blackcomputeHER Data Science Executives Program

Designed and Presented by DataedX Group, LLC

Atlanta, GA and Houston, TX

July 1, 2019 – June 30, 2020

Program Summary

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"The entire Data Science Executives program was exceptional. It was a safe space for women of color to explore data science at a variety of levels. Dr. Marshall created a safe space that allowed learning to be fun." - DS Execs program participant

This report includes highlights from the blackcomputeHER Data Science Executives (DS Execs) program developed, presented, and managed by DataedX Group.

Data science is emerging as a separate but interdisciplinary discipline, including but not limited to: applied statistics, biology, business analytics, business intelligence, chemistry, computer science, data analytics, data mining and information management. As such, professionals who want to stay competitive in the tech space need to expand their knowledge and understanding of data science and apply these practices to real-world problems involving large, complex data sets and be able to visualize, present and communicate analytical results.

The DS Execs community was established in September 2019 and had the last engagement in May 2020. The DS Execs program objectives were to 1) introduce Black women professionals to data science principles by imparting data science knowledge), 2) assist them in their data science journeys by fostering confidence related to data science and technology literacy and application, and 3) build a community of Black, women professionals who are data science learners.

Program Feedback

The program evaluation consisted of surveys, informal discussions and observations. Using a combination of rating scales and open-ended items, program surveys were particularly designed to obtain real-time feedback from the DS Execs as they participated in the various segments of the program. For example, adjustments were made related to content, focus, delivery, and pacing in real time to respond to the particular needs of this group.

Participants

The DS Execs community consists of 58 Black, women professionals who were interested in learning about data science. The majority of the women's' ages ranged from 30-49. Many

regions of the country were represented with a concentration of women from Houston and

Atlanta.

The age ranges of the women:
18-29 = 11
30-49 = 39
50+ = 4
Prefer not to answer = 4

Regions where the women reside:
Houston, TX area = 16
Western regions = 8 (e.g. Western Texas, California, Louisiana)
Atlanta, GA area = 17
Eastern regions = 17 (e.g. Tennessee, New York, New Jersey, Maryland, Florida)

Engagements

Pre-boot Weekends: September 2019 and February 2020 weekends were held in Atlanta, GA.

The November 2019 weekend was held in Houston, TX. The March 2020 weekend was

scheduled to be held in Houston with nineteen women registered to attend. However, due to

CoVid19 the March pre-boot was presented virtually and the actual attendance was seven. Many

of the women had schedule adjustments due to CoVid19. See table below for attendance

breakdown.

Monthly Webinars/Q&A Sessions: September 2019 was the live kickoff for the program. An

overview of the program was shared and attendees were invited to register for the program.

Monthly sessions were held thereafter and the content was shaped by the DS Execs' feedback.

Webinar attendees found the monthly sessions beneficial and motivational i.e. having a yearlong

program instead of a one-time engagement kept them learning and interested in the data science

material. See table below for attendance breakdown.

Monthly Assignments Each month three levels of topical assignments were posted. The DS

Executives were able to access and complete the various assignments aligned with their self-

identified skill level and at their own pace. Several DS Execs chose to do multiple assignments as they grew in their knowledge and confidence. Others chose to stay in their skill group and a few only chose assignments that related to their specific interests. Dr. Marshall and Dr. Geier continuously stressed that this was a self-directed program rather than a course where participants were "required" to complete all assignments. December and January were deemed catch up months – no new assignments were offered during the holiday season. May was also a catch-up month. DS Exesc were asked to complete all assignments by June 15. The count reflects the number of assignments completed as of 6/30/2020. The table below depicts number of participants who engaged in the various offerings of the program.

