

# Data professional

A term used to describe any individual who works with data and/or has data skills

## Machine learning

An alternative approach to automation expressing the way you want a task done by using data instead of explicit instructions

## What you'll learn

- Approaches for larger-scale projects
- Trajectory of the field
- Effective communication
- Hands-on data analysis
- Career tips and tactics

## Program overview

- Code in Python
- Discover stories that data hold
- Develop data visuals
- Use statistical tools
- Build models
- Explore machine learning

## Metrics

Methods and criteria used to evaluate data

## Data skills checklist

- Statistics
- Scientific methods
- Data analysis

- Artificial intelligence

## Data science

The discipline of making data useful

## The R programming language

- Used by researcher and academics
- Can create complex statistical models
- Taught in Google Data Analytics certificate

## The Python programming language

- Taught in this program
- Emphasizes readability
- Flexible
- Visually uncluttered
- Online communities and resources

## Jupyter Notebook

- Run code in real time
- Identify errors easily

## Tableau

- Share complex data through a graphical interface
- Help others understand the results of your analysis

## The data analytics toolbox

- Programming languages
- Visual data tools
- Storyteller

## Data professional responsibilities

- Look for patterns and trends with big datasets
- Uncover the stories inside data
- Help guide decision making

## Insights or Analytic Team Manager responsibilities

- Supervise analytical strategy of organization
- Manage multiple groups
- Positions are often difficult to fill

## Business Intelligence Engineer(or Analyst)

A highly strategic role focused on organizing information and making it accessible

## Activities covered by the data professions

- Statistical inference
- Machine learning
- Data analytics

## Two categories of data careers

- Technical
- Strategic

## Technical data professionals

- Expertise in mathematics, statistics, and computing
- Build models and make predictions
- Explore datasets
- Transform raw data into useful information for decision-making

## Strategic data professionals

- Interpret information for an organization's operations, finance, research, and development
- Work aligns with business strategy

## Finance

- Early adopter of data science
- Assess risks
- Monitor markets
- Reduce fraud
- Create a more stable financial system

## Healthcare

- Wearable tech
- Process clinical data
- Increase early detection
- Improve diagnosis
- Create individualized wellness plans

## Manufacturing

- Predict when to perform preventative maintenance
- Maximize quality assurance
- Respond to logistical issues
- Enable clear communication

## Agricultural

- Develop new approaches
- Improve harvesting technologies

## Nonprofit

A group whose main purpose is to further a social cause or provide a benefit to the public

## Open data

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

## Hackathon

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

## Personally Identifiable Information (PII)

Information that permits the identity of an individual to be inferred by either direct or indirect means

## Examples of PII

- Biometric records
- Usernames
- Social security or national identification numbers

## Aggregate information

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

“Data gathering is a task managed by humans.”

“That process can be informed by different backgrounds, experiences, beliefs, and worldviews.”

## Sample

A segment of a population that is representative of the entire population

## Artificial Intelligence (AI)

Computer system able to perform tasks that normally require human intelligence

## What you'll learn

- Expectations for first weeks on the job
- Roles within data professions
- Networking and building relationships
- Responsibilities of data professionals

Data professionals combine a knowledge about how to do practical tasks with an awareness of what makes communication and collaboration successful.

## Interpersonal skills

Traits that focus on communicating and building relationships

### 1. Plan

Communication

### 2. Analyze

### 3. Construct

### 4. Execute

## Active listening

Allowing team members, bosses, and other collaborative stakeholders to share their own points of view before offering responses

## Data cleaning

The process of formatting data and removing unwanted material

Data tasks and responsibilities are dependent on an organization's data, team structure, and how they make use of insights and analytics.

## Data Engineer responsibilities

- Make data accessible
- Ensure data ecosystem offers reliable results
- Manage infrastructure for data across enterprise

## Plan

- What are the goals of the project?
- What strategies will be needed?
- What will be the business or operational impacts of this plan?

## Analyze

- Acquire data from primary and secondary sources
- Clean, reorganize, and transform data for analysis
- Engage in EDA
- Work with stakeholders

## Construct

- Build and revise machine learning models
- Uncover relationships in the data
- Apply statistical inferences about data relationships

## Execute

- Present findings to internal and external stakeholders
- Answer questions
- Consider differing viewpoints
- Present recommendations based on the data

## Purpose

The reason why the communication is taking place

## Receiver

Your audience

## Questions to keep in mind

- What does my audience already know?
- What do they need to know?

## Sender

The person responsible for crafting the message or communication

## Questions to keep in mind

- What's your relationship to the receivers?
- What's your role in this exchange?
- What personal biases might affect the message?

Sender

Your Message

Purpose

Receiver



## Tips for efficient communication

- Use direct language
- Minimize wordiness
- Avoid unnecessary details

## Tips for clear communication

- Use proper grammar and punctuation
- Choose specific terms
- Avoid technical language
- Break complex ideas into shorter sentences

## The stages of the PACE model

- Plan
- Analyze
- Construct
- Execute

## Experiential learning

### Understanding through doing

- Discover how organizations use data analysis every day
- Identify the specific types of industries and projects that are most interesting
- Gain the confidence necessary to discuss them with potential employers

## Portfolio

A collection of materials that can be shared with potential employers

## Transferable skills

A capability or proficiency that can be applied from one job to another

Transferable skill = Problem-solving