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**Health Strategy and Delivery Foundation Data Analytics Cohort 1 Report**

**Executive Summary**

The Data Analytics training for selected Health Strategy and Delivery Foundation staff consisted of over 40 hours of hands-on virtual training and coaching of 7 staff members over the course of two weeks, from June 7th to June 21st, 2021, on Google Classroom and Zoom platforms. The Data Analytics course was separated into three modules: R Data Analytics, Excel Data Analytics, and Microsoft Power BI Data Visualization. The training, which had a 100 percent attendance rate from participants, was totally learner-focused and culminated in a capstone project with a 100 percent completion rate to ensure understanding and the development of new abilities in keeping with the training's purpose.

As evidenced by their performance in the capstone project, learning participants who were complete novices in R, beginners in Microsoft Power BI, and intermediate level learners in Excel were able to develop and grow to an intermediate level analyst in R, intermediate/advanced level Data Visualization experts in Microsoft Power BI, and advanced level analyst in Excel. After finishing this course, participants now have the skills required to perform data analysis using Microsoft Excel and R. They can also utilize Microsoft Power BI to build analytic dashboards that display and extract key data insights, allowing them to unlock huge business, operational, and strategic potential. To support data-driven strategic decisions across the organization, we recommend that learning participants be allocated to projects involving data analysis, visualization, and analytic report preparation.

In conclusion, we recommend that participants pursue further courses or training on predictive analytics/machine learning, advanced data visualization, and strategic level understanding of the deployment of Data Science/AI in the NGO arena to help them maintain and grow on what they learned in the training. All of these skills are addressed in our Business & Data Analytics, Advanced Data Visualization with Microsoft Power BI, and AI for Project Monitoring & Evaluation for Non-Profits courses/programs.

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| --- | --- |
| Company Name: | Health Strategy and Delivery Foundation |
|  |  |
| Program/Area: | Data Analytics |
|  |  |
| Report Purposes: | Establishing a baseline for the performance of the virtual training.  Measuring impact made by the virtual training. |
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| Event Timeline: | June 7, 2021 – June 18, 2021 |
|  |  |
| Training Platforms: | Google Classroom and Zoom |
|  |  |
| Number of Participants: | Female – 5  Male – 2  A total number of **7** |
|  |  |
| Report Issued by: | Data Science Nigeria |
|  |  |

**TRAINING METHODOLOGY AND MODULES**

Over 40 hours of virtual training and coaching on Zoom and Google Classroom platforms. There was a pre-learning assessment to gauge learners’ competence with the tools to be taught before the training and a capstone project to measure the level of understanding & competence acquired after the training.

The training modules covered 3 key areas based on the requirement of the clients. They were:

* Data Analytics with Excel
* Data Analytics with R
* Data Visualization with Microsoft Power BI