Participant Engagement in Various Offerings			
Month	Pre-boot weekends	Webinars	Assignments
September 2019	10	41	21
October 2019	/////	32	31
November 2019	11	28	32
December 2019	/////	27	Catch up
January 2020	/////	31	Catch up
February 2020	14	25	29
March 2020	7	23	28
April 2020	/////	25	18
May 2020	/////	29	Catch up
Total	42	Average = 29	Average = 26

Post Pre-Boot Impressions

Participants' responses on the post pre-boot surveys were positive overall. The vast majority agreed that the various segments were beneficial in advancing their personal and career objectives. The aspects related to delivery of the pre-boot program also received high ratings. Dr. Marshall was applauded for her instructional style and authenticity. Many also commented about the value of building a community of Black, women professionals interested in data science. The welcoming and inclusive atmosphere went well beyond what they had experienced or expected at other programs they had attended. The rating summaries and DS Execs representative comments related to content and delivery of the pre-boot weekends follow.

Pre-boot Weekend Feedback					
How beneficial was the content of each session related to your personal/career objectives?					
	n	Highly Beneficial	Beneficial	Somewhat Beneficial	Not at All Beneficial
1. Data Science Overview	36	30 (83%)	5 (14%)	1 (6%)	0
2. Race and Data Discussion	36	30 (83%)	6 (17%)	0	0
3. Fundamentals of Data Science	36	32 (89%)	4 (11%)	0	0
4. Google Collaboratory	37	29 (78%)	8 (22%)	0	0
5. Acquisition and Cleanup	37	27 (73%)	9 (24%)	1 (3%)	0
6. Storage and Management	37	25 (68%)	9 (24%)	2 (5%)	1 (3%)
7. Linear Regression	38	25 (66%)	7 (18%)	5 (13%)	1 (3%)
8. Data Analysis	38	30 (79%)	7 (18%)	1 (3%)	0
9. Visualization	38	32 (84%)	5 (13%)	1 (3%)	0
10. Storytelling	37	26 (70%)	8 (22%)	3 (8%)	0
11. Data Science Career Paths	33	29 (88%)	3 (9%)	1 (3%)	0

Applying their new data science knowledge to future career aspirations:

"This experience was truly amazing and has really given me a new perspective on how to charge forward with this new career path. Thank you so much for everything that you are doing to help us be successful!"

"Discussing the similarities and differences between various career paths in data science helped me understand the field more and the opportunities that are out there. This helped me as someone who will be graduating from college soon and is looking into job prospects."

"Conversations about careers in data science, educational pathways and professional recommendations has been beneficial thus far…"

"The career connections piece and the race and data discussion resonated with me the most. I like history and science and the connections made to the past that can inform our present and future."

Pre-boot Weekend Feedback					
How effective was the delivery **i.e. presenter, format, pacing of each session?**					
	n	Highly Effective	Effective	Somewhat Effective	Not at All Effective
1. Data Science Overview	36	33 (92%)	2 (5%)	1 (3%)	0
2. Race and Data Discussion	36	34 (94%)	2 (6%)[1]	0	0
3. Fundamentals of Data Science	37	36 (97%)	1 (3%)	0	0
4. Google Collaboratory	37	34 (92%)	2 (5%)	1 (3%)	0
5. Acquisition and Cleanup	37	31 (84%)	4 (11%)	2 (5%)	0
6. Storage and Management	37	30 (81%)	5 (13%)	1 (3%)	1 (3%)
7. Linear Regression	38	26 (68%)	8 (21%)	3 (8%)	1 (3%)
8. Data Analysis	38	32 (84%)	4 (11%)	2 (5%)	0
9. Visualization	38	32 (84%)	6 (16%)	0	0
10. Storytelling	37	27 (73%)	10 (27%)	0	0
11. Data Science Career Paths	35	29 (83%)	5 (14%)	1 (3%)	0
1. Percentage variance is due to rounding					

Representative comments about the delivery of the program:

"The presentation and format were clear and straight to the point. I like the examples to help me get a better understanding. The pace was great. The most important is that other peers ask questions to clarify various topics."

"The presenter was knowledgeable, energetic, concise and engaging. I liked continuous flow back and forth from lecture to discussion during this training."

