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Data Analytics Position Description Analysis: Skills Review and Implications for Data Analytics Curricula

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Abstract

The focus of this study was an assessment of skill requirements for data analytics positions to understand data analysis employment expectations for new graduates, and to highlight issues relevant to curriculum management in university degree programs. The analysis of 786 job postings involved the exploration of domain-related and soft skills as well as degree requirements. Soft skills, often referred to as people skills, comprised the largest part of the results (11 of the top 21 skills). Results revealed, the most frequent soft skills were related to communication, and teams or teamwork. The most frequent domain skills were related to visualization, data cleaning, data extraction and programming. Implications for curriculum based on results are discussed, and suggestions for future research are provided.

Keywords: curriculum, analytics, Information Systems, job description analysis, skills analysis

1. INTRODUCTION

To prepare students, particularly new graduates, for roles in the information systems field of data analysis, it is important that faculty be aware of the current skill requirements and industry demands so that curricula is appropriately current to ensure employability (Mills et al., 2016; Brooks, et al., 2018). Data analysis and analytics are becoming more important roles in organizations as organizations seek ways to best manage the large amount of data generated on a daily basis. As such, data analysis and analytics curricula must be able to support the growing and changing needs to meet industry expectations (Brooks et al., 2018).

Currently, it is documented that a staggering 328.77 million terabytes of data are being generated daily or 120 zettabytes generated in 2023. Moreover, the data market is anticipated to experience substantial growth. Specifically, it is expected to increase by over 150% in 2025, hitting 181 zettabytes, which is five times the amount generated in 2019 (Duarte, 2023). These statistics highlight the importance of effective data analysis and data management and provide reasons why data analytics curricula are or should be a key component of information systems and related fields curricula. As a result, it is important that new graduates process the tools to help organizations ethically and competently analyze the data to support effective product development and introduction.

While research emphasizes the importance of data analysis skills, it also acknowledges the shortage of skilled individuals to fill much-needed roles in the field (White et al., 2013). The demand for skilled data analysis professionals and the shortage of individuals to meet that demand are challenges faced in the data analysis workforce. Many of these positions will need to be filled with new entrants to the field, particularly new graduates or career changers. Thus, it is important to understand both the skills needed and expected by organizations and the role of educational institutions in developing and delivering curriculum to meet those expectations (Triche et al., 2016). Educational institutions, especially institutions of higher education, are a key component to meeting the growing need to effectively manage an organization's data by preparing new graduates or career changers to serve effectively in these roles (Harris & Patten, 2015).

Curriculum development begins with the requirement of determining the objectives for the curriculum (Cowan & Harding, 1986; Walker, 1971). Curriculum planning tends to follow either the scientific method approach to curriculum design and/or interactions generated by trusted professionals from the field in conjunction with faculty to produce an optimal learning experience for both the student and employers (Knight, 2001). Curriculum developers need to know which topics, skills, and attitudes learners need to be successful in their chosen fields. Wolf (2007) presented a curriculum development process that demonstrated how universities could update their curricula through a data-informed process utilizing position descriptions and industry professional input to analyze the strengths and weaknesses of the current curriculum.

Because there is not a specific degree program that can prepare students with every skill desired by every employer, it is important the curricula program designers know the key or most frequent skills used or required. By assessing the current and projected employment environments, programs can better develop the most relevant curriculum to ensure student success in employment upon graduation. It is not uncommon for faculty to review recent position descriptions, survey employers, and recent graduate to ensure that the curriculum meets the

current and future expectations for both students and employers (Rebman et al., 2023).

To expand upon the above research, this paper concentrated on analyzing job listings related to data analysis roles posted in May 2023 on a prominent U.S. national job board. Specifically, this research focused on positions that were open to individuals without prior experience. The goal was to understand the key skills new graduates or new entrants to the field of data analytics are expected to have.

Moreover, this study focused analysis on three areas: tools, domain-related skills, and soft skills to determine expectations of employers. The study is limited to undergraduate degrees and certificates. The rest of the paper is organized as follows. The next section provides the literature review followed by the methodology, results and limitations, and next steps.