**TRAINING OBJECTIVES & LEARNING OUTCOMES**

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| --- | --- | --- |
| Modules | Learning Outcomes | Learning Content |
| Data Analytics with Excel | * Mastery of Excel from Beginner to Advanced + Macros. * Learn Excel Formulas & Functions and perform complex Calculations. * How to create dynamic reports by mastering one of the most popular tools, Pivot Tables. * Solid understanding of the Basics of Microsoft Excel. * Unlocking dynamic formulas with IF, VLOOKUP, INDEX MATCH functions and many more. * Solid understanding of Microsoft Excel and develop detailed knowledge in complicated real-world Excel scenarios. * Maintain large sets of Excel data in a list or table. * Excel keyboard shortcuts - CHEAT SHEET. | * Setting up your Excel environment. * Starting a workbook. * Modifying columns, rows and cells. * Formatting Text. * Printing workbooks. * Creating simple and complex formulas. * Working with basic functions. * Statistical functions. * Data and time functions. * Working with Vlookup, index and match functions. * Sorting, Grouping, and filtering cells. * Formatting tables. * Converting information as an Excel table. * Modify a table. * Aligning Text. * Formatting cell. * Changing text control. * Working with Worksheets. * Naming, inserting and deleting a worksheet. * Grouping and ungrouping worksheets. * Freezing worksheet panes. * Excel validation and security. * Data Organization in Excel. * Data Cleaning with PowerQuery. * Excel Powerful Tool that cleans data without a formula. * Data Analysis for large tables. * Working with Pivot table. * Working with Pivot chart. |
|  |  |  |
| Data Analytics with R | Participants will learn the fundamental concept of R, the various workflows for data  wrangling (cleaning), exploratory data analysis (EDA), and practical hands-on application of R for solving real business problems | The fundamental concept of R   * History and Overview of R * Data Science Phases * R and R Studio * R as a calculator * Basic classes of objects in R * Variable and Assignment * The basic data structure in R * The conditional statement, loop, and function in R Data Science Workflow * R packages and library * RStudio project   Data mining with tidy verse package   * Import data with readr, haven, and foreign packages * Seven verbs of dplyr package * Manipulating string with stringr * Working with long and wide data Data visualization * ggplot2 and plotly packages   Reporting Statistical Analysis with  Rmarkdown (Research reproducibility)   * MS-Word version * PPD version * PowerPoint version * Beamer version |
|  |  |  |
| Data Visualization with Microsoft Power BI | * How to connect, import, shape and transform data for Business Intelligence * How to visualize data, author reports, and schedule automated refresh of your reports * How to create and share dashboards based on reports in Power BI desktop and Excel * How to use natural language Queries * How to create real-time dashboards | Understanding key concepts in Business  Intelligence, Data Analysis and Data  Visualization   * Overview of Power BI functionalities and services * Connecting to and importing Data * Transforming and Modelling Data * Power BI Desktop Queries * Shaping and Combining Data Relationships * DAX Queries * Enriching Data with Business Calculations * Report automated refresh scheduling * Creating Dashboards based on Repos and Natural Language queries * Publishing and sharing dashboards. * Recap of lessons * Live individual presentation of capstone project * Feedback and guide on how to present Data Visualization projects |
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**TRAINING SCHEDULE**

**HSDF Data Analytics Training Date:** June 7 – 18, 2021

|  |  |  |  |
| --- | --- | --- | --- |
| **Days** | **9 – 12** | **12 – 1** | **1 – 3** |
| Monday | Pre-learning Assessment |  | Pre-learning Content |
| Tuesday | Pre-learning Content | | |
| Wednesday | R | BREAK | R |
| Thursday | R | R |
| Friday | R | 2:30 -4:30: R Excel |
| *Saturday* | Graded Assignments | | |
| *Sunday* |
| Monday | Public holiday | | |
| Tuesday | Excel | BREAK | Excel |
| Wednesday | Excel Power BI | Power BI |
| Thursday | Power BI | Power BI |
| Friday | Power BI | 2:30 -4:30: Power BI |
|  | Capstone Project [with coaching support] | | |

**Excel:** Data Analytics with Microsoft Excel

**Power BI:** Data Visualization with Microsoft Power BI

**R:** Data Analytics with R

**PRE-LEARNING ASSESSMENT**

Data Analytics with R:<http://bit.ly/R-Pre-Assessment>

Data Analytics with Excel: <http://bit.ly/Excel-Pre-Assessment>

Data Visualization with Microsoft Power BI: <http://bit.ly/PowerBI-Pre-Assessment>

***Data Analytics Excel Pre-Learning Assessment***

|  |  |  |
| --- | --- | --- |
| Name | Score /67 | Percentage |
| Aisha Fodio | 38 | 56.7% |
| Alabi Kayode Samuel | 39 | 58.2% |
| Ajiboye Oluwakemi | 17 | 25.4% |
| Hamadu Musleehat | 52 | 77.6% |
| Idoko Kimberly | 35 | 52.2% |
| Okorie Emeka | 27 | 40.3% |
| Weli Chinwe | Uncompleted | Uncompleted |
| *Minimum Score* | *17* | *25.4%* |
| *Maximum Score* | *52* | *77.6%* |
| *Average Score* | *35* | *52.2%* |