"The presenter was very upbeat and kept a smooth pace from beginning to end. This is crucial especially when you are dealing with a lot of numbers as well as a lot of new information. The pace of the class kept me intrigued as the material did not fall flat and I did not tune out- which is extremely easy for me to do. The interaction, question asking, brief conversation all kept the class moving smoothly and I enjoyed it."

"The delivery couldn't have been better. I thought that it was an extremely genuine conversation that was very refreshing and a release that was definitely needed."

DS Execs also commented about the confidence they gained from their participation:

"These discussions were extremely valuable. It is nice to have so many professional women with so many different backgrounds and expertise. They are helping to make the pieces of the puzzle fit."

"This bootcamp has helped me feel more confident about my knowledge in data science and that I'm on the right track."

"I have gained a lot of confidence by being a part of this cohort and feel inspired to take the plunge into Datawork."

DS Execs also commented about being part of a community of Black, women professionals who are data science learners:

"It is important to make connections with those who look like you. To understand while you feel alone at work or in business settings, you are not. We are all accomplished and having the same fight in our respective fields and workplaces. Having a network is invaluable. I do not like to see or hear wonderfully smart women shrink. I want us all to understand we are powerfully brilliant, solving problem at home and work."

"I feel that by the end of the program, I will be a part of an active and useful network and I will know more about where to find additional resources and to be a resource for others."

"I loved the informal conversations. They allowed me to know that there were a lot of us with many different career objectives and goals and to also know that others are here that aren't really familiar with data was helpful as I didn't feel singled out. The informal discussions also allowed me to connect with those around me and start networking and sharing valuable information."

"I made new connections with other participants. It was great having the opportunity to meet like-minded people."

Summary

The DS Execs program objectives were to 1) introduce Black women professionals to data science principles by imparting data science knowledge), 2) assist them in their data science journeys by fostering confidence related to data science and technology literacy and application, and 3) build a community of Black, women professionals who are data science learners.

The blackcomputeHER Data Science Executives Program met the outlined objectives as indicated by their numerous positive comments and high marks for the content and delivery of the program. This can be attributed to the flexible and responsive design and execution by DataedX led by Dr. Brandeis Marshall. Moreover, the DS Execs brought insightfulness, energy, openness, and respect to their new community of data science learners. The collaboration and dedication have benefited all and led to the establishment of a thriving community that continues today.

DS Execs Comment on the value of this program:

"I have tried a few different avenues to learn about data science and machine learning. This is the only environment where I feel acknowledged, comfortable and supported. This is a great learning model for professionals."

"I was able to leave here feeling refreshed and having material to assist me in navigating the next phases of my career trajectory."

"ALL of the informal discussions were food for my spirit! I'm so glad that this is a safe space where we can all feel comfortable to speak freely about our experiences and feelings in a way that's supportive and non-judgmental."

"This experience was truly amazing and has really given me a new perspective on how to charge forward with this new career path. Thank you so much for everything that you are doing to help us be successful!"

Reflections and DataedX program response to COVID 19 impacts

We (Marshall and Geier) were able to complete our blackcomputeHER Data Science Executives (DS Execs) programming as scheduled and in its entirety. One modification was made due to COVID; we had to shift the 4th in-person workshop to a virtual meeting. That being said all components were presented and the participants were engaged. We had a few women who could not attend because they had COVID related work schedule changes; however, they were able to access the materials from the workshop on their own and ask real time questions as they were working through the exercises. Alternatively, a couple of women who could not attend earlier in-person workshops were able to attend because it was a virtual session rather than an in-person offering. The participants continued being engaged in the program attending the March, April, and May monthly virtual meetings and made progress on the self-paced exercises offered. We attribute the diminished COVID effect on the program to 1) the early start (July and August recruitment and September kick-off and first in-person offering; 2) the program design — incorporating a real-time feedback loop and ongoing responsiveness regarding content, format, delivery, and individual and group learning objectives; and 3) the interest and participation of the DS Execs.