2. LITERATURE REVIEW

Research has shown that prospective career opportunities can impact a student's choice of major, which is often based on ability to find employment once they graduate. Understanding the appropriate employment market and having a curriculum that supports the employment market can lead to higher employment opportunities and strong career placement for new graduates. The use of job postings to examine the desired qualifications is a well-established approach to support curriculum development in higher education to support market needs and career placement (Debuse & Lawley, 2009; Harris et al., 2012; Lee & Han, 2008; Prabhakar et al., 2005; Todd et al., 1995; Brooks et al., 2018). Job postings enable prospective employees to know what skills are in demand. When organizations advertise job opportunities, they described the qualifications and skills that they desired and expected in prospective employees, oftentimes distinguishing between required and preferred qualifications.

Using these job postings also provides faculty with a rich source of information to analyze how employer requirements change without having to continually request information from employers directly (Todd et al., 1995). It is widely known that industry relies greatly on colleges and universities to produce qualified individuals to support the day-to-day operations in all aspects of the organization. Information systems is not immune to this expectation. Therefore, it is incumbent on faculty to understand industry expectations and be "in step" with needs to ensure that the investment students make in their education is consistent with the needs of hiring organizations. (Brooks et al., 2018). This understanding can thus lead to effective decision making about degree programs as well as specific course and curricula designs.

Prior research in this area includes Todd et al. (1995) longitudinal study spanning two decades, which analyzed job ads to investigate technical skills, alongside business and interpersonal skills. Their findings indicated a gradual increase in the number of technical skills demanded or favored by employers in job advertisements over time. This shift placed greater importance on technical skills in the curricula of colleges and universities. Additional studies (Maier, Clark, & Remington, 1998; Maier et al., 2002; Brooks, et al., 2018) analyzed job postings to identify key information systems skills and qualifications and found that soft skills are becoming equally important to the domain and technical skills. Similarly, Gardiner et al. (2017) completed a similar study for big data and found that employers desired both traditional systems development skills along with analytical skills along with significant soft skills.

Data Analytic Tools

Several data analytic tools are commonly used across various industries and research domains to extract insights from data. Microsoft Excel, a spreadsheet software, remains a ubiquitous choice for basic data analysis due to its user-friendly interface and familiarity. Excel allows users to manipulate, visualize, and summarize data efficiently. Tableau is another widely adopted tool known for its data visualization capabilities, enabling users to create interactive dashboards and explore data through visually appealing charts and graphs (Microsoft, 2021; Sharma, 2020; Tableau, 2021).

Moreover, IBM SPSS (Statistical Package for the Social Sciences) is a renowned tool for advanced statistical analysis. It provides a comprehensive set of statistical tests and procedures for data exploration, hypothesis testing, and predictive modeling. RapidMiner, an open-source data science platform, is known for its user-friendly interface and powerful machine learning capabilities, making it a preferred choice among data scientists for tasks ranging from data preprocessing to predictive modeling (IBM, 2021; RapidMiner, 2021).

Furthermore, R and Python have gained substantial popularity as versatile data analytic tools. R is particularly favored for its robust

statistical modeling capabilities and extensive libraries for data analysis and visualization. Python, known for its readability and versatility, has emerged as a go-to language for data analysis, offering libraries like Pandas for data manipulation, NumPy for numerical computing, and scikit-learn for machine learning tasks. Python's flexibility extends to deep learning frameworks like TensorFlow and PyTorch, making it an all-encompassing choice for data scientists (R Core Team, 2021; Python Software Foundation, 2021).

The choice of data analytic tool often depends on the specific requirements of the analysis, the user's proficiency, and the scale of the data. Today, Excel, SPSS, Tableau, Python, SQL, PowerBI (Zang, 2020), Orange, RapidMiner, R (Wimmer & Powell, 2016), Qualtrics, and Access are some of the most common data analytic tools which aid and empower professionals and researchers to make data-driven decisions and gain insights from complex datasets across diverse fields.

Domain-Related Skills

Domain-related skills are a crucial component of professional expertise in various fields, ranging from healthcare to technology and beyond. These skills encompass the specialized knowledge and competencies required to excel in a particular industry or discipline (Bransford et al. 2020). For instance, in healthcare, domain-related skills may include clinical diagnosis and treatment protocols, while in the technology sector, skills related to programming languages, network administration, and cybersecurity become paramount. These skills are often developed through formal education, on-the-job training, or professional certifications. Moreover, they are essential for individuals to navigate the intricacies of their chosen fields, make informed decisions, and contribute effectively to their organizations. As industries evolve, staying current with the latest developments in domain-related skills is essential for professionals to remain competitive and adaptable to emerging challenges (Davenport & Harris, 2007; Schwab, 2016).

