**Profiles of data professionals**

You have been learning about data professionals and how valuable their work is to the companies that employ them. You also learned about technical and strategic roles for data analytics professionals. Data analysts in technical roles transform raw data into something useful for decision-making. Strategic data analytics professionals focus on maximizing information to guide the businesses they are working for. In this reading, you will learn more about the data professional career space, and see examples of some general categories of data professional roles.

The classifications of data professional roles presented here are a very general introduction to the careers available within the data career space. When you begin to look for a job, you may encounter entry-level, mid and senior positions within each of these general categories.

**Data scientist and data analyst**

Data scientist and data analyst are roles that work directly with data. These professionals gather, clean, analyze, and share insights from data with stakeholders. An increasing number of industries turn to data analysis to create insights that inform various tasks like guide decision-making, identify user preferences, or determine how to use resources more effectively. With more industries looking for data professionals, there is a great chance that you will find one that matches your interests.

**Key attributes**

* **What they do:** Uncover trends, patterns, and insights from data
* **How they do it:** Employ advanced modeling and statistical analytics techniques
* Entry-level data scientist or analyst positions may not require considerable data analysis experience and be less restrictive about requiring those hired to hold a traditional degree.

**Sample job titles**

* Data scientist
* Marketing analyst
* Data analyst
* AI analyst
* Business analyst

**Data management and infrastructure**

Data professionals that work in data management and infrastructural roles are primarily responsible for the systems that distribute data and maintain its integrity. They work alongside data analytics professionals and help support their work. Their main responsibility is to ensure the functionality of data systems and the compliance with local, state, and federal regulations involving data security and ethics.

**Key attributes**

* **What they do:** Manage data sources and the overall data infrastructure
* **How they do it:** Work with the tools and databases used to manage data within a business

**Sample job titles**

* Data engineer
* Technology engineer
* Data manager
* Data steward
* IT architect

**Business intelligence**

Data analytics and business intelligence share a lot of commonalities. Both fields have professionals that use data to create insights that inform decision-making. A major difference is that business intelligence is more focused on creating processes and information channels that transform relevant data. Business intelligence professionals create tables, reports, and dashboards that empower stakeholders, giving them access to the data they need to inform the entire decision-making process on a continual basis. These roles often serve as a complement to core data analytics/data science professionals.

**Key attributes**

* **What they do:** Perform predictive analysis that enables organizations to determine likely future trends
* **How they do it:** Create tables, reports and dashboards that empower their organization

**Sample job titles**

* BI architect
* BI analyst
* BI solution developer
* BI software engineer
* Data viz & BI analyst

**Additional roles for data professionals**

**Product development teams**

The professionals in these roles manage a portfolio of customer and stakeholder analytic projects and initiatives. They often manage the analytical strategy for the organization. In these roles, experience is most likely required, and responsibilities are larger and more global.

**Key attributes**

* **What they do:** Manage analytical strategy within a project team
* **How they do it:** They are less hands-on with data analysis, serving as the person a data scientist or analysts would report to

**Sample job titles**

* Product manager
* Product developer
* Product lead
* Digital product manager
* Customer product manager

**C-suite**

This classification of roles covers high-ranking executives within an organization. The ‘C’ in c-suite stands for chief. In general, there's a trend for the c-suite to build data-driven decision making into their processes. Individuals filling these roles within organizational leadership teams are expected to be familiar with data and analytics.

**Key attributes**

* **What they do:** Responsible for data and data professionals across an entire organization
* **How they do it:** They are decision makers found at the top end of a company’s hierarchy

**Examples of job titles**

* Chief marketing officer
* Chief data officer
* Chief analytics officer
* Chief information officer
* Chief data scientist

**Key takeaways**

There are a wide variety of roles and responsibilities in the data professional career space. Later, you will learn how these roles work together and collaborate with groups of professionals with diverse expertise on data analysis projects. Having a general understanding of the roles and responsibilities of data professionals can help inform your job search. This information can serve as a reference that can help you understand the needs and expectations of companies as you navigate through job postings. Take inventory of any transferable skills you may already possess from educational or professional experience.

