

INTRODUCTION TO DATA ANALYTICS & DATA SCIENCE





DATA ANALYTICS

Vs

DATA SCIENCE



WHAT IS DATA ANALYTICS?



Data analytics is the process of examining, cleaning, organizing, and interpreting data to uncover valuable insights and make informed decisions. It helps us understand trends, patterns, and relationships within data, allowing businesses and organizations to improve their operations and achieve their goals more effectively.

WHAT IS DATA SCIENCE?



Data science is a multidisciplinary field that combines techniques from statistics, computer science, and domain expertise to extract knowledge and insights from data. It involves collecting, cleaning, and analyzing data to solve complex problems, make predictions, and support decision-making. Data scientists use various tools and algorithms to uncover valuable information from large and diverse datasets, helping organizations make data-driven decisions and gain a competitive advantage.

RESPONSIBILITIES



Data Analyst

- **Clean** and **Analyze** static data.
- Performing Statistical and Exploratory analysis.
- Creating Reports and Visualization.
- Working directly with stakeholders to make data-driven decisions.
- Conduct Ad-hoc Analysis.

Data Scientists

- Use current data to discover future opportunities.
- Use **Machine Learning Models** and **Statistical Methods** to analyze data.
- Fine-tune models for improved accuracy.
- Data Cleaning and Data Modelling.
- Conduct A/B Testing.

TECHNICAL SKILLS



Data Analyst

- Microsoft Excel (advanced knowledge).
- Tableau.
- Microsoft Power Business Intelligence (otherwise known as Power BI).
- SQL (Structured Query Language).
- R programming Language and/or Python (with libraries like pandas, NumPy, matplotlib, polars, etc.)
- AWS (Amazon Web Services) and/or Microsoft Azure.
- SAS and/or SPSS (statistical tools).

Data Scientists

- Microsoft Excel (advanced knowledge).
- SQL (Structured Query Language).
- R programming Language and/or Python (with a little bit different libraries from that of a data analyst such as pandas, polars, TensorFlow, and SciKit Learn).
- AWS (Amazon Web Services) and/or Microsoft Azure.
- Spark.
- Docker and/or Kubernotes
- Git.

EDUCATION



Data Analyst

- Bachelors and/or Masters Degree.
- Common Degrees such as: Statistics, Mathematics, Computer Science, Business Analytics and Information Systems.

Data Scientists

- Bachelors/Masters Degree/PhD.
- Common Degrees such as: Computer Science, Engineering, Software Engineering, Information Systems, Information Technology, Statistics and Physics.

JOB TITLES

Data Analyst

- Data Analyst.
- Quantitative Analyst (Quality Assurance).
- Technical Analyst.
- Healthcare/Finance/Marketing Analyst.



Data Scientists

- Data Scientist I
- Data Scientist II
- Data Scientist III
- Machine Learning Engineer
- Machine Learning Developer



