**Ideal qualities for data analytics professionals**

You have been learning about skills that can help you enter and excel in the data career space. In this program, you will be building technical abilities, which are necessary before pursuing opportunities in data analytics. Job postings will include a list of the required technical skills prominently displayed. Quite often, organizations will also make note of additional skills and traits that go beyond working with data on a computer. In this reading, you will explore examples of additional skills and traits that employers are seeking when searching for data analytics professionals.

As you begin to search for job opportunities, many employers seek additional skills that are not exclusive to digital fields. In the sections below, you will learn more about these traits through excerpts found within data analytics job postings.

**Being coachable**

Coachable individuals are capable of receiving feedback and using that information to make improvements. At the center of being coachable is a positive attitude, and the ability to self-reflect and take steps to grow. People who are coachable usually have a growth mindset, which is a belief that hard work and determination can make them better. As a result, they view feedback from colleagues and supervisors as an opportunity to improve their skill set.

**A passion for data analysis**

Employers often seek candidates whose commitment to data analysis extends beyond their professional duties. Volunteering your data skills to help a nonprofit organization is just one example, but it’s not the only way to show your commitment to data analytics. Data analysis is applicable outside of the workplace, but is often not obvious. Community projects, helping a local school organize data, and developing your own side project are a few examples of how you might demonstrate your passion for data analysis outside of the workplace.

Another way to explore your passion for data analysis is to connect with other passionate data analysts and take on data challenges. A great website for exploring data analytics is [Kaggle.com](https://www.kaggle.com/), which hosts an active online community for data scientists and machine learning enthusiasts. Users can collaborate with other users, publish datasets, use GPU-integrated notebooks, and compete with other data scientists to solve data science challenges. Participating in activities hosted by an online data science community like Kaggle can add fuel to your passion for data analysis and provide artifacts for your portfolio.

Employers are seeking passionate candidates. Job postings that identify candidates that have a passion for data analysis often include language like:

* Seeking a passionate data scientist.
* We seek a candidate with deep curiosity directed toward diverse research interests.
* Driven. The prospect of focusing on corporate environmental impact as a data domain excites you, and you are personally motivated.

**Pro tip**: Include in your portfolio your passion for data analysis. Provide examples of passion projects, volunteer work, or analysis outside of employment to relay your commitment to data analysis. If you are conducting data analysis in your free time, it says a lot about your passion.

**Lifelong learning**

Earlier, you read about some generational shifts in data workspaces. You may recall that these shifts have included technological advances in computer interfaces, data storage, and the role of data analysis in organizations.  In fact, the one consistent element through all of these eras was change. As you progress in your career, you will continue to learn new techniques, tools, and ways of interacting with other professionals. As you have learned, staying up to date with the latest technologies and techniques is essential for data professionals. Here are samples from actual job posting:

* Candidates must balance their hands-on work with a desire to keep up with trends.
* Seeking candidates with the aptitude and enthusiasm to develop new skills and areas of expertise.
* Wanting those with a drive to learn and master new technologies and techniques.

**Pro tip**: Stay current by reading data-related blogs and attending workshops. Visit business networking websites to connect and learn from subject matter experts.

**Strong interpersonal skills**

You may recall that data professionals and business intelligence professionals interact closely; together, they influence an organization's decision-making. Throughout a project, a data analyst will interact with many stakeholders, from different areas of an organization. Often, these interactions will extend to include clients, users, or representatives from other companies. Additionally, data professionals will work closely with a variety of other professionals as a member of a cross-functional team. Examples from job postings include interpersonal skill requirements for candidates and will include these types of statements:

* We seek employees that can build relationships internally to transfer knowledge, consult with fellow data scientists and analysts to guide analysis, and deliver larger projects.
* Wanting to hire those with the ability to negotiate complex and/or sensitive issues; and maintain good working relations.
* Our data professionals value building strong relationships with colleagues and partners.

**Pro tip**: Include interpersonal skills on your list of qualifications on your resume. Revisit the material within this program (including the material on communication you will be introduced to later in this course). Find opportunities to add examples of teamwork, empathy, leadership, mediating, and active listening.