# Where data makes a difference for the future

As you have been learning, the data analytics field is dynamic, spanning a variety of industries. For you and other data professionals searching for new job prospects, there are great opportunities across a spectrum of career fields. As you start to think about your own future role in data analytics, it can help to investigate how data is being used within different industries. In this reading, you’ll consider some examples of industries and how data analytics helps guide them. You’ll also consider the future of data analytics and how the field is still evolving!

There are so many different industries taking advantage of data analytics in so many different ways. Here is just a sample of some of these industries and how they use data:

|  |  |  |
| --- | --- | --- |
| **Industry** | **Overview** | **How data is used** |
| App-driven business (sharing economy service) | Facilitates users acquiring, providing, or sharing access to goods and services, often through online or app-based communities | * Maintaining functioning mobile applications * Delivering customized content based on user history including discounts * Using machine learning models to send notifications at key times or even locations |
| Automotive | Includes industries associated with the production, wholesaling, retailing, and maintenance of motor vehicles | * Gaining greater control over their supply chains * Improving production line performance, and designing new and more efficient vehicles * Enhancing vehicle safety and new features |
| Cybersecurity | Protects networks, devices, and data from unauthorized access or criminal use and the practice of maintaining confidentiality, integrity, and availability of information | * Locating weak points within networks and systems using predictive analytics * Defending against security attacks * Detecting data breaches through logic, models, and data tools * Improving the ability to identify attacks and respond to them with Artificial Intelligence (AI) |
| Digital marketing | Assists in advertising and promotional efforts of companies using the internet and online technologies | * Translating customer interaction into actionable business data * Predicting user behaviors to personalize content and offers * Identifying patterns and trends that guide innovations * Determining the return on investment (ROI) of marketing efforts |
| Energy | Includes companies that explore, produce, refine, market, store, and transport both renewable and non-renewable energy resources | * Analyzing real-time data from power systems and monitoring devices * Optimizing technologies, monitoring power grids, and predicting failures * Preventing accidents and malfunctions |
| Gaming | Hosts an estimated 2.7 billion gamers worldwide, facilitating the interaction of players across the globe | * Designing world-building and character creation systems * Monitoring character engagement and how the environment reacts to player input * Optimizing game-play by identifying potential new features or upgrades * Regulating in-game purchases and fraud detection systems * Personalizing marketing campaigns |
| Streaming media and entertainment | Provides access to live and recorded content on-demand, delivered via the internet to computers, smart devices, and mobile devices | * Analyzing and monitoring user interactions to better understand customer sentiment * Matching users with advertisers with real-time analytics * Guiding future content decisions * Personalizing marketing campaigns |
| Telecommunications | Primarily involves operating and providing access to facilities for the transmission of voice, data, text, sound, and video | * Assisting the deployment, optimization, and predictive maintenance of telecommunications networks * Optimizing pricing models * Targeting advertisement and incentive campaigns, as well as detecting fraudulent activity * Analyzing customer data to customize subscriber plans |
| Travel and tourism | Encompasses a variety of services from transportation, accommodations, attractions, booking, and much more | * Marketing to individuals based on their previous travel or searched destinations * Directing machine learning systems that can adjust a traveler’s itinerary based on set factors including weather and availability * Generating recommendations based on personal preferences and location-based discounts * Managing reservations and processing transactions |

## Data trends for the future

As you can already tell, data analytics is an emerging field with a wide range of exciting opportunities. And, even more exciting is the fact that big data is getting bigger. The need for people to understand, prioritize, manage, and analyze that information is not slowing down in any industry. Businesses will continue to rely on data-driven decision-making, fueled by both simple trend analyses and more complex techniques like predictive modeling and forecasting.

Additionally, more companies are storing all of their raw data within large repositories accessible across the organization. As companies become more reliant on insights generated by this data, there will be many opportunities for data analytics professionals to use their skills and knowledge to organize that information and make it useful.