PAYS



Data Analyst

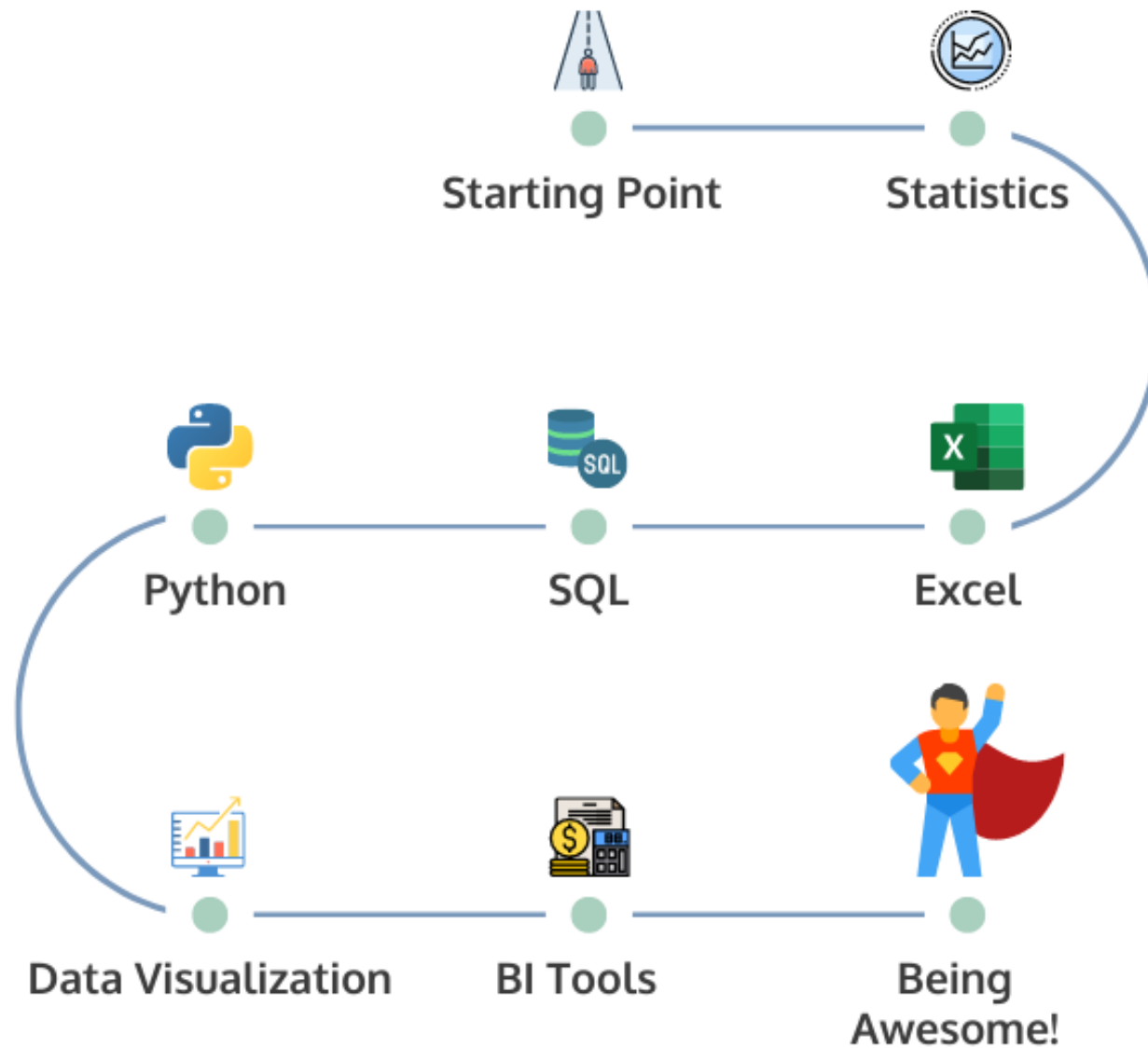
Data Scientists

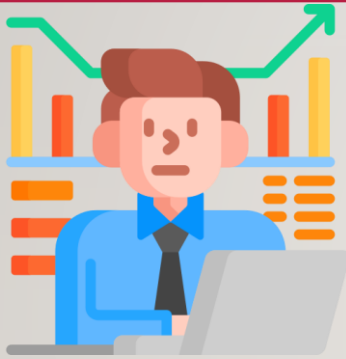
- Entry Level - \$50,000 - \$75,000
- Mid Level - \$70,000 - \$90,000
- Senior Level - \$80,000 - \$120,000

- Entry Level - \$65,000 - \$100,000
- Mid Level - \$85,000 - \$120,000
- Senior Level - \$100,000 - \$150,000

**This pays are according to the data obtained widely from Google, Glassdoor and LinkedIn in 2022

Roadmap to Become a Data Analyst





DATA ANALYST

VS

BUSINESS ANALYST



RESPONSIBILITIES

Data Analyst

- **Clean** and **Analyze** static data.
- Performing Statistical and Exploratory analysis.
- Creating Reports and Visualization.
- Working directly with stakeholders to make data-driven decisions.
- Conduct Ad-hoc Analysis.

Business Analyst

- Manage projects and Stakeholders.
- Translating business needs into specific actionable requirements to team.
- Frequent Ad-hoc analysis for clients.

TECHNICAL SKILLS

Data Analyst

- Microsoft Excel (advanced knowledge).
- Tableau.
- Microsoft Power Business Intelligence (otherwise known as Power BI).
- SQL (Structured Query Language).
- R programming Language and/or Python (with libraries like pandas, NumPy, matplotlib, polars, etc.)
- AWS (Amazon Web Services) and/or Microsoft Azure.
- SAS and/or SPSS (statistical tools).

Business Analyst

- Microsoft Excel (advanced knowledge).
- SQL (Structured Query Language).
- Microsoft Power Business Intelligence (otherwise known as Power BI).
- Tableau.

EDUCATION

Data Analyst

- Bachelors and/or Masters Degree.
- Common Degrees such as: Statistics, Mathematics, Computer Science, Business Analytics and Information Systems.

Business Analyst

- Bachelors/Masters Degree/PhD.
- Common Degrees such as: Statistics, Mathematics, Business Studies, Computer Science, Business Analytics and Information Systems.

