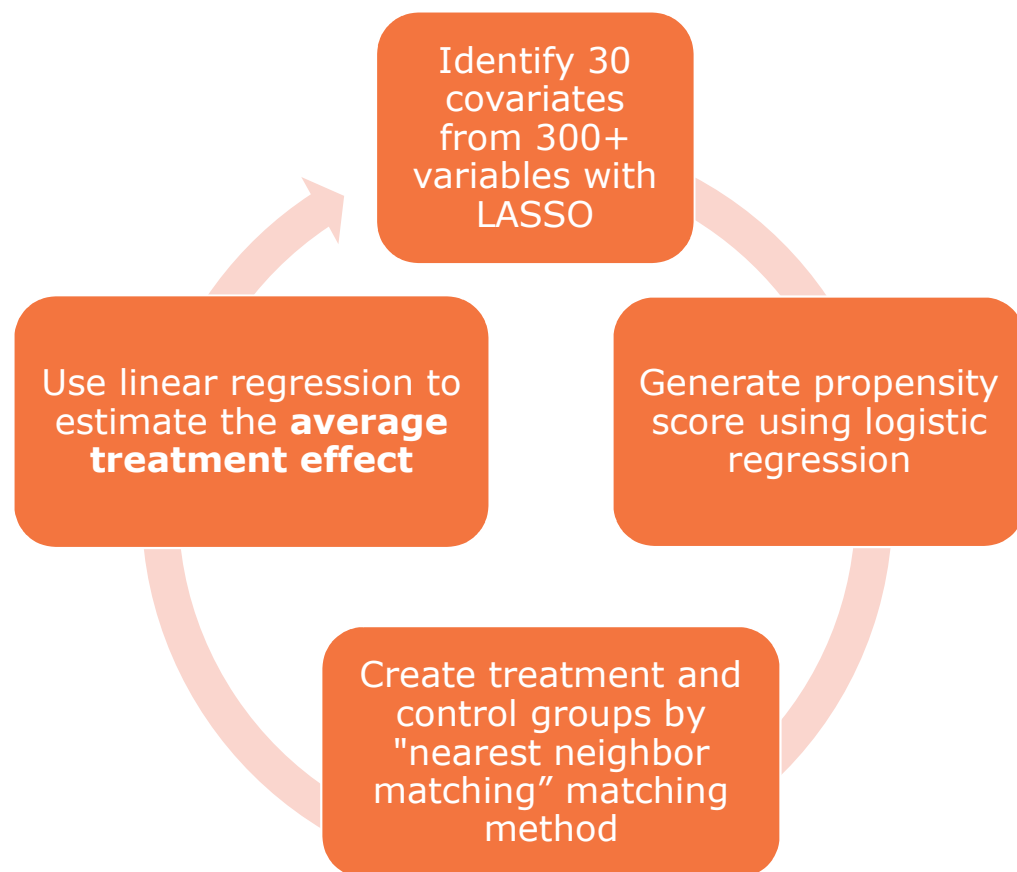
Outcome Measurements

- (1) Possibility of Getting Hired
- (2) Average Job-Hunting Day
- (3) Average Salary

Challenges



Matching - An Alternative Smart Way to Get Causality



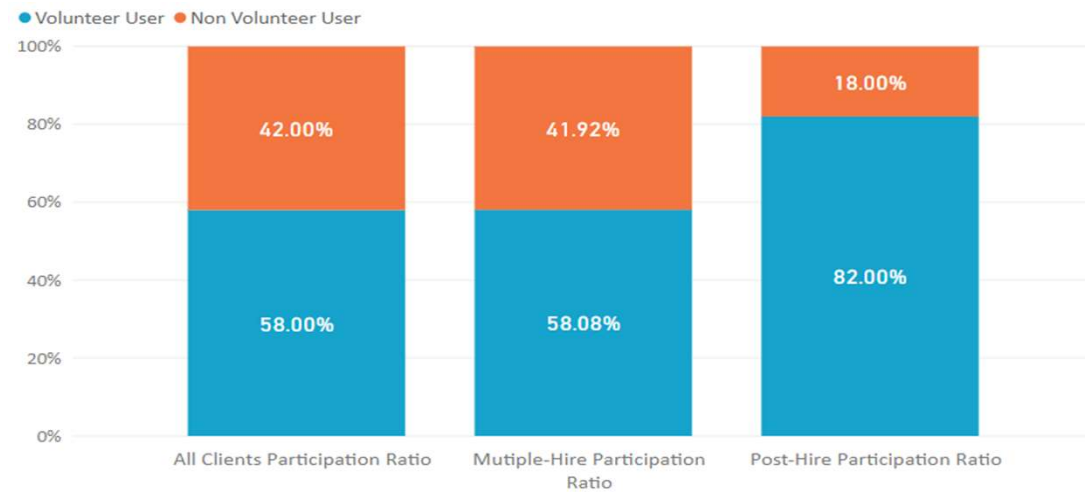
Top variables for determining get hired:
(LASSO)