## Innovative technologies

Innovations in accessing this data are leading to new approaches in making data interconnected—meaning that there are still new and evolving ways businesses in different industries are going to use data in the future. Technology is also ever-changing and adapting to these new needs. Because of this, there will always be exciting new tools and data solutions to explore.

Artificial intelligence will continue to have a large impact on business, helping to streamline many areas. For example, an increase in sales is understood to be a direct result of forecasting product demand. Artificial intelligence helps companies ensure warehouse supply, keep items in stock, reduce delivery time, and boost operational efficiency through automating processes.

Additionally, artificial intelligence will combine with machine learning, business intelligence, and automation to deliver more personalized services to customers.

Offering additional services will push forward innovation, bringing computer applications and the sources of stored data closer together physically. This concept is referred to as **edge computing**. By closing the gap between data and computation, speed improves. This results in greater support of real-time analytics and the automation necessary to support the increasing number of devices that are becoming linked through the [internet of things](https://en.wikipedia.org/wiki/Internet_of_things).

An increasing number of data analytics tasks will be automated by creating, managing, and analyzing data in edge environments. Artificial intelligence and machine learning systems are only as equitable and inclusive as the people who create and train these systems. You will learn more about how you, as a data analytics professional, will need to take steps to ensure equity in the future.

## Key takeaways

As you progress through your career as a data analytics professional, you will need to stay up-to-date with the latest trends and technologies used across different industries. The one certainty about the future of data analytics is that an increasing amount of data will continue to be generated and that new systems and innovations will continue to be developed, allowing data professionals an opportunity to learn, grow, and develop new skills.

# Volunteer data skills to make a positive impact

So far, you have been learning how data analytics professionals are making an impact in a variety of industries. You’ve also learned about nonprofit organizations, and how their efforts are making a difference for so many in need. By volunteering their expertise and time, data analytics professionals contribute to many projects that help nonprofits benefit communities all around the world. In this reading, you will learn more about how you can contribute to global efforts, including  your local community as a data professional.

## Nonprofits

People hoping to further a social cause, or provide a benefit to the public, often create nonprofit groups. The main mission of a nonprofit group is to fill a need or gap that the private sector is not addressing adequately. There are rewarding and inspiring opportunities for data professionals in the nonprofit sector. At the global level, groups like [Children International](https://www.children.org/), [Doctors Without Borders](https://www.doctorswithoutborders.org/), and [Care International](https://www.care-international.org/) lead humanitarian efforts across the globe. In addition to these large-scale efforts, there are many nonprofit organizations whose efforts are regionally specific, like [Christopher’s Promise](http://www.christopherspromise.org/) based in the Columbus, Ohio area.

You can apply your data skills to help nonprofit groups become more effective, allowing them to anticipate and respond to their greatest areas of need.

You may already be aware of nonprofits that fit within your areas of interest or operate in your community. One way that these organizations compensate for their lack of resources is by finding volunteers. Often, regional or local organizations lack the resources to offer full time employment for marketing professionals or data analysts. As a data analytics professional there are many ways that you can make a valuable contribution to nonprofit organizations. In the event that you do not have a specific nonprofit organization in mind, you can research through [Charity Navigator](https://www.charitynavigator.org/), the largest and most trusted online nonprofit evaluation and rating tool in the world. Here you will find ratings on nearly 200,000 nonprofits.

## An example of a community-based nonprofit organization

[Christopher’s Promise](http://www.christopherspromise.org/home.html), a grass-roots nonprofit based in Columbus, Ohio, is a representative example of the types of community-based nonprofits that are making an impact all over the world. This organization was inspired by the efforts to create a bicycle for a fifteen-year old who faced the challenges of Neurofibromatosis, Cerebral Palsy, and Optic Glioma. Since 2011, this nonprofit has facilitated the design and construction of adaptive bicycles for hundreds of children, thanks to outstanding support from the local communities in the central Ohio area.

Christopher’s Promise (2022) mission statement is  “To allow all kids, despite physical limitations, the ability to experience the same hallmark childhood memories as their peers. Helping kids, be kids.”