***Data Visualization with Microsoft Power BI Pre-Learning Assessment***

|  |  |  |
| --- | --- | --- |
| Name | Score /95 | Percentage |
| Aisha Fodio | 35 | 36.8% |
| Alabi Kayode Samuel | 55 | 57.9% |
| Ajiboye Oluwakemi | 35 | 36.8% |
| Hamadu Musleehat | 60 | 63.2% |
| Idoko Kimberly | 65 | 68.4% |
| Okorie Emeka | 25 | 26.3% |
| Weli Chinwe | Uncompleted | Uncompleted |
| *Minimum score* | *25* | *26.3%* |
| *Maximum score* | *65* | *68..4%* |
| *Average score* | *46* | *48.4%* |

***Data Analytics with R:*** Participants had no prior competence or experience in R.

**VIRTUAL CLASS ATTENDANCE**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Day 8 |
| Aisha Fodio |  |  |  |  |  |  |  |  |
| Alabi Kayode Samuel |  |  |  |  |  |  |  |  |
| Ajiboye Oluwakemi |  |  |  |  |  |  |  |  |
| Hamadu Musleehat |  |  |  |  |  |  |  |  |
| Idoko Kimberly |  |  |  |  |  |  |  |  |
| Okorie Emeka |  |  |  |  |  |  |  |  |
| Weli Chinwe |  |  |  |  |  |  |  |  |

**CAPSTONE PROJECT**

Data Analytics with R:

* Instructions: <https://bit.ly/3jesvuc>
* Data: <https://bit.ly/2U1jvy3>
* Submissions: <https://bit.ly/2U1kmyL>

Data Analytics with Excel:

* Instructions: <https://bit.ly/3qqNYkX>s
* Data: <https://bit.ly/35PbRcr>
* Submissions: <https://bit.ly/3xQeqak>

Data Visualization with Microsoft Power BI:

* Instructions: <https://bit.ly/3zTByGV>
* Data: <https://bit.ly/3qu4lNY>
* Submissions: <https://bit.ly/3gTyqDe>

***Capstone Project Grading*  
*Excel for Data analytics***

|  |  |  |
| --- | --- | --- |
| Name | Score /200 | Percentage |
| Aisha Fodio | 198 | 99% |
| Alabi Kayode Samuel | 190 | 95% |
| Ajiboye Oluwakemi | 200 | 100% |
| Hamadu Musleehat | 195 | 97.5% |
| Idoko Kimberly | 200 | 100% |
| Okorie Emeka | 190 | 95% |
| Weli Chinwe | 190 | 95% |
| *Minimum score* | *190* | *95%* |
| *Maximum score* | *200* | *100%* |
| *Average score* | *195* | *97.5%* |