- Interview Skills
- Internship Experience
- Past Experience
- Bilingual

Software



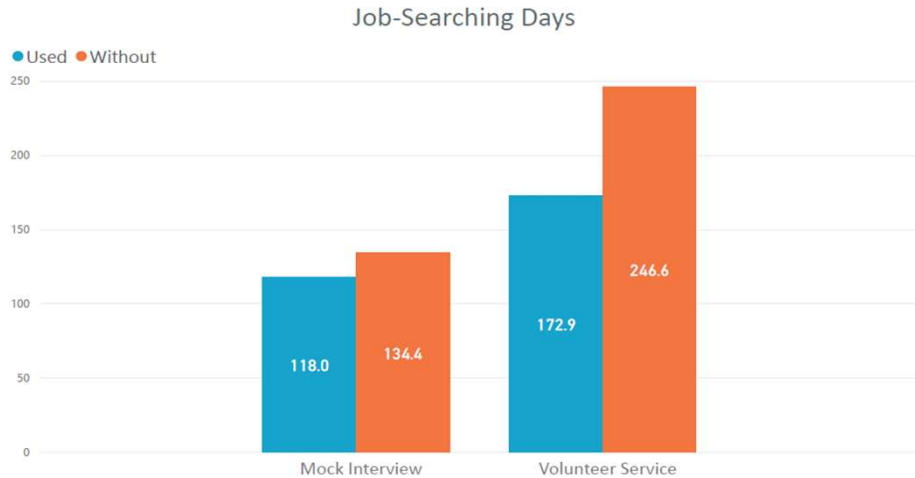
Basic Hire Heroes USA 's Client Information



Potential Explanations

- Volunteer Program was **highly used** by different client groups, basically over **58%**
- Post-Hire clients may know the **significance** of Volunteer Program, so it has a **higher** participation ratio
- Multiple Hires may already have interview skills so they don't need extra Volunteer Program, which explains the slightly lower participation ratio

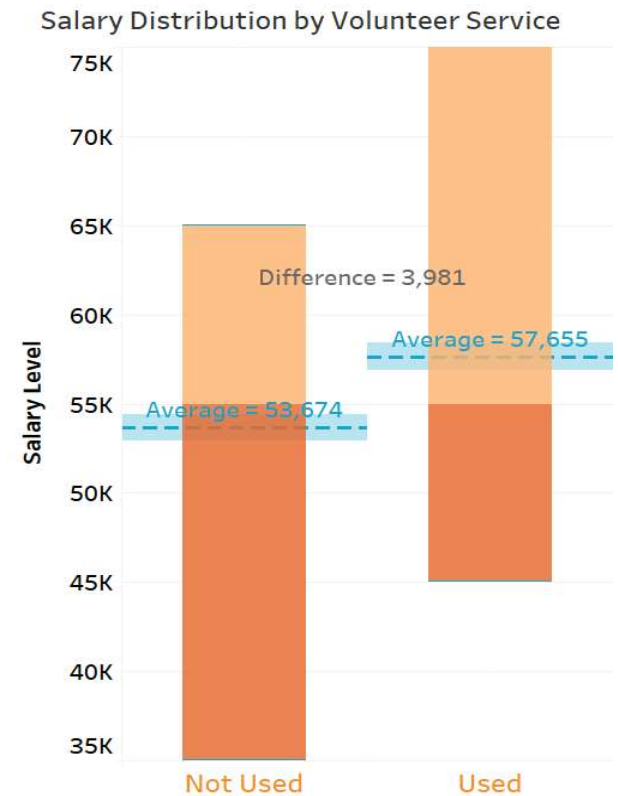
Volunteer Program Increases General Effectiveness



Both Mock Interview and general Volunteer Program help shorten job-searching days