## Volunteering data skills to nonprofits

As a data analytics professional, your skills can make a great impact on charity and nonprofit organizations within your own community or for a community whose needs resonate with you. Many nonprofits are highly dependent on volunteers for their activities due to limited resources. This situation is especially challenging for community-based initiatives that often lack the funding to hire data analytics professionals. Therefore, offering to volunteer with a local nonprofit is an excellent way to gain experience and support a cause.

### How can data analytics professionals help nonprofits?

Data analytics professionals can help nonprofit organizations in a variety of ways. Below are a few examples.

#### Fundraising

Using data analytics, you can predict with high accuracy which prospects are most likely to donate. In order to maximize return on marketing and outreach expenses, nonprofit organizations can use data analysis to prioritize outreach and reduce overall marketing expenditures.

#### Marketing

There is valuable information in a nonprofit’s data that can benefit marketing efforts. Data analysis can help determine a nonprofit’s target audience and gather insights such as donation methods, contribution history, and other demographics. As a result, the nonprofit can help guide communication with potential donors and determine the effectiveness of campaigns.

#### Monitoring activities

Data analysis can help nonprofits monitor resources, expenses, and daily operational needs. A nonprofit will often need assistance in keeping track of donated materials. For example, a database of donations to a food bank could help the organization determine specific food items being collected and inventory the expiration dates of food items for shelving, cycling, and distribution. Using a system of real-time inventory in conjunction with predictive data analytics could anticipate shortages and identify those donors who have helped provide these items in the past.

Data analytics has a lot to offer a nonprofit organization. Gaining deeper insight into the organization’s efforts can help them to operate in a more effective and efficient way. Analyzing data can improve various nonprofit functions, such as allocation of resources, recruiting and retaining supporters, fundraising, and conducting research. Data analysis also can help reveal patterns and power dynamics that can be used to inform decision-making. In addition to identifying individuals and communities in need of assistance, predictive modeling can also be used to identify potential recipients of a nonprofit's services.

## More opportunities to volunteer

There are organizations who are helping to pair data professionals with projects that are making a difference all around the world.

DataKind is a global nonprofit that harnesses the power of data science and artificial intelligence (“AI”) in the service of humanity. Using data analysis, this organization guides restorative efforts in underserved communities. DataKind brings together volunteer experts from academia and industry to design innovative solutions to tough social challenges. They help social organizations apply their data to predictive analytics, machine learning algorithms, and AI in a way that both increases impact and is sensitive to ethical considerations. Visit the [DataKind website](http://datakind.org/volunteer-with-us) to find out more about their mission and how to become a volunteer.

Another option for putting your data skills to good use are hackathons. A hackathon is an event where programmers and other data professionals come together and collaborate on a particular project. The goal is to create a solution to an existing problem.

There are many hackathon events scheduled across the world each year. These events can take place at a specific location or remotely across the globe. Hackathon events are commonly built around a central theme or question, such as tracking industrial emissions, promoting healthy food options, or how we can improve mental health for cancer patients. If you are interested in finding listings of current hackathons around the world, visit [Devpost.com](https://devpost.com/).

## Key takeaways

Donating your time to a nonprofit is a great way to gain experience, and it can be mutually beneficial for you and the nonprofit. The nonprofit benefits from your data analysis expertise, and you get valuable experience working with data that can be added to your professional portfolio.

Working with a nonprofit organization or participating in a hackathon event introduces you to different types of projects, enhances interpersonal and communications skills, and adds to your professional list of contacts. No matter what your level of data analytics experience, working with nonprofits and hackathons can be a rewarding side project, or even a philanthropic career option.

## Resources for more information

* [Charity Navigator](https://www.charitynavigator.org/) is the world's largest and most trusted nonprofit evaluator.
* [DataKind](https://www.datakind.org/) helps social organizations identify their data and artificial intelligence opportunities, recruits and manages volunteers, and then sees the solutions are used.
* [Devpost](https://devpost.com/) is a place to build products, practice skills, learn technologies, sign up for competitions, and grow your network.
* [IRS.gov tax exempt organizations listing](https://www.irs.gov/charities-non-profits/search-for-tax-exempt-organizations) is a website to find charitable organizations throughout the United States.
* [Statistics without borders](https://www.statisticswithoutborders.org/) contributes to the common good by providing free statistical, data science, and analytical services.

