

Complete 6 months Roadmap to become a Data Analyst: From Learning Skills to Prepare for Interviews

For you to succeed as a data analyst, you must have a clear awareness of the abilities and skills needed. The field of data analysis can be both rewarding and challenging, and there are several chances to put your abilities to use and have a significant influence on both business and society. With new technology and approaches constantly emerging, it may also be a challenging and dynamic area. Remain informed with the newest advancements and always improving your abilities are prerequisites for becoming a good data analyst.

A data analyst roadmap might be useful in this situation. A roadmap for a data analyst's career describes the actions you must follow to reach your objectives. Along with the tools you'll need to employ, it also includes the skills, projects, and experience you'll need to gain. A clear grasp of what has to be done to improve your career is provided by having a roadmap in place, which also keeps you motivated and focused. Additionally, it enables you to assess your development and make any corrections.

This complete roadmap takes you through a 10 step plan to become a successful Data Analyst from learning skills to preparing for interviews.

But why is having a data analyst roadmap crucial? You can save a lot of time and work with a roadmap. A roadmap offers a simple path to follow so you don't have to attempt to figure out what you need to accomplish on your own. Additionally, it helps in prioritizing your learning and development efforts so that you are concentrating on the most important information and skills. You may remain ahead of the competition and be more ready for the ever evolving employment market by creating a data analyst roadmap.

10 Step plan to become a successful Data Analyst

1- 3 months

- **Learn the skills required to become a data analyst**
- **Work on your soft skills**
- **Practice those skills**

4th month

- **Create projects**
- **Build your portfolio**
- **Create your resume**

5-6 months

- **Build your network**
- **Prepare for interviews**
- **Apply for jobs**
- **Get placed as a data analyst**

Let's go through these steps in more detail.

1. Learning the skills necessary to become a data analyst is the first step on a data analyst road map. As a data analyst, it will be your responsibility to gather, examine, and analyze massive amounts of data in order to draw out insightful conclusions that can guide business actions. You will need to have a solid understanding of the fundamental principles and methods of data analysis in order to accomplish this effectively.

The skills you will need to learn include:

- Statistics
- Excel
- SQL
- BI Tools: Power BI\ Tableau
- Programming Language

Statistics (1-2 weeks)

Since statistics provides the foundation for interpreting and evaluating data, it is crucial for data analysts to have this knowledge. Data cleansing, investigation, and interpretation all demand a strong grasp of statistics. It enables data analysts to derive conclusions about the population from which the sample was collected by drawing inferences from a sample of data.

The following are some fundamental statistical principles that data analysts should be aware with:

Descriptive Statistics: Understanding metrics of central tendency like mean, median, and mode as well as measures of dispersion like standard deviation and variance.

Probability: Understanding fundamental concepts in probability, including conditional probability, the Bayes theorem, and probability distributions

Inferential Statistics: Understanding how to draw conclusions about a population from a sample of data, including ideas like p-values, confidence intervals, and hypothesis testing

Regression Analysis: Understanding how to model connections between variables and generate predictions using linear and non-linear regression is known as regression analysis.

Time Series Analysis: Analyzing data in time series: Knowing how to spot trends and patterns in data across time.

Below are the the topics important to learn in statistics:

1. Measures of Central Tendency
2. Standard Deviation
3. Percentiles
4. Types of Data and Data Distribution
5. Categorical and Numerical Data
6. Box Plots
7. Histograms
8. Density plots
9. Correlation and Covariance
10. Bias, Variance and Trade Off
11. Confidence Intervals
12. Conditional Probability
13. Probability Distribution
14. Sampling Distribution
15. Normal Distribution
16. Binomial Distribution
17. Chi-Square Distribution
18. F-Distribution
19. Poisson Distribution
20. Exponential Distribution
21. Hypothesis Testing
22. Null Hypothesis
23. Alternate Hypothesis
24. One way Versus Two way hypothesis tests
25. Significance and p-value
26. t -tests
27. z-tests
28. ANOVA
29. Chi-Square Test

Excel: (3-4 weeks)

Excel is a powerful spreadsheet programme that can be used for data processing, cleaning, and visualization, making it a popular tool for data analysis. Excel is a popular tool among data analysts because it offers a straightforward and user-friendly interface for dealing with data.

Excel has its limits even if it is a fantastic tool for data analysis. Excel can be sluggish when doing sophisticated computations and is not suited for managing massive

datasets. Advanced statistical and machine learning capabilities are also lacking. Data analysts can undertake more complex data analysis using programming languages like R and Python when Excel's constraints become a barrier.