Mock Interview on
Employment Rates

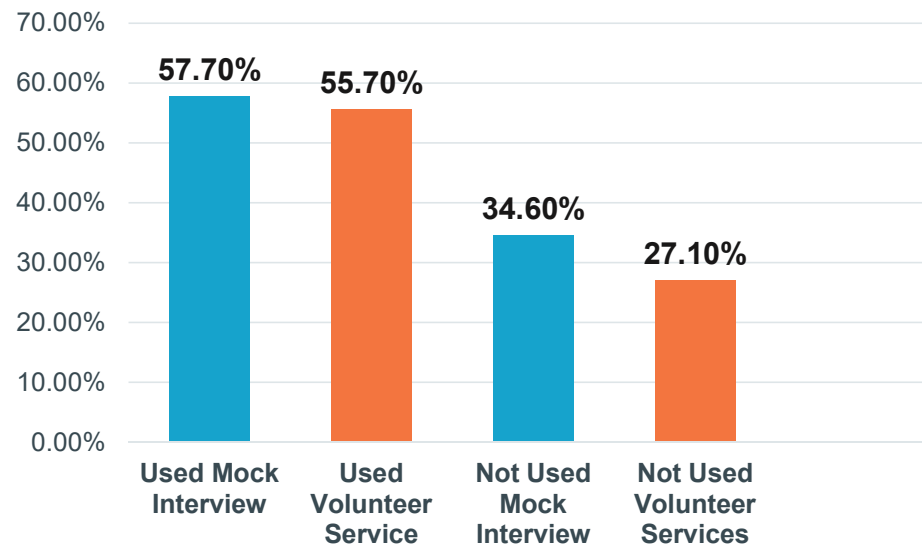


Volunteer Program increases average salary

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For Post-Hires, Volunteer Program Improves Employment Rate and Job-searching Time

Post-Hires' Employment Rate

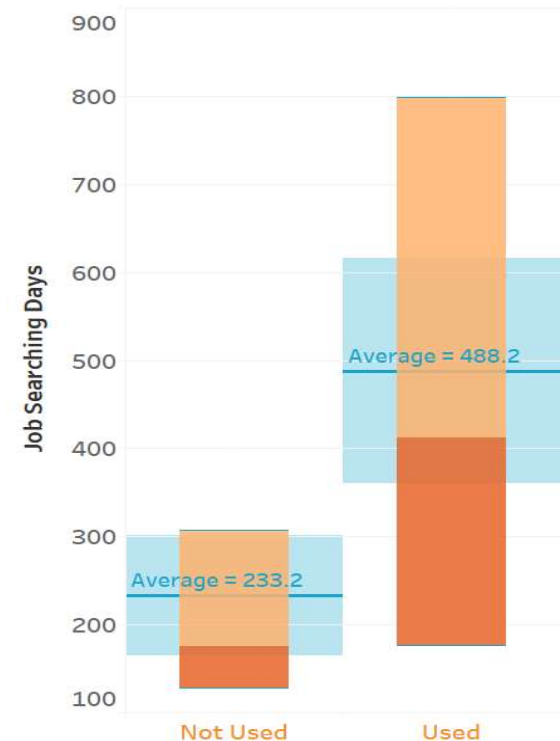


Post-Hires who use Volunteer Program have a **28.6%** higher employment rate

Mock Interview increases employment rate by **23.1%**, more effective than other mentoring activities

No other mentoring activities help shorten job-searching time & increase employment rate significantly

Job Searching Days by Volunteer Services



Post-Hires who join Volunteer Program need longer time to secure jobs

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Conclusion & Recommendations

Data Interpretation & Insights



Client

- Post-Hire clients have longer job-searching time range



Volunteer Program

- Mock Interview is the most helpful mentoring activity
- Interview might be the most important step in the job-searching process



Volunteer

- Experience in specific industry or company
- Have better understanding of job-searching process and industry knowledge
- Know what employers are looking for
- Provide valuable feedbacks for veterans



Lessons & Learn

Client

- Encourage clients to participate in Volunteer Program by sharing successful stories and results

Volunteer Program

- Advertise Mock Interview services to all clients by showing significant results

Volunteer

- Encourage successful multiple-hires and post-hires to become volunteers in the future

Thank you.

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DATA CHALLENGE SESSION 1 WRAP UP