**Communication**

Professionals working in data, business, and technology are expected to be fluent communicators. The effectiveness of your work will weigh heavily on your ability to inspire people through the results of your analysis. Job postings can contain requirements like the following:

* Candidates must have excellent communication skills and a friendly, approachable personality.
* You’re a compelling storyteller who can communicate in succinct and inspiring ways to audiences with varied data science experience to influence real world product or feature decisions.
* A storyteller. You know that no data speaks for itself and take pride in the visualizations and narrative that you construct to communicate your careful analysis.

**Pro tip:** Be sure that all correspondences you exchange are professional and free of grammatical and spelling errors. Include any examples of written communication in your portfolio–these may include but are not limited to reflection pieces, executive summaries, or  project proposals. Don’t forget to include writing examples or online blog entries that describe how you have communicated in past situations.

**Problem solver**

The ability to resolve problems is an important part of being a data analytics professional, whether it's dealing with incomplete data, resolving issues within an analysis, or finding the best way to communicate your results to your audience. It is important that you also quantify the results of problems that you have solved. Organizations who seek data professionals have included problem-solving in their job descriptions, such as:

* Seeking data professionals who have the capability and the strong desire to solve problems from concept development, customer engagement, and technology transition.
* Candidates must be persistent and have excellent analytical and problem-solving skills.
* A big thinker. You start with "why" when approaching a new problem, and are always wanting to generalize, synthesize, and summarize.

**Pro tip**: Adjust your past working responsibilities into tasks that you were able to achieve. This can be accomplished by stressing the end results of your actions. Detail how your action or task had a direct impact on the organization. If there is a measured or empirical amount of change associated with your actions, be sure to include that. Example: Analyzed data from over 3,000 users to optimize systems, which led to a 32% increase in customer satisfaction.

**Key takeaways**

Employers in a variety of industries are eager to hire data professionals who possess more than just technical expertise. You can highlight your non-technical abilities for potential employers in several ways. Discover ways to successfully and effectively communicate your passions. By demonstrating a commitment to professional growth and sharing examples of your ability to solve problems, you can set yourself apart from other candidates.

# Build the perfect data team

You have been learning about the role of data analytics professionals within organizations and the work they perform. You’ve also examined some general classifications for data professional roles.  Additionally, you explored what a typical data analytics profession might experience during the initial days in a new position. Large organizations often have more data needs, requiring the creation of teams to take on projects. In this reading, you will learn more about how organizations build data analytics teams and look at some best practices when constructing them.

## ****Designing data analytics teams****

The idea of companies creating teams of data professionals developed over time and largely out of necessity. Originally, the responsibilities of data collection, management, and analysis fell onto the CIO (chief information officer) of the company. CIOs in the past would typically hand the responsibilities over to the IT (Informational technology) team.

Gradually, organizations began separating data functions as the wealth of information stored grew. Additionally, new technologies emerged and data-related tasks became more specialized.

### Data professional profiles within large organizations

Earlier in this course, you were introduced to some data professional profiles.

* Data Scientist
* Data Analyst
* Data Engineer
* Analytic Team Manager
* Business Intelligence Engineer

These profiles are very generalized categories that can help you focus your eventual job search. In reality, many employers are looking for more than data professionals. They are looking for project stakeholders, dependable team members, and great co-workers.

### Building the team

The data needs of larger companies requires the creation of a team of skilled professionals. The members of these teams each have a specialized area of expertise. Some will come from business backgrounds, some with project or staff management experience, while others will have more technical skills. While there is no checklist available for companies to follow when putting together their team of data professionals, the needs of their organization can help guide them.

Creating a team of data analytics professionals is very similar to how sports franchises put together championship-level rosters. Coaches and general managers are always looking to upgrade and enhance the capabilities of their teams. While having a superstar athlete can help deliver a consistent performance at a certain position, their abrupt departure can compromise the team’s overall performance. A better approach is to develop a well-balanced and collaborative team.

Employers want to hire someone who has more than data analytic skills. They are selecting the best fit for their organization. Candidates who bring additional experience and skills beyond data analytics are most often seen as most favorable. Strong interpersonal and communication skills, experience working in business, or within a team dynamic can enhance data analytics. There is a very good chance that you already possess some of these skills.