Excel is a useful tool for data analysts overall because it is popular, easy to use, and provides a variety of features that can be used to analyze and visualize data. Excel proficiency and practice are crucial for data analysts who work with real-world data sets.

The following are some of Excel's most important data analysis features:

Data manipulation: Excel makes it simple for data analysts to combine, sort, and filter data. They can also simply run computations and build pivot tables to summarise data.

Data cleaning: Identifying and handling missing data, outliers, and inaccuracies in the data is made simple by Excel's built-in functions and capabilities.

Data visualisation: Excel contains a variety of charting and graphing capabilities that may be used to produce data representations that are visually appealing and professional-looking.

Data Import/Export: Excel can import and export data from a wide range of sources, including databases, text files, and other spreadsheet applications.

Macros: Data analysts may automate repetitive operations and work more efficiently by using Excel's macro recording and scripting features.

1. Basics of using excel
2. Filters
3. Cell Formatting
4. Relative and Absolute Cell References
5. Basic functions: SUM(), MIN(), MAX(), AVERAGE(), COUNT()
6. AutoSum, AutoFill or FlashFill
7. Modification
8. Data Formatting
9. Conditional Formatting
10. Inserting shapes and images
11. Creating chart
12. Chart Options
13. Types of Charts

14. Chart Formatting
15. Date Functions: DATA(), DATEVALUE(), EMONTH(), EDATE(), NETWORKDAYS()
16. Excel Templates
17. Custom template
18. Table Formatting
19. Conditional Functions: IF(), SUMIF(), SUMIFS(), COUNTIF(), IFERROR()
20. Use of AND() and OR() with IF()
21. Other functions: COLUMN(), ROW(), TEXT(), LEFT(), RIGHT(), MID(), LEN(), CONCAT(), TRIM(), PROPER(), FIND()
22. Pivot Tables
23. Lookup Functions
24. Understanding UNIQUE(), FILTER(), IFS(), SORT(), SORTBY(), SWITCH()
25. Data Cleaning and Transform
26. Use of Power query
27. Pivot Charts
28. Creating Data Models
29. KPIs
30. Macros
31. VBA
32. Creating Dashboards

SQL: (1-2 weeks (2nd month))

As a data analyst, you are always searching for new ways to draw conclusions from large and complex datasets. SQL (Structured Query Language) is a programming language used to manage and alter data in relational databases. Understanding SQL is a crucial ability for a data analyst since it enables you to extract, filter, and alter data from databases to carry out your study. They can aggregate data, query and connect numerous tables, and build new tables and views using SQL.

1. Learn about DBMS.
2. Data Constraints
3. ER Model
4. Creating Databases
5. Creating Tables

6. Using Constraints
7. Inserting Table
8. Altering Table Structure
9. Deleting Database and Table
10. Updating
11. Select statements
12. Where
13. Use of Wildcards
14. Limit clause
15. Arithmetic Operators
16. Mathematical Functions
17. String Functions
18. Date Functions
19. Conversion Functions
20. Comparison Operators
21. Logical Operators
22. Order By and Group By
23. Aggregate Functions
24. Sub-query
25. Querying Multiple Tables: Cartesian Product, Inner join, Left join, Right Join, Self join, delete and update join
26. Case expression
27. Stored Procedures
28. Accessing MySQL data with MS Excel.

BI Tools: (3-4 weeks (2nd month))

Data analysts need business intelligence (BI) tools in order to transform unprocessed data into insights that can be put to use. These tools offer a variety

of capabilities that make it simple for you to explore, view, and analyze data. We will examine some of the most well-liked BI technologies now accessible to data analysts in this blog article.

- **Power BI:**

Microsoft created the business intelligence tool known as Power BI. You may connect to different data sources using it, make interactive visualizations, and share them with other members of your business. It offers a selection of pre-built themes and visualizations and has a straightforward, user-friendly interface. Power Query, a robust data wrangling and transformation tool included in Power BI, also enables you to clean and prepare your data for visualization.