Professionals in data analytics positions require a diverse skill set encompassing domain-specific and technical competencies. Data cleaning, the initial step in data preparation, involves identifying and rectifying errors, inconsistencies, and missing values in datasets. Data extraction is equally crucial, involving the retrieval of relevant information from various sources, such as databases and APIs. Visualization skills enable professionals to communicate complex data insights effectively, using tools like Tableau or Power BI to create intuitive charts and graphs. Object-oriented programming (OOP) proficiency is invaluable for developing data-driven applications and automating data workflows, enhancing efficiency. Statistical knowledge is fundamental for conducting robust analyses, interpreting results, and making data-driven recommendations. Pivot tables, often used in Excel, facilitate data summarization and cross-tabulation. Script programming, such as with Python or R, enables advanced data manipulation and modeling. These skills collectively empower data analysts to transform raw data into actionable insights, driving informed decision-making within organizations (Jones, 2017; Wickham & Grolemund, 2017).

Furthermore, the significance and dynamic nature of many industries demands a continuous commitment to updating and expanding domain-related skills to address emerging trends, regulations, and technological advancements (World Economic Forum, 2020; Van Dijck, 2020).

Ultimately, domain knowledge coupled with technical competencies empowers data analysts to not only analyze data but also offer strategic insights that drive innovation and progress within their industries. These multidimensional skills ensure that data analytics professionals are well-equipped to extract valuable information from data, leading to informed decision-making and industry advancements (Goodfellow et al., 2016; Few, 2009).

Soft Skills

Today, soft skills are pivotal for data analytics professionals as they greatly enhance their performance and effectiveness in the workplace. Specifically, effective communication skills, enable data analytics professionals to articulate their findings and insights clearly to both technical and non-technical stakeholders, ensuring a shared understanding of complex data concepts (Smith, 2017). Similarly, strong problem-solving abilities, emphasized are also important soft skills for data analysts to navigate intricate datasets, identify patterns, and derive meaningful conclusions (Brown & Jackson, 2018). Additionally, teamwork and collaboration skills aid in collaboration within multidisciplinary teams, which may amplify creativity and improve decision-making. Additionally, soft skills such as presentation skills, empathy, integrity, ethical conduct, and professional behavior are key for data analytics professionals in building trust,

maintaining ethical standards, and ensuring a positive professional image within the industry (Gupta & Sharma, 2018).

3. METHODOLOGY

This purpose of this study was to understand current domain, tool and soft skill requirements for new graduates in the field of data analytics.

The research questions for the study were:

1. *What are the skills organizations desire in new graduates in data analysis?*
2. *Is there a difference in skill requirements based on degree?*

To analyze the data, the study followed the consensus pile-sort protocol methodology of Gardiner et al. (2017). R was used to strip the data of punctuation, special characters, and definite articles, parse the data, and produce a list of the most frequently occurring terms and phrases. The order of the terms remained as it was necessary to further analyze specific terms such as Excel which could be a stem for excellent or a description, e.g., "Excel at communicating." Following the consensus pile-sort protocol (Gardiner et al., 2017), two faculty and three IS industry professionals acted as informants. The categories for the data were educational requirement, degree, tool, domain skills, and soft skills. Each term was placed into one of the agreed-upon categories. The informants reconciled any differences in the agreed upon categories.

This study follows the methodology described in previous studies described in the literature review regarding position analysis, specifically Debuse & Lawley, 2009; Harris et al., 2012; Lee & Han, 2008; Prabhakar et al., 2005; Todd et al., 1995; and, Brooks et al., 2018. Data was collected from a national web-based job posting site. To obtain relevant advertisements for the analysis, keywords used included "data analyst", "data analytics", "business analyst", "data science", "data engineer", "data visualization", and "information analyst". Each search queried only those job listings posted in the information technology category on the job-listing website and only positions that required no work experience. The different types of job postings that were queried over a 30-day time period in May 2023 resulted in 1,021 job postings of which 786 were specific to undergraduate degrees as the minimum educational requirement and no prior work experience. Data items obtained from each listing included job requirements, job title, and location. The removal of duplicate ads ensured a valid and reliable dataset.