## Five principles for data team building

After you join a data team, there are still challenges to building a data-driven organization. Below you will find five principles that can guide any organization to becoming more effective when facing the challenges of data analysis, regardless of the structure of your data teams within the company.

### 1. Adaptability

Data platforms, networks and storage options need to allow flexibility. Each data professional will have their preferences as to the tools and their approaches to analysis. Remote and on-site employees need to have access and the ability to work with all data and use the tools of communication they feel are the most productive.

Organizations need to facilitate a data platform that allows open access to resources for all users. Instead of specifying specific software solutions, organizations can expand their pool of candidates by allowing individuals to integrate the tools and applications they are most comfortable and experienced with. Flexibility invites a wide range of experience and enhances data teams, adding experience and additional perspectives.

Just as organizations need to be adaptable, those seeking opportunities in data fields should be committed to learning new skills and technologies. Data workplaces are undergoing constant change, as you learned earlier. As a data analytics professional, you will continue to learn and grow as newer technologies or regulations emerge.  Accept the challenge presented by new circumstances and let yourself feel energized when presented with opportunities for professional growth.

**Pro tip:** Keep your desire for learning. Expand your knowledge through online data science communities and educational opportunities.

### 2. Activation

Access to data analysis results require someone with the background and experience of a data analyst. Even small-scale data operations require skills that go beyond the scope of other professionals within an organization.

To become more data literate, organizations should cultivate new habits and integrate them into their daily work routines. Dashboards and other accessible interfaces can help promote the use of data analysis, enabling wider usage of data analysis, promoting communication and fostering cross-departmental collaboration.

Vital to the success of an organization's efforts to transform its internal habits and culture are the interpersonal skills of its employees. When a company is seeking to expand data literacy, its data professionals play an important role. There will be opportunities to help promote understanding among peers and colleagues. The time spent answering questions and promoting understanding will help others appreciate you and your contributions to the organization.

**Pro tip:** Maintain positive professional relationships through effective communication. Your ability to share insights is just as important to an organization as your analyzing skills.

### 3. Standardization

An organization needs to set criteria for the standardization of data practices and procedures. Standardization helps to promote best practices, and communication and transferability of information between teams. When users can share optimized code and other assets it saves development time and streamlines projects. An organization that builds a culture of collaboration embeds best practices into work behaviors.

Identifying candidates with capabilities beyond data analysis is essential to developing and standardizing best practices. To develop best practices, organizations need employees that contribute innovative solutions to problems.

**Pro tip:** Become a problem solver. Obstacles within a project can turn into opportunities for innovation, which can transform an organization.

### 4. Accountability

Data analysis is a complex and dynamic process that requires a high level of accountability. To promote responsibility, organizations need a ‘paper trail’ that allows examination of their entire process.

Accountability adds transparency, explainability, and security to data teams and projects. It also helps to eliminate layers within an organization, while aligning business goals and customer values. Transparency in workflow allows organizations to answer specific questions about the data analysis process. Data analytics professionals can use project metadata to examine and communicate specific elements within their prediction models, giving data teams the collaborative ability to make adjustments with more precision.

One way to promote accountability is to extend your ability to communicate throughout your workflow. Within data analytical projects, the transfer of ideas extends beyond individual correspondence. It also includes information in project notes, records kept within projects, and proper tagging within metadata. Individual processes and ideas are the incubators of standards of practice and communicating these ideas effectively can improve an organization’s accountability.

**Pro tip:** Data analytics professionals are more than repositories of information. It benefits everyone involved in a project if you are able to communicate your knowledge and observations. Identify what would be most valuable to others and provide the information.

### 5. Business impact

Often, the inability to estimate the impact on the business can block data analysis projects. Organizations are not considering all available data analytical solutions during the planning stage.

Organizations should look at approaching data projects with the widest field of view in the planning stage. This requires a thoughtful approach including considerations beyond data analysis.  For example, the difficulty of integration, commitment of resources, and changes to the project timeline. Businesses need to consider more data solutions options and identify which benefit the project the most.

Broadening the scope of an organization takes time and consistency of results. To achieve this, a data team must become a trusted resource for insight and a positive influence on an organization's decision-making process. An effective communication strategy, strong interpersonal skills, and a track record of problem-solving will earn the trust of the organization.