1. Basic Table transformation
2. Text, Number and Date tools
3. Index and Conditional Columns
4. Grouping and Aggregating Data
5. Pivoting and Unpivoting
6. Merging, Modifying and Appending Queries
7. Connecting to Folders
8. Defining Hierarchies and Categories
9. Best Practices of Query Editing and Power BI
10. Data Model
11. Database Normalization
12. Creating Table Relationships
13. Table Schemas
14. Connecting Multiple Data Tables
15. Filter
16. DAX
17. Creating Interactive Reports and Dashboards

- **Tableau:**

With Tableau, a top tool for data visualization, you can build interactive dashboards and reports. It offers a broad variety of chart kinds to help you analyze your data and includes a drag-and-drop interface that makes connecting to different data sources simple. You may mix data from several

sources and generate a single view of your data using Tableau's broad range of data blending tools.

1. Basics of Data Pane
2. Quick Visualizations
3. Marks and its Properties
4. Menu and Toolbar
5. Data Types, Sorting and Grouping
6. Filtering
7. Aggregations
8. Table Calculations
9. Formatting
10. Action Filters
11. Dashboard Layout
12. Stories
13. Distributing and Publishing
14. Joins
15. Relationships
16. Data Models
17. Types of Relationships
18. Pivot
19. Interactivity
20. Trend Lines
21. Clustering and Forecasting
22. Nested LODs and Mapping Functions
23. Dynamic Designs, Extensions and Tooltip Visualizations

The decision between Tableau and Power BI will ultimately be based on the particular requirements of your firm and the data analysts. Power BI offers a greater interaction with Microsoft products and services, whereas Tableau is more focused on data discovery and visualisation. Power BI also focuses more on making straightforward dashboards and reports. It's usually a good idea to give both tools a try and determine which one best suits the organization's needs.

Python

With the growing volume of data, applying machine learning modeling and advanced statistical analysis to a dataset in Excel or other business intelligence tools is not really viable. When working with huge and complicated datasets, data

analysts might utilize computer languages like Python or R to perform advanced statistical operations. In my opinion, Python is superior to R for data analysis. The decision of which programming language to employ will rely on the particular needs of the study and the data analyst's personal taste.

Libraries used in the different programming language are:

1. Python
 - a. Numpy
 - b. Pandas
 - c. Matplotlib
 - d. Seaborn
2. R
 - a. Dplyr
 - b. Ggplot2
 - c. TidyR
 - d. Lubridate
 - e. Stringr
 - f. Purrr
 - g. Readr

2. Work on your soft skills

Along with your technical expertise, a data analyst has to have good soft skills. Soft skills are the personal qualities and traits that allow one to communicate clearly and peacefully with others. Among the essential soft skills for a data analyst are:

1. Communication
2. Presentation Skills
3. Problem Solving
4. Research
5. Analytical Mindset
6. Storytelling with data

3. Practice on your skills

For a data analyst, it's crucial to practice both hard and soft skills. Here are some techniques for honing both categories of abilities:

1. For technical skills:

- a. A variety of data-related challenges and activities are available on websites like Kaggle, HackerRank, and DataCamp, which may help you hone your technical skills.
- b. You can keep up with the newest tools and techniques and learn from other data analysts by taking part in online data science competitions.
- c. Work on handling various data kinds, including text, picture, and time-series data.
- d. constructing your own data projects and experimenting with various tools and strategies for data analysis.

2. For soft Skills

- a. Attend online classes or webinars on data analysis and visualization to hone your presenting abilities and get knowledge from professionals in the field.
- b. Learn how to successfully convey data insights to non-technical audiences by enrolling in a course or workshop on data visualization, data storytelling, and data communication.
- c. Connect with other data analysts in online networks and forums to pick up tips and tricks from their experiences.

Create Projects:

A data analyst must develop projects to improve their abilities and build a portfolio of work to present prospective employers. The following projects are suggested for data analysts:

Data Cleaning and Exploration: Take a dataset from a public repository, like Kaggle or the UCI Machine Learning Repository, then clean it before exploring it. Your abilities in data cleansing, data visualization, and data exploration will all improve as a result of this project.

Data visualization: Make an interactive data visualization using a dataset. This may be an interactive plot or a dashboard. Your abilities in data storytelling, data visualization, and data communication will all improve as a result of this project.

Data Analysis: Analyze a dataset of your choice to find trends, patterns, and new information. You may improve your abilities in data analysis, data interpretation, and data communication with the aid of this project.

Time Series Analysis: Examine a dataset that contains time-series data. This may involve anomaly identification, trend analysis, and forecasting. You will improve your time-series analysis, feature engineering, and model assessment abilities with this assignment.