The data was then placed in an Excel spreadsheet for examination and analysis. Anomaly analysis using count functions identified misspelled words which were corrected. Additional analysis for the term "Excel" was performed by manually reviewing a random selection of position descriptions. For example, Excel could refer to a tool as well as describe expectations of a domain or soft skill such as "Excel at communications." When Excel was referred to as a tool in the position, it was coded as a tool. When Excel was used as a descriptor, only the skill was coded, such as communication in the above example. This extra analysis ensured Excel was not over counted as a tool.

Analysis of the normalized data focused first on the frequency with which the various skills appeared in position descriptions. This analysis followed t-tests to compare the skills by degree to determine if there was a significant difference in skill requirements based on the degree and job title. Reporting of the frequencies and noted significant differences provide curriculum designers and faculty with a strong understanding of employer expectations and is consistent with previous research in the literature.

4. RESULTS

Data Overview

The number of original job positions that required no prior work experience was 1,021. Of the 1,021 positions, 786 required a bachelor's degree as the minimum educational attainment. 31 required a doctorate/PhD, 144 required a master's and 60 required a minimum of a high school diploma.

The analysis identified and provided for the review of several items categorized as a tool, domain-related skill, or soft skill. Education was used to select only those job positions for which a bachelor's degree was the minimum required education. The most frequent job titles are shown in Table 1.

Data Scientist was the highest reported job title from the search with 25% of the position titles. This was followed by Business Analyst at 17%. There were other position titles such as Information Visualist, End User Analyst, and Data Manager that appeared in the search but were less than 1% of all titles and are not analyzed as part of this study.

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Title	Number	Percent
Data Scientist	195	25%
Business Analyst	136	17%
Data Analyst	128	16%
Data Engineer	117	15%
Data Visualization Specialist	88	11%
Information Analyst	79	10%

Table 1: Position Titles

Analysis of Majors and Job Titles

Types of major were analyzed because having the "correct" major on the resume helps when students are applying for positions, especially when graduate are using an electronic recruitment system. The top degrees are listed in Table 2. Data Analytics was the top major followed by Business Analytics, Computer Science, Data Science, and Management Information Systems. Math and Statistics followed at a significant distance.

The only other "major" to reach above 10% was "Any major with coursework in analytics". This type of statement implies if students study any other discipline, if they minor in or complete a certificate or coursework in an analysis related field, they are potentially qualified to work in data analysis positions. Most position descriptions listed two or more acceptable majors.

Major	Number	Percent
Data Analytics	452	58%
Business Analytics	433	55%
Computer Science	428	54%
Data Science	408	52%
Management Information Systems	330	42%
Math	132	17%
Statistics	119	15%
Any with coursework in analytics	90	11%

Table 2: Majors

Table 3 (in Appendix A. Additional Tables) shows the crosstab of position titles and major. There is almost a one- to-one relationship between Data Science and Data Scientist, Business Analytics and Data Analyst, and, Management Information Systems and Business Analyst.

Table 4 (in Appendix A. Additional Tables) shows the correlation analysis between title and position. The correlation analysis was performed by using binary coding for each position and each time a degree was listed in the position description. This binary table was the basis for examining the correlations. The results show a strong correlation between data science majors and all position descriptions except information analyst. MIS majors showed a strong correlation between business analysts, data visualization specialists and information analysts.

Computer Science showed strong correlation with Data Scientist, Data Analyst, Data Engineer and Information Analyst. The only negative correlation was between any with coursework in analytics and Data Scientist indicating that students who are not majoring in one of the actual analysis are unlikely to gain employment as a data scientist. This is important for faculty as certificates and minors are popular methods of increasing enrollment in courses. But these certificates and minors may not be sufficient for employment as data scientists.

Given the strong correlation between desired majors in the position descriptions and the job title, the next step is to better understand the relationship between the expected major and the job title. From the position description and skills analysis, there were 31 broad categories with soft skills the largest general category, comprising 11 of the 31 skills with both domain and tools each sharing 10.

Analysis of Soft Skills

Categorized for analysis of soft skills included traditional soft skills such as communication, presentation, ethics, integrity, time management, and team skills. The percent of positions listing the top specific soft skills are listed in Table 5.

All positions listed communications as a desired or required skills, followed by problem solving and teamwork. Motivation, collaboration, presentation, compassion, integrity, and ethics form the second tier of most desired skills, followed distantly by professional behavior and independent learner/learning. While there were other soft skills such as time management, respectful and comfortable in a diverse working environment, the percentage for those skills was less than 10% of the sample.