**Pro tip:** Focus on communicating clearly with stakeholders. Maintain a commitment to consistency between what you have promised and what you will deliver.

## Key takeaways

Organizations carefully consider the individuals they bring into their organization and seek candidates that embody qualities that go beyond data skills. Additionally, companies can influence their adaptability by hiring data professionals that embody the spirit of lifelong learning, effective communication, interpersonal skills, and the ability to solve problems.

# Activity Exemplar: Organize your data team

Here is a completed exemplar along with an explanation of how the exemplar fulfills the expectations for the activity.

***Note:*** The exemplar represents one possible way to complete the RACI matrix. Different groups, organizations, or teams will have their own unique way of assigning roles and responsibilities to team members; these assignments may fluctuate from project to project or depending on other business variables.

## Completed Exemplar



To review the exemplar for this course item, click the following link and select Use Template.

Link to exemplar:[RACI Matrix Exemplar](https://docs.google.com/document/d/1JktfnpgTj6e4gnETsJGSeDf6mFNIBgvAaIQXEirf6eQ/template/preview)

OR

If you don’t have a Google account, you can download the exemplar directly from the following attachment.

[Activity Exemplar\_ RACI Matrix](https://d3c33hcgiwev3.cloudfront.net/3-34WzQgStuaJ428vCshCQ_e5c610fa07df4b2ab614c445b4fa4bf1_Activity-Exemplar_-RACI-Matrix.docx?Expires=1687910400&Signature=TZF1qdMBttEXbtzSfmPPj7r-wQftEIbWHUomt6K7qw99VwaDG1aGyt~X~NOSi-8rv4rFtKRjP91Pnx38rx134aHME9ds7aGZSoBlY98dslTSYBUAVAFQMIBj2LVm-P36A3CGfzWLkUd1486ebmZcQqp45qBl8u12MMIAu4GMTMg_&Key-Pair-Id=APKAJLTNE6QMUY6HBC5A" \t "_blank)

[DOCX File](https://d3c33hcgiwev3.cloudfront.net/3-34WzQgStuaJ428vCshCQ_e5c610fa07df4b2ab614c445b4fa4bf1_Activity-Exemplar_-RACI-Matrix.docx?Expires=1687910400&Signature=TZF1qdMBttEXbtzSfmPPj7r-wQftEIbWHUomt6K7qw99VwaDG1aGyt~X~NOSi-8rv4rFtKRjP91Pnx38rx134aHME9ds7aGZSoBlY98dslTSYBUAVAFQMIBj2LVm-P36A3CGfzWLkUd1486ebmZcQqp45qBl8u12MMIAu4GMTMg_&Key-Pair-Id=APKAJLTNE6QMUY6HBC5A" \t "_blank)

## Assessment of Exemplar



Compare the exemplar to your completed activity. Review your work using each of the criteria in the exemplar. What did you do well? Where can you improve? Use your answers to these questions to guide you as you continue to progress through the course.



### **RACI matrix #1:**

* **Access to data:** Based on their general roles within an organization, the business intelligence engineer, analytics team manager, and data engineer have all been identified as responsible for providing access to the data. The data scientist, who is more responsible for working with the analytics team to draw insights from the data, is just consulted.
* **Create models to analyze data**: The data scientist, who is primarily concerned with drawing insights from the data, is responsible for this task. The business intelligence engineer and analytics team manager are consulted. The data engineer, who is concerned with infrastructure, is kept informed.
* **Drive insights and recommendations based on data**: Similarly to the previous task, the data scientist is the primary team member responsible for this task.

### **RACI matrix #2:**

* **Ensure data compliance**: Data compliance is part of developing and managing databases, which is the responsibility of the data engineer. Other team members are consulted or informed, but the data engineer is tasked with the actual responsibility of ensuring compliance.
* **Chief data officer**: Although all of the tasks in this project are the direct responsibility of other team members, the company’s chief data officer is accountable for them—meaning this role has the ultimate responsibility for ensuring this task is completed.