Build your Portfolio

For a data analyst, creating a portfolio is a crucial step in showcasing their abilities and expertise to prospective employers. Here are some pointers for creating a potent portfolio:

1. **Include a range of projects:** A portfolio containing a range of projects shows you can deal with various sorts of data and in many fields. Including both technical and soft abilities in your portfolio is also a smart idea.
2. **Describe your technological expertise:** Include thorough details on the tools and methods you employed for each project, such as Python, R, SQL, and any libraries or frameworks for data visualization.
3. **Include a brief, straightforward summary:** Give a clear and succinct account of each project, mentioning the issue you sought to resolve, the information you consulted, and the outcomes you attained.
4. **Display your soft skills** Include details on the methods you used to present your results to various audiences, such as managers, team

members, or clients. This will show your capacity to persuade non-technical audiences of the value of data insights.

5. Include case studies: Case studies are a fantastic approach to demonstrate the effects of your work and how they benefited the company.

Create Resume:

When writing a CV for a data analyst position, it's important to emphasise your technical expertise, professional experience, and aptitude for conveying and analysing data insights. Here are some pointers for writing a compelling CV for a data analyst:

1. Adapt your CV to the position: Create a resume that is targeted to the qualifications needed for the data analyst position you are looking for.
2. Describe your technological expertise: Include details about the technologies and tools you are knowledgeable with, such as Python, R, SQL, and any libraries or frameworks for data visualisation.
3. Include specifics: Be as precise as possible when describing your background and achievements. This will help prospective employers understand the kinds of data analysis projects you have worked on and the outcomes you were able to produce.
4. Highlight your soft skills: Include details on the methods you used to present your results to various audiences, such as managers, team members, or clients. This will show your capacity to persuade non-technical audiences of the value of data insights.
- 5.
6. Use numbers to quantify your accomplishments, including the size of the datasets you worked with, the difficulty of the analysis, and the significance of the insights you produced.
- 7.
8. Use relevant keywords: Include words like "data mining," "data visualisation," "machine learning," and "statistical analysis" in your content.

9. Keep it brief and to the point: Make your resume brief and simple to read. Make it easier for potential employers to read your resume and get the information they need by using bullet points and plain, straightforward language.
- 10.
11. If you have, please provide your Github profile and portfolio: These links might provide a very concrete example of your abilities and initiatives.
- 12.
13. Add your credentials: Mention any schooling, training, or certifications you have in data analysis or similar sectors that are pertinent.

Build your network

For a data analyst to connect with potential employers, subject matter experts, and other professionals in the sector, developing a strong network on LinkedIn is crucial. Speak with specialists and thought leaders in the field of data analysis, including data scientists, engineers, and architects. To network and remain up to date on the most recent trends and methods in the industry, follow their profiles and interact with their material.

Join LinkedIn communities for data science, data visualization, and groups for certain tools and technologies that are pertinent to the area of data analysts. You will get the chance to network with other industry experts, impart your expertise, and absorb that of others.

Prepare for interviews

Data analyst interview preparation might be difficult, but with the appropriate approach, you can improve your chances of success. Here are some pointers for getting ready for data analyst interviews:

Review your projects and case studies: Review your portfolio's projects and case studies, and be prepared to go into detail about each. Prepare to

describe the issue you set out to address, the techniques you employed, the outcomes you attained, and the significance of your work.

Practice your technical abilities, including any programming languages you are knowledgeable with, such SQL, Python, R, and others. During the interview, be ready to use a whiteboard to solve issues or create code.

Study the company: Do your homework about the organization and its sector, and be ready to explain how your qualifications fit with the company's goals and core principles and how you can help it succeed.

Be prepared for behavioral questions, such as "Tell me about a time when you had to deal with a tough team member" or "Describe a circumstance when you had to make a judgment with minimal evidence." Be prepared to describe your approach to the circumstance with specific examples.

Apply for jobs

It's now time to submit job applications after all of your studying and preparing. Indeed and LinkedIn are the greatest places to look for a job as a data analyst. You should submit applications to as many businesses as possible to maximize your chances of being shortlisted. You may also directly ask your connections if they know of any openings in their group or organization. Applying through a reputable company's careers page and sending an email with a cover letter and resume attached is a smart option.

Get placed as Data Analyst

You may prepare for a job as a data analyst within six months if you follow this plan, which provides all the knowledge and direction you need. If you properly follow the instructions and dedicate 3 to 4 hours a day to learning and preparation, you will unquestionably get hired as a data analyst after six months.