# Critical data security and privacy principles

You have learned how data analytics can be used for good causes, like assisting nonprofit organizations. Also, you learned that data professionals need to protect privacy within data and remain aware of other considerations, like data bias and making assumptions about data.

As a data analytics professional, you have a responsibility to handle data ethically. Data ethics refers to well-founded standards of right and wrong that dictate how data is collected, shared, and used. Throughout your career you will work with a lot of data. This sometimes includes PII, or **personally identifiable information,** which can be used by itself or with other data to track down a person's identity. One element of treating data ethically is ensuring that the privacy and security of that data is maintained throughout its lifetime. In this reading, you will learn more about the importance of data privacy and some strategies for protecting the privacy of data subjects.

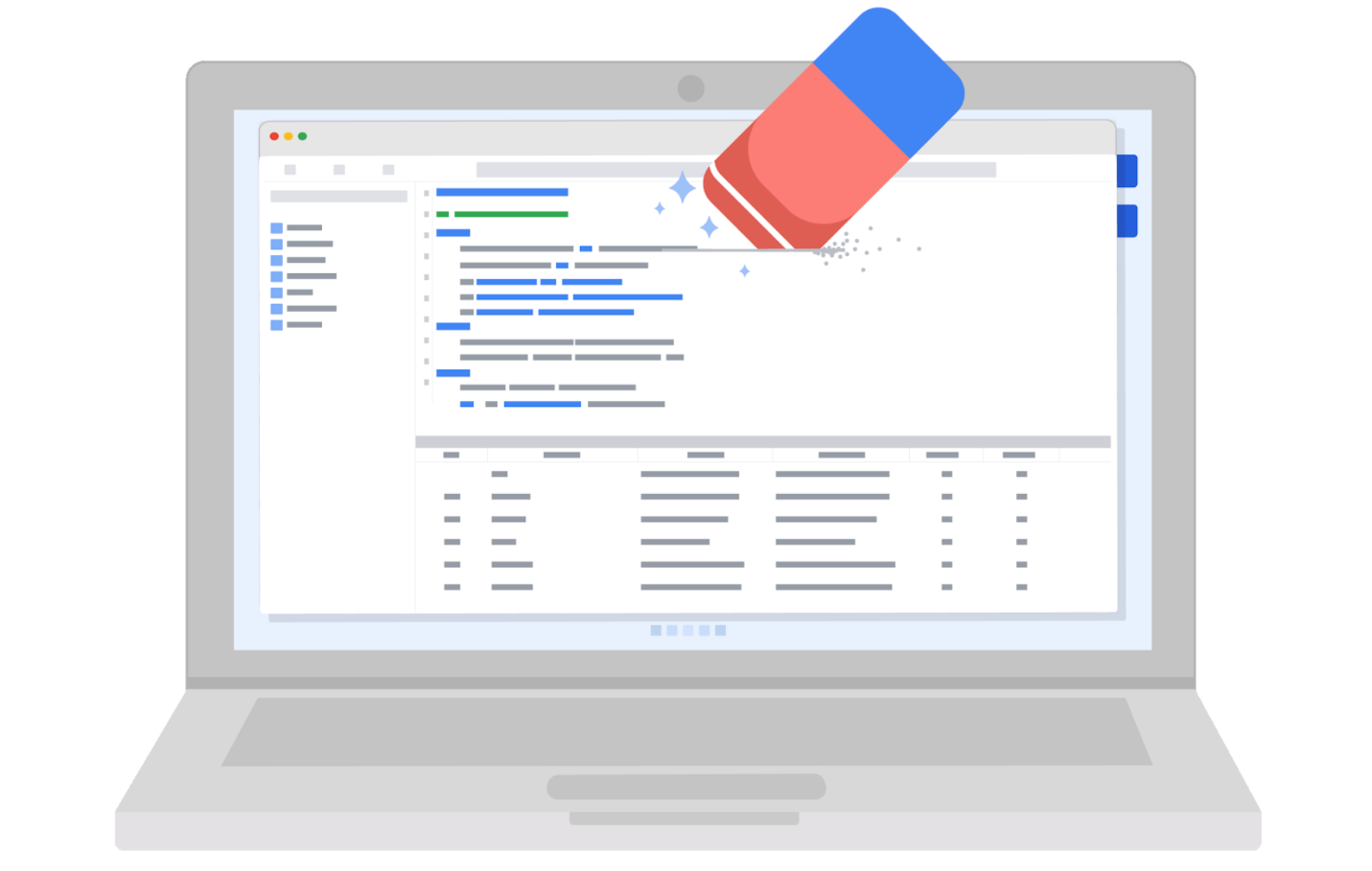
## Privacy matters

Data privacy means preserving a data subject’s information and activity any time a data transaction occurs. This is also called information privacy or data protection. Data privacy is concerned with the access, use, and collection of personal data. For the people whose data is being collected, this means they have the right to:

* Protection from unauthorized access to their private data
* Freedom from inappropriate use of their data
* The right to inspect, update, or correct their data
* Ability to give consent to data collection
* Legal right to access the data

In order to maintain these rights, businesses and organizations have to put privacy measures in place to protect individuals’ data. This is also a matter of trust. The public’s ability to trust companies with personal data is important. It’s what makes people want to use a company’s product, share their information, and more.

## Protecting privacy with data anonymization



Organizations use a lot of different measures to protect the privacy of their data subjects, like incorporating access permissions to ensure that only the people who are supposed to access that information can do so. Another key strategy to maintaining privacy is data anonymization.