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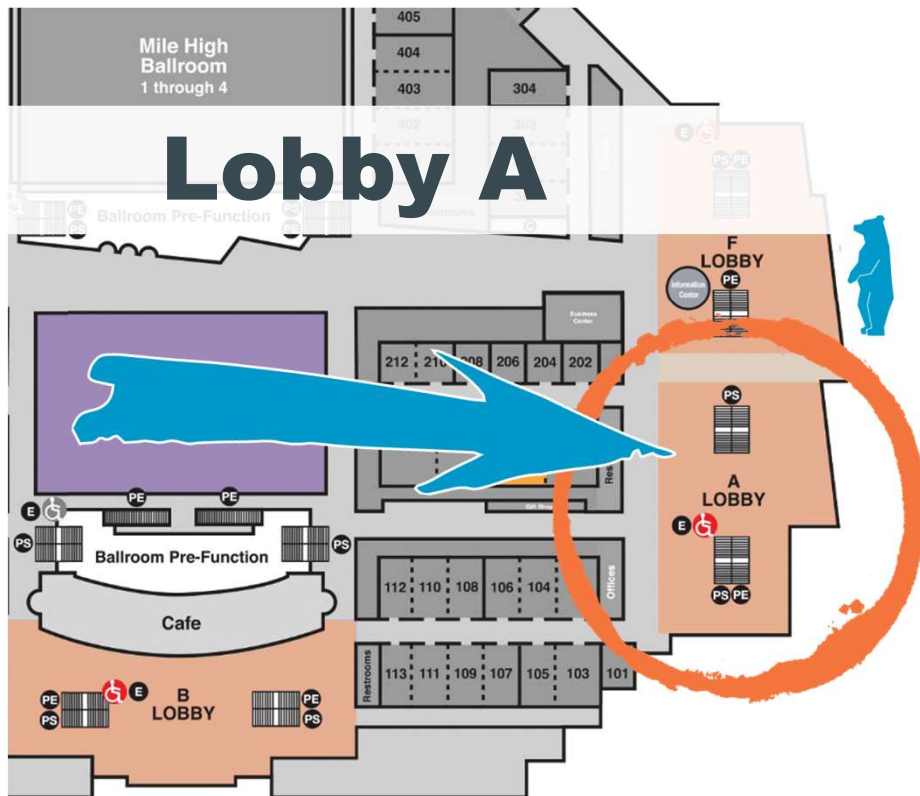
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Student Poster Presentations

Meet All Finalists and
Honorable Mention teams!!



Sunday
Oct 20

6:30 – 8:00pm

SUNDAY

MONDAY

Monday
Oct 21

8 – 8:45am

11:00am – 1:45pm

Award Categories

Data Challenge

- **People's Choice - Best Presentation**
- Overall Winner
- Best Value to Hire Heroes USA

Attendees vote

Academic vote

Hire Heroes USA vote

Analytics Challenge

- **People's Choice - Best Presentation**
- **Best Use of Analytics and Visualization Tools**
- Overall Winner

Attendees vote

Attendees vote

Academic vote

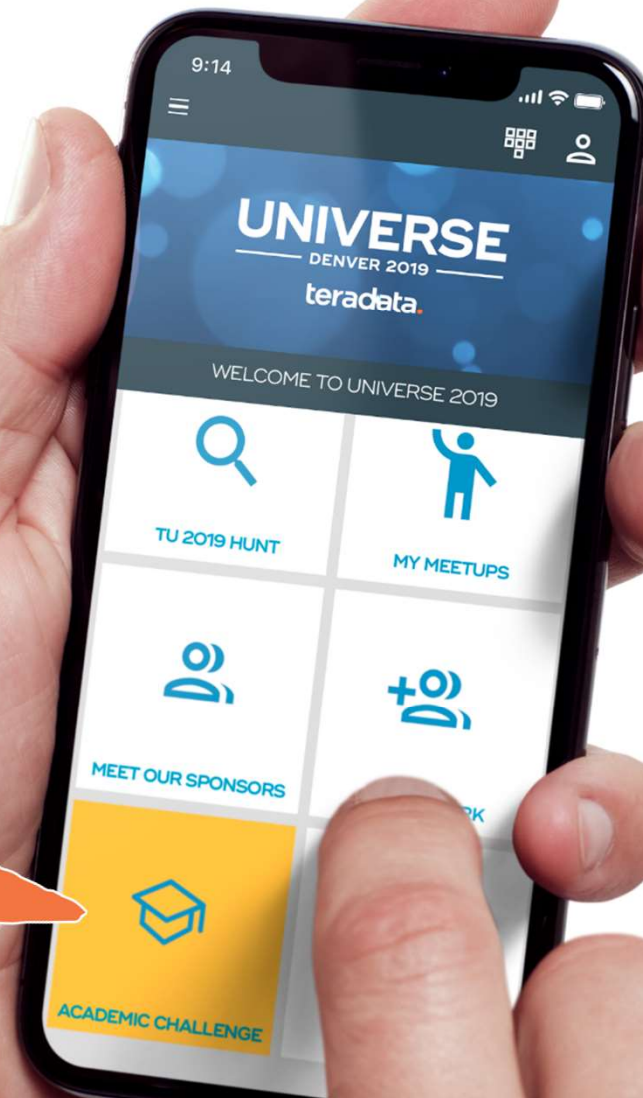
Teradata Technology Award

- Best Use of Teradata Technology

Academic vote

VOTE
for your
FAVORITE teams!

It's in the app!



Voting opens
on **Sunday**
at 3pm

Voting closes
on **Monday**
at 2pm

Student Celebration Event

Monday, October 21, 6:30-8:30pm

Granite Ballroom @ Hyatt Regency Denver

All
attendees
invited!



Thank you.

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