**R for Data analytics**

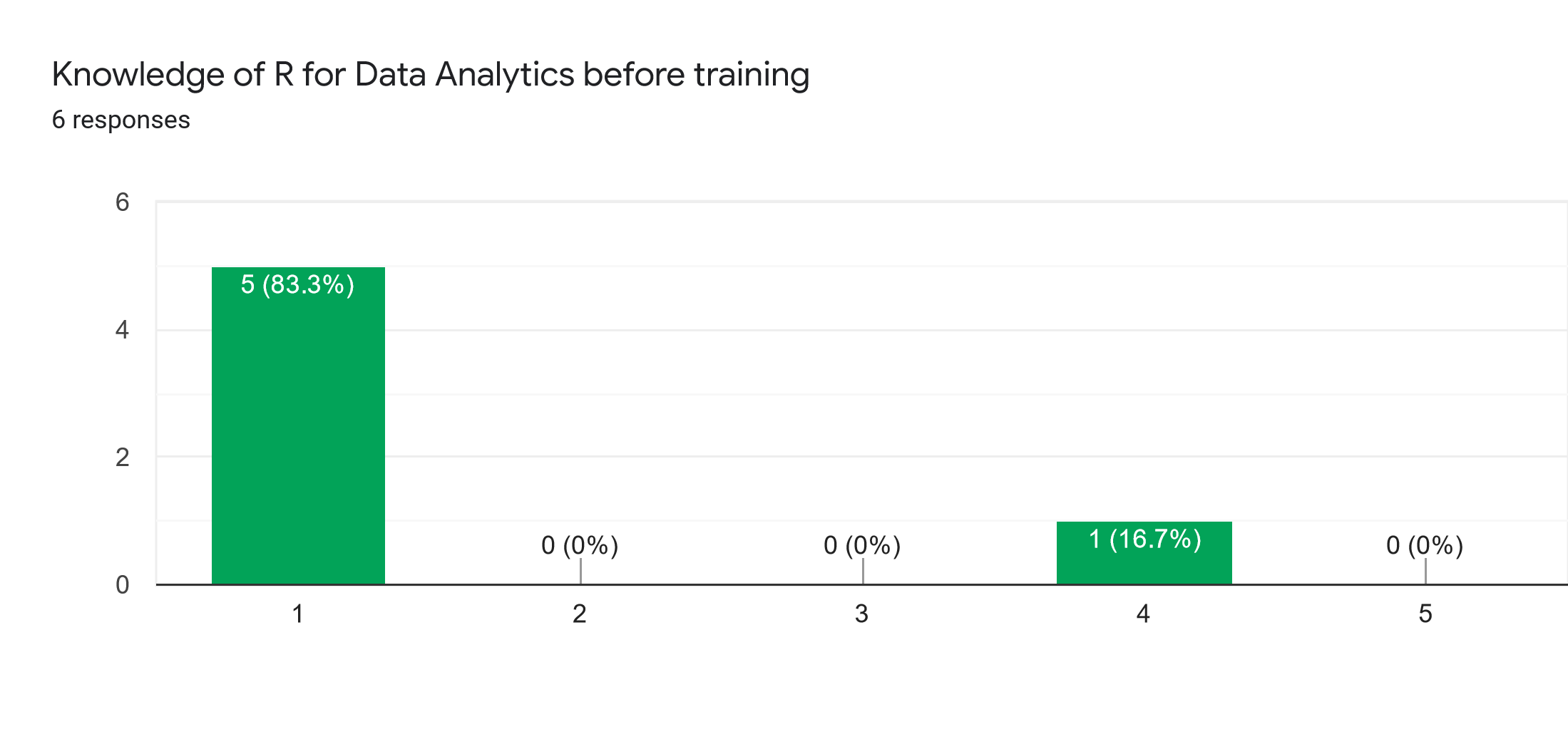
|  |  |  |
| --- | --- | --- |
| Name | Score /200 | Percentage |
| Aisha Fodio | 200 | 100% |
| Alabi Kayode Samuel | 180 | 90% |
| Ajiboye Oluwakemi | 180 | 90% |
| Hamadu Musleehat | 199 | 99.5% |
| Idoko Kimberly | 180 | 90% |
| Okorie Emeka | 190 | 95% |
| Weli Chinwe | 190 | 95% |
| *Minimum score* | *180* | *90%* |
| *Maximum score* | *200* | *100%* |
| *Average score* | *188* | *94%* |