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The next analysis was to determine which soft skills and tools were most often associated with each degree and job title. For soft skills, as stated earlier, communication was present in 100% of the position descriptions. Visualizations and presentation skills were present in at least 90% of position descriptions except for Information Analyst.

Professional behavior was present in over 90% of the Business Analysts and Data Analysts positions as well as the Data Scientists. Ethics and integrity were consistently in about 77% of the descriptions. A t-test between each position title and each soft skill revealed no significant difference between the means assuming equal variances.

This implies that regardless of the degree program, the curriculum should strongly emphasize soft skills with a particular emphasis on communication – both written and oral, professional behavior which includes team skills and working with diverse populations, and ethical behavior.

Soft Skills	Number	Percent
Communication	786	100%
Problem Solving	724	92%
Team/Teamwork	719	91%
Motivated	636	81%
Collaboration	627	80%
Presentation Skills	624	79%
Compassionate/ Empathy	618	79%
Integrity	618	79%
Ethical	605	77%
Professional Behavior	314	40%
Independent Learner	203	26%

Table 5: Soft Skills

Analysis of Domain Skills

Categorization of domain skills included terms such as visualization, pivot tables, statistics, programming and so forth. The results of the domain top skills are shown in Table 6.

Domain Skills	Number	Percent
Visualization	712	91%
Data Cleaning	695	88%
Data Extraction	611	78%
Object Oriented Programming	531	68%
Statistics	456	58%
Pivot Tables	438	56%
Script Programming	326	41%
Neural Networks	145	18%
Dashboards	127	16%

Table 6: Domain Skills

As shown in the table, visualization and data cleaning were the top domain skills followed by data extraction. Programming, statistics and pivot tables were the second tier, followed by neural networks and dashboard. Other skills such as software development methodologies (Agile, Waterfall, etc.) and specific algorithms for data mining were listed in the position descriptions but were all below 10% of the observed skills.

A deeper analysis showed that visualization, data cleaning and data extraction appeared in more than 90% of the positions for Data Science, Analyst and Data Engineer, 100% of the positions for Data Visualization Specialist, and less than 1% in the Information Analyst positions which strongly suggests majors related to those positions need to ensure the curriculum is strong in preparing students with visualization, data extraction and data cleaning skills. Programming appeared most often with Data Engineers, Data Scientists and Data Analysts, appearing in more than 70% of the positions. 24% of Business Analysts positions also required programming. When combining the positions where MIS was a stated required or preferred degree, MIS should be added to the list of majors where programming should be a critical component. However, the tool analysis demonstrates the difference in the specific programming expectations by positions which also impacts the type of expected programming skills by major.

Analysis of Required and Desired Tool Knowledge/Experience

Specific software, when listed as required or desired in the job postings, were categorized as tools. The study focused on tools for data mining, visualization, and statistics. The results are shown in Table 7.

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v9 n6014

Tool	Number	Percent
Excel	658	84%
Tableau	560	71%
SPSS/SPSS Modeler	554	70%
Python	549	70%
RapidMiner	540	69%
MySQL/SQL/ PostgresSQL/	535	68%
R	524	67%
PowerBI	479	61%
Orange	122	16%
Qualtrics	119	15%
Access	95	12%

Table 7: Tools

Microsoft Excel was the most required tool listed followed by Tableau, SPSS/SPSS Modeler, Python, RapidMiner and some form of query language, R and PowerBI. Orange, Qualtrics and Access completed the list of tools above 10%. There were several tools listed including ReactJS, GraphQL, MongoDB, AWS: Step/Lambda Functions, C / C++ / other compiled language experience, Github, Kibana, Oracle, Looker, GoogleData Studio, SSRS, REST, Clojure, Redis, Kafka, HashiCorp, Datorama, Segment, JSON, BASH, PowerShell, NoSQL, Allegrograph, JanusGraphy, and Neo4J which were all listed under 10% of the time. However, it is important to note the diversity of the tools actually listed.