**Data anonymization** is the process of protecting people's private or sensitive data by eliminating PII. Typically, data anonymization involves blanking, hashing, or masking personal information, often by using fixed-length codes to represent data columns, or hiding data with altered values.

Data professionals can take additional measures to protect users and their data. **Data aggregation**, for example, is the process of collecting and combining details from a significant number of users in terms of totals or summary. Aggregating data ensures that information contained within datasets is shown in groups; when coupled with other anonymization techniques, data professionals can ensure compliance with data privacy and anonymization standards.

Data anonymization is used in just about every industry. As a data analytics professional, you probably won’t personally be performing anonymization, but it’s useful to understand what kinds of data are often anonymized before you start working with it. This data might include:

* Telephone numbers
* Names
* License plates and license numbers
* Social security numbers
* IP addresses
* Medical records
* Email addresses
* Photographs
* Account numbers

Imagine a world where we all had access to each other’s addresses, account numbers, and other identifiable information. That would invade a lot of people’s privacy and make the world less safe. Data anonymization is one of the ways we can help keep data private and secure!

## Key takeaways

For any professional working with data about actual people, it’s important to consider the safety and privacy of those individuals. That’s why understanding the importance of data privacy and how data that contains PII can be made secure for analysis is so important. We have a responsibility to protect people’s data and the personal information that data might contain.

If you’re interested in learning more about data privacy and ethics, you can check out [the Google Data Analytics Certificate program’s section on bias, credibility, privacy, ethics, and access](https://www.coursera.org/learn/data-preparation/home/week/2).

# The practices and principles of good data stewardship

As you have been learning, all data professionals are responsible for ensuring the quality, integrity, accessibility, and security of data. Data stewardship is the practice of ensuring that data is accessible, usable, and safe. Making data stewardship a normal part of your work habits will benefit everyone who relies on your analysis, both inside and outside of your organization. In this reading, you will learn more about data stewardship and receive some best practices that can assist in guiding your career in data analytics.