JOB TITLES

Data Analyst

- Data Analyst.
- Quantitative Analyst (Quality Assurance).
- Technical Analyst.
- Healthcare/Finance/Marketing Analyst.

Business Analyst

- Business Analyst
- Business Process Analyst
- Business Intelligence Analyst
- Functional Analyst.

**Maybe: Product owner or Product Manager.

PAYS

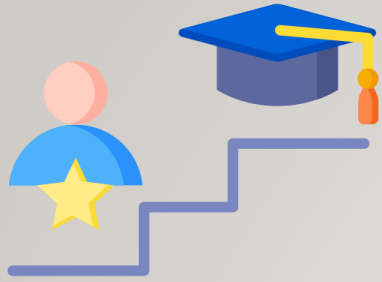
Data Analyst

- Entry Level - \$50,000 - \$75,000
- Mid Level - \$70,000 - \$90,000
- Senior Level - \$80,000 - \$120,000

Business Analyst

- Entry Level - \$45,000 - \$65,000
- Mid Level - \$60,000 - \$80,000
- Senior Level - \$80,000 - \$100,000

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ENTRY LEVEL

VS

MID LEVEL



VS

SENIOR LEVEL



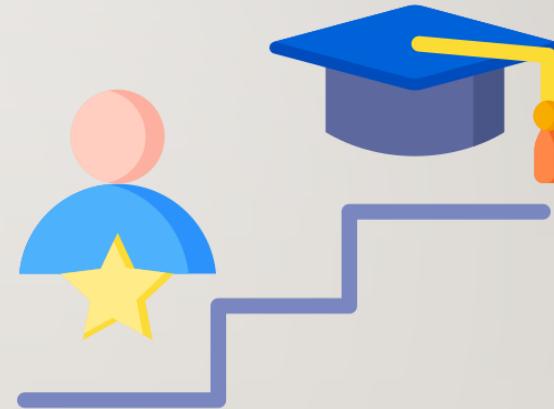
ENTRY LEVEL

Responsibilities:

- Collecting and Organizing Data.
 - Basic Analysis under supervision.
 - Creating Reports and visualization.
 - Assisting with Data Cleaning.
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Technical Skills:

- Microsoft Excel (advanced level).
- Microsoft Power BI
- Tableau
- SQL



MID-LEVEL

Responsibilities:

- Managing small projects.
 - Creating and Maintaining reports and visualizations.
 - Collaborate with other Departments on Data needs.
 - Training new Data Analysts.
 - Creating Processes and Procedures for existing projects.
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Technical Skills:

- Microsoft Excel (advanced level).
- Microsoft Power BI
- Tableau
- SQL
- R-programming Language and/or Python
- Cloud Platforms (Azure and Amazon Web Services – AWS).
- Data Preprocessing (Cleaning, Manipulation, etc.)



SENIOR-LEVEL

Responsibilities:

- Leading large data initiatives.
- Developing strategies for Data Collection and Analysis.
- Working with management on projects.
- Recommending opportunities and use cases for business.
- Mentoring Entry/Mid Level Analysts.

Technical Skills:

- Microsoft Excel (advanced level).
- Microsoft Power BI
- Tableau
- SQL
- R-programming Language and/or Python (and some important libraries).
- Cloud Platforms (Azure and Amazon Web Services – AWS).
- Data Preprocessing (Cleaning, Manipulation, etc.)
- Data Modelling and Forecasting.



HARD SKILLS and SOFT SKILLS Needed In the Data World

HARD SKILLS:

These are technical skills or on-the-job-related knowledge that you need in order to perform your job.

Hard skills refer to specific, teachable abilities and knowledge that are typically quantifiable and technical in nature. These skills are often acquired through education, training, or practical experience. They are concrete and specific, making them easier to demonstrate and measure.

Examples of hard skills include programming, data visualization, data wrangling, excel functions and formulas, and data analysis.

Hard skills are essential in many professions and are often listed on resumes and job descriptions to highlight a person's qualifications for a particular role.



SOFT SKILLS:

Soft skills are like our personal traits.

Soft skills, often referred to as interpersonal or people skills, are non-technical attributes and personal qualities that enhance one's ability to interact effectively and harmoniously with others in various personal and professional settings. These skills are essential for building positive relationships, communicating clearly, and collaborating successfully. Soft skills complement hard skills (technical skills) and are crucial for personal and career development.

Some examples of soft skills include:

- Communication
- Teamwork
- Problem Solving
- Adaptability
- Time Management
- Decision Making
- Networking
- Customer service etc.



Most valued soft skills