For tools, Excel was the most mentioned tool for all positions, appearing more than 80% across all positions. The data scientist, data analyst and data visualization specialists' positions mention Tableau, PowerBI, Python, and/or R more than 45% of the time. Typically, most of these positions simply state preferred experience with visualization tools. What is surprising was the number of times SPSS and SPSS modeler were listed. A deeper analysis of SPSS and SPSS Modeler shows SPSS and SPSS Modeler are often mentioned in conjunction with other tools such as SQL, Tableau, SAS, JMP, Minitab, Knime and similar statistical software application but never as a standalone required or preferred skill. The diversity of applications for most positions seem to suggest employers are "casting a net" for software skills. However, the majority of the positions did require knowledge of programming but varied by position which suggests the type and level of programming emphasis in majors depends on the major. For example, for Data Analysts, Data Engineer and Data Scientists positions, at least two of SQL, R, and Python were listed as required knowledge whereas for other positions, the skills were more preferred than required. This argues that having significant experience to SQL, R and/or Python or similar tools in the Data Science, Data Analytics and Computer Science curriculum is essentially required whereas in the MIS curriculum, exposure to the similar tools may be sufficient.

5. CONCLUSIONS, LIMITATIONS AND NEXT STEPS

This study examined position descriptions to determine the skills most in demand by organizations. It also attempts to better understand how hiring managers view preparation for data analysis employment for new graduates by comparing the most frequent skills and tools listed in position descriptions along with specific degrees.

Based on the analysis, specific degrees are expected to have expertise or knowledge regarding data extraction, cleaning, and visualization. Data scientists, data analysts and data engineers are expected to know some type of programming whether it is script, object oriented or some version of SQL. Further all positions expect new graduates to have excellent communication skills along with problem solving and teamwork. Though Excel is listed in most position descriptions, only the positions such as data scientist, data analysts, data visualization specialists and data engineers had high frequencies for visualization tools. The implications for curricula are multi-faceted.

However, this study is limited in that it only analyzed positions in May 2023 and for students graduating with a bachelor's degree. A more thorough analysis is needed to determine if skill or tool interests are changing. The study also only used data from one job position source and conducted the study on a national level. Third, though care was taken to verify the data used, it is possible that observations were missed that may influence some outcomes.

However, the study does show there are specific skills associated with specific position descriptions and degrees/majors. Faculty at regional institutions who do not have a national employment market may need to study their own regions to determine how well these results compare to their regional markets prior to using the results to adjust their curricula.

The next steps for this research are to examine more closely regional differences for position titles and degree titles for companies operating in specific markets; examine and compare differences in skill requirements for experienced data analysts; examine and compare skills requirements for new graduate based on degree attained; and analyze position descriptions to compare those with remote work possibilities to those that are in-office positions. These additional studies would help faculty and curriculum designers improve curricula to better meet their needs based on location as well as degree program level. Further, the analysis of tools expected of experienced workers can help faculty adjust their curriculum to help students be prepared to perform better at entry level positions.

Finally, position analysis studies benefit from additional input from hiring managers. As stated in the study, this analysis was based on position analysis. While position analysis is a valid method of understanding what employers are looking for, it is still a process that looks at "as is" as opposed to "to be", meaning that the analysis does not help us to understand what employers are seeking in the future. An employer survey is in the process of being executed with a closing date of December 31, 2023. The survey will hopefully provide insight into how well what is being advertised matches what employers actually want.

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Appendix A. Additional Tables

	Title						
Degree/Major	Data Scientist	Business Analyst	Data Analyst	Data Engineer	Data Visualization Specialist	Information Analyst	Total
Data Analytics	121	63	103	67	53	45	452
Business Analytics	81	67	122	75	45	43	433
Computer Science	101	77	93	89	53	15	428
Data Science	195	34	37	117	12	13	408
Management Information Systems	43	116	99	57	9	6	330
Math	53	32	31	5	0	11	132
Statistics	73	17	0	0	0	29	119
Any with coursework in analytics	0	32	41	12	0	5	90

Table 3: Position Titles and Degree/Major Counts

	Title					
	Data Scientist	Business Analyst	Data Analyst	Data Engineer	Data Visualization Specialist	Information Analyst
Data Analytics	0.98	0.79	0.52	0.78	0.40	0.92
Business Analytics	0.61	0.18	0.06	0.71	0.65	0.07
Computer Science	0.73	0.25	0.90	0.77	0.32	0.57
Data Science	0.94	0.82	0.81	0.72	0.94	0.48
Management Information Systems	0.23	0.88	0.23	0.47	0.57	0.77
Math	0.15	0.62	0.73	0.75	0.68	0.99
Statistics	0.34	0.28	0.45	0.88	0.34	0.23
Any with coursework in analytics	-0.03	0.17	0.44	0.23	0.08	0.13

Table 4: Correlation Matrix between Position Titles and Degree/Majors