## Respect privacy

Earlier in this course, you learned about Information that permits the identity of an individual to be inferred by either direct or indirect means. This kind of information is commonly referred to as personally identifiable information or PII. When users share personal information, they are putting a high level of trust into an organization. It is the responsibility of all who have access within the organization to help protect the privacy of their users. As a data analytics professional, it is important to be thoughtful about any personal data and exhibit great care to protect it. In different parts of the world, laws are in place to guide best practices for data privacy. Laws provide a foundation for best practices as you grow in knowledge and experience on how to support and sustain privacy. One of your responsibilities as a data professional will be to stay up to date with any change in data laws and regulations that govern data. Depending on your organization’s location or industry considerations, there may be additional regulations and policies in place. Here are a couple of regional examples:

* General Data Protection Regulation or [GDPR](https://gdpr.eu/) (European Union law):
  + The GDPR is described on their website as the toughest privacy and security law in the world. It imposes obligations onto organizations anywhere, so long as they target or collect data related to people in the European Union.
* Lei Geral de Proteção de Dados Pessoais or [LGPD](https://www.gov.br/cidadania/pt-br/acesso-a-informacao/lgpd) (Brazil’s general law for the protection of personal data):
  + The LGPD is a data protection law that governs how companies collect, use, disclose, and process personal data belonging to people in Brazil. LGPD applies to companies that process data about individuals in Brazil.
* The California Consumers Privacy Act or [CCPA](https://oag.ca.gov/privacy/ccpa) (Privacy rights for California consumers):
  + The CCPA gives consumers more control over the personal information that businesses collect about them. These regulations provide guidance on how to implement the law.
  + Additionally, states like Virginia, Colorado, New York, Utah, and Connecticut have enacted similar legislation to protect consumer privacy in their states.

## Be cautious of unintentional harm

Data analytics is expanding its influence across an increasing range of industries. Companies are using the results of data analysis to make informed decisions. Many of these decisions have the potential to impact people across a broad range of social and economic factors. It is good practice to continually strive to produce information that is accurate, while respecting cultural and social norms.

Due to the global marketplace, decisions play out differently in different cultures. Taking these issues and considerations into account is very important for the executive team of an organization. Also, companies are known to take a position on particular politicized social and cultural issues, and these can be reflected in their policies. As a data analytics professional, you must be cognizant of your company’s policies. When presented with challenges, it is best to seek guidance from leadership within your organization on how to navigate.

## Avoid creating or reinforcing bias

You have learned about bias within data and how it can have an impact on your analysis. Identifying bias is not always simple. A good practice when working with data is to keep in mind that data gathering is a task managed by humans–and that process is informed by people from different backgrounds, experiences, beliefs, and worldviews. These and other types of biases can affect the data and the results, which in turn can have an impact on business decisions. You will learn more about bias within data as you progress through the program.

## Consider inclusivity

Often In your role as a data analytics professional, you will have access to data collected in a variety of ways. You will need to consider whether the methods of data collection have excluded information from particular populations. Inclusionary approaches can expand how any organization collects and analyzes data. Building diverse research teams, communicating clearly with user communities, and engaging in careful and critical analysis that considers equity and inclusion benefits all stakeholders.

## Uphold high standards of scientific excellence

The processes and technology that you will interact with as a data analytics professional are deeply rooted in the scientific method. As you continue in your data professional journey, embrace inquiry, intellectual discussion, and collaboration. Invite feedback and assess feedback. Remember, artificial intelligence still depends heavily on the instructions provided by data professionals. The more time and consideration that goes into the process of data analytics, the better the results.

Different industries have different standards. In your role as a data analytical professional, you will need to be aware of the standards for the industries you are working in. Each industry will have its own standards based on industry conventions.

Conventions that work well in the transportation industry may not necessarily be as high of a priority for the healthcare industry. For example, in transportation, data is collected to create predictive analytics models to analyze the best route based on traffic patterns. In the healthcare industry, data is analyzed in medical imaging, predicting genetic factors, and speeding up the development of treatments.

## Key takeaways

Data stewardship is the responsibility of every data professional. This responsibility goes beyond interactions with the data. By conducting your work in ways that are socially beneficial and inclusive, you will increase your ability to identify human bias. Guide your efforts through scientific and ethical principles and stay aware of possible bias throughout the data analysis process.

# Glossary terms from week 2

# ****Glossary terms from Course 1, Week 2****

**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

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

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

**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

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

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

**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

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

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

# Terms and definitions from the previous week

## D

**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

## 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

## P

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

## T

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