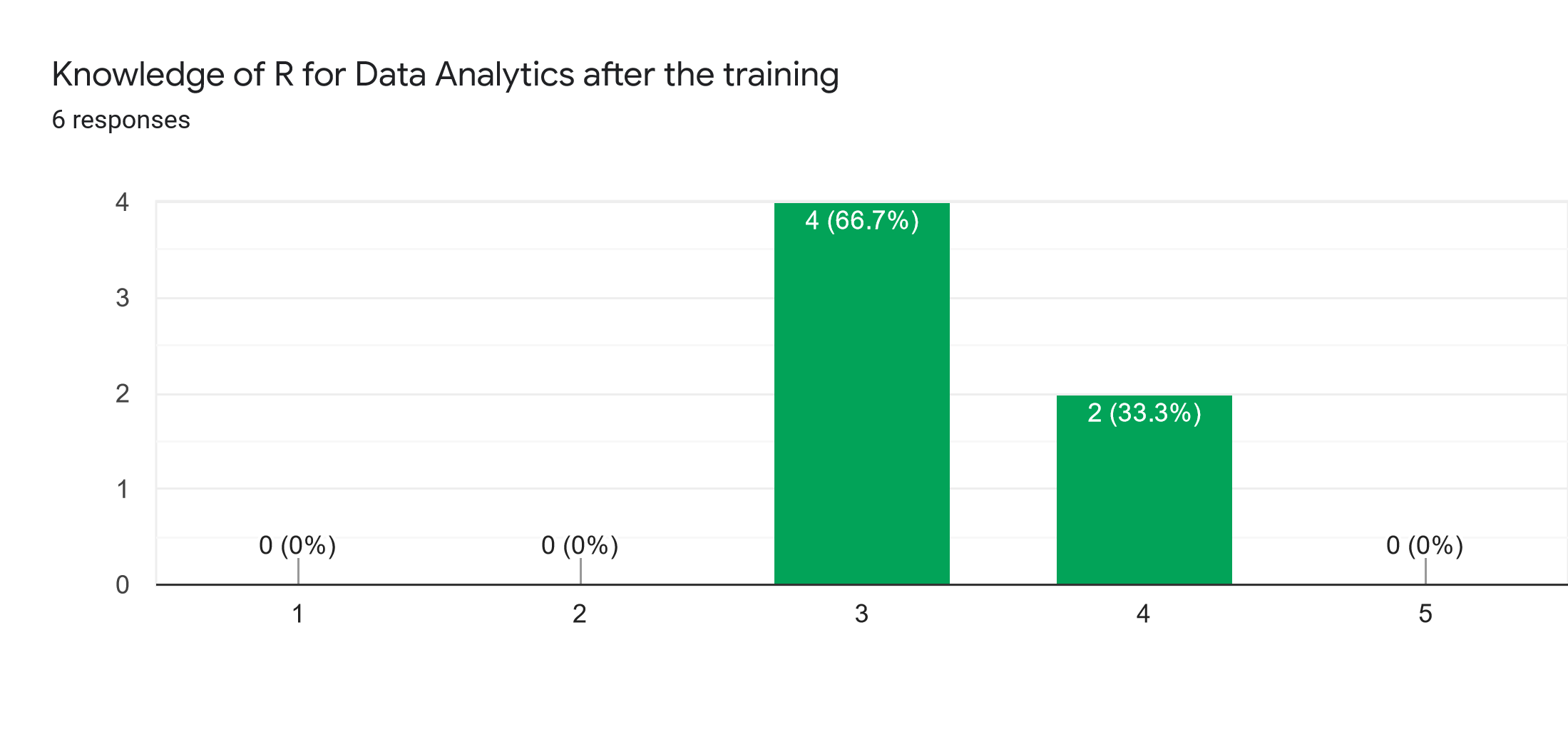
**Data Visualization with Microsoft PowerBI**

|  |  |  |
| --- | --- | --- |
| Name | Score /200 | Percentage |
| Aisha Fodio | 195 | 97.5% |
| Alabi Kayode Samuel | 193 | 96.5% |
| Ajiboye Oluwakemi | 145 | 72.5% |
| Hamadu Musleehat | 198 | 99% |
| Idoko Kimberly | 195 | 97.5% |
| Okorie Emeka | 125 | 62.5% |
| Weli Chinwe | 195 | 97.5% |
| Minimum score | 125 | 62.5% |
| Maximum score | 198 | 99% |
| Average score | 178 | 89% |

**Feedback (From Participants)**

We got good and encouraging feedbacks from the learning participants.

Some of the key highlights includes:  ****

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