## Key Takeaways

In your work as a data professional, you might encounter the RACI matrix. It is a tool that many organizations use to structure their projects. It also helps to outline, communicate, and understand the responsibilities of data analytics professionals and other cross-functional team members. As a data professional, RACI can also help you consider how to structure your communication with other team members about a project. Understanding how data teams are organized will set you up for better collaboration with your future colleagues!

# Make the most out of mentorships

As you have been learning, professional relationships can help you find job opportunities. Exploring job boards and online resources is only one part of your job search process; it is just as important to connect with other professionals in your field, build your network, and interact with the data science community. A great way to achieve these goals is by building a relationship with a mentor. In this reading, you will learn more about mentors, the benefits of mentorship, and how to connect with potential mentors.

## Considering mentorship

Mentors are professionals who share knowledge, skills, and experiences to help you grow and develop. They can offer guidance at different points in your career. Mentors can be advisors, sounding boards, honest critics, resources, and more. You can even have multiple mentors to gain more diverse perspectives!

There are a few things to consider along the way:

* **Decide what you are searching for in a mentor.** Think about your strengths and weaknesses, what challenges you have encountered, and how you would like to grow as a data professional. Share these ideas with potential mentors who might have had similar experiences and have guidance to share.
* **Consider common interests.** Often you can find great mentorships with people who share interests and backgrounds with you. This could include someone who had a similar career path or even someone from your hometown.
* **Respect their time**. Often, mentors are busy! Make sure the person you are asking to mentor you has time to support your growth. It’s also important for you to put in the effort necessary to maintain the relationship and stay connected with them.

Note that mentors don't have to be directly related to data science. Mentors can be friends of friends, more experienced coworkers, former colleagues, or even teammates. For example, if you find a family friend who has a lot of experience in their own non-data field, but shares a similar background as you and understands what you're trying to achieve, that person may become an invaluable mentor to you. Or, you might happen to meet someone at a casual work outing or a professional conference or meetup with whom you develop an instant connection over shared interests or hobbies.

No one mentor may be able (or willing) to advise in all areas, so think about the skills, insights, or values you appreciate in that individual. Then, build a network of individuals that you may approach with different questions about different topics (job searches, public speaking, technical topics, different industries, etc.).

## Build the relationship

Once you have considered what you’re looking for in a mentor and found someone with time and experience to share, you’ll need to build that relationship. Sometimes, the connection happens naturally, but usually, you need to formally ask them to mentor you.

One great way to reach out is with a friendly email or a message on a professional networking website. Describe your career goals, explain how you think those goals align with their own experiences, and talk about something you admire about them professionally. Then you can suggest a coffee chat, virtual meetup, or email exchange as a first step.

Be sure to check in with yourself. It’s important that you feel like it is a natural fit and that you’re getting the mentorship you need. Mentor-mentee relationships are equal partnerships, so the more honest you are with them, the more they can help you. Most importantly, remember to thank them for their time and effort!

As you get in touch with potential mentors, you might feel nervous about being a bother or taking up too much of their time. But, mentorship is meaningful for mentors too. They often genuinely want to help you succeed and are invested in your growth. Your success brings them joy! Many mentors enjoy recounting their experiences and sharing their successes with you as well. Mentors often learn a lot from their mentees. Both sides of the mentoring relationship are meaningful!

## Resources

There are a lot of great resources you can use to help you connect with potential mentors. Here are just a few:

* **Meetups** are meetings that are usually local to your geography. Enter a search for “data science meetups near me” to check out what results you get. There is usually a posted schedule for upcoming meetings. Find out more information about [meetups happening around the world](https://www.meetup.com/find/?keywords=data%20science&source=EVENTS).
* **Platforms** including LinkedIn® and Twitter are a great way to reach out to other professionals. Use a search on either platform to find data science or data analysis hashtags to follow. Post your own questions or articles to generate responses and build connections that way.
* **Webinars** may showcase a panel of speakers and are usually recorded for convenient access and playback. You can see who is on a webinar panel and follow them too. Plus, a lot of webinars are free. One interesting pick is the [Tableau on Tableau webinar series](https://www.tableau.com/learn/series/how-we-do-data). Find out how Tableau has used Tableau in its internal departments. There are also a number of other data science related webinars available at [Brighttalk.com](https://www.brighttalk.com/topic/data-science/)
* **Conferences** present innovative ideas and topics. The cost varies, and some are expensive. But, many offer discounts to students, and some conferences like [Women in Analytics](https://womeninanalytics.com/about/) aim to increase the number of under-represented groups in the field.
* **Associations** or **societies** gather members to promote a field such as data analytics. Many memberships are free. The [Association of Data Scientists](https://www.adasci.org/) is just one example. The [Cape Fear Community College Library](https://libguides.cfcc.edu/c.php?g=604688&p=4191138) also has a list of professional associations for analytics, business intelligence, and business analysis.
* **User communities** and **summits** offer events for users of professional tools; this is a chance to learn from the best. Have you explored the [Tableau](https://community.tableau.com/s/) or [Python](https://www.python.org/community/) communities?
* **Non-profit organizations** that promote the ethical use of data science often offer events for the professional advancement of their members. The [Data Science Association](https://www.datascienceassn.org/) is one example.

## Key takeaways

Finding and connecting with a mentor is a great way to build your network, access career opportunities, and learn from someone who has already experienced some of the challenges you’re facing in your career. Whether your mentor is a senior coworker, someone you connect with on LinkedIn®, or someone from home on a similar career path, mentorship can bring you great benefits as a data analytics professional.

# Glossary terms from week 3

# Terms and definitions from Course 1, Week 3

**Active listening:** Refers to allowing team members, leadership, and other collaborative stakeholders to share their own points of view before offering responses

**Analytics Team Manager**: A data professional who supervises analytical strategy for an organization, often managing multiple groups

**Business Intelligence Analyst**: (Refer to **Business Intelligence Engineer**)

**Business Intelligence Engineer:** A data professional who uses their knowledge of business trends and databases to organize information and make it accessible; also referred to as a Business Intelligence Analyst

**Chief Data Officer**: An executive-level data professional who is responsible for the consistency, accuracy, relevancy, interpretability, and reliability of the data a team provides

**Data cleaning**: The process of formatting data and removing unwanted material

**Data Engineer:** A data professional who makes data accessible, ensures data ecosystems offer reliable results, and manages infrastructure for data across enterprises

**Data Scientist**: A data professional who works closely with analytics to provide meaningful insights that help improve current business operations

**Interpersonal skills:** Traits that focus on communicating and building relationships

**Mentor:** Someone who shares knowledge, skills, and experience to help another grow both professionally and personally

**RACI chart**:A visual that helps to define roles and responsibilities for individuals or teams to ensure work gets done efficiently; lists who is responsible, accountable, consulted, and informed for project tasks

# Terms and definitions from previous weeks

## A

**Aggregate information**: Data from a significant number of users that has eliminated personal information

**Artificial intelligence (AI):** Refers to computer systems able to perform tasks that normally require human intelligence

## D

**Data anonymization**: The process of protecting people's private or sensitive data by eliminating PII

**Data professional**: Any individual who works with data and/or has data skills

**Data science**: The discipline of making data useful

**Data stewardship:** The practices of an organization that ensure that data is accessible, usable, and safe

## E

**Edge computing**: A way of distributing computational tasks over a bunch of nearby processors (i.e., computers) that is good for speed and resiliency and does not depend on a single source of computational power

## H

**Hackathon:** An event where programmers and data professionals come together and work on a project

## J

**Jupyter Notebook:** An open-source web application used to create and share documents that contain live code, equations, visualizations, and narrative text

## M

**Machine learning**: The use and development of algorithms and statistical models to teach computer systems to analyze patterns in data

**Metrics**: Methods and criteria used to evaluate data

## N

**Nonprofit:** A  group organized for purposes other than generating profit; often aims to further a social cause or provide a benefit to the public

## O

**Open data**: Data that is available to the public and free to use, with guidance on how to navigate the datasets and acknowledge the source

## P

**Personally identifiable information (PII):** Information that permits the identity of an individual to be inferred by either direct or indirect means

**Python**: A general-purpose programming language

## S

**Sample:** A segment of a population that is representative of the entire population

## T

**Tableau**: A business intelligence and analytics platform that helps people visualize, understand, and make decisions with data