Data Analyst (code: LC-ANALYSIS)

Overview

The idea of the course is to present a wide range of tools and techniques for data analysis and working with databases. The whole course takes place in the form of a workshop - participants have the opportunity to practice the learnt techniques on realistic data, similar to those they may encounter in their professional practice. The course covers: - the most important Excel tools and techniques related to data processing (including Pivot Tables, Solver and Analysis ToolPak) - statistical methods of data analysis - data visualisation and creating interactive visualisations in Excel - using databases based on MS Access and MS SQL Server - SQL database language All classes are conducted with computers and have a workshop character.

Ask for details

Phone +44 203 608 6289
info@alx.academy

Coming courses

2025-12-20 (Online (English))

Duration

64h

Agenda

Excel as a tool in data analysis

1. Using Excel effectively
   - Keyboard shortcuts
   - Naming cells
   - Tables
2. Formulas and most commonly used functions
   - Logical functions
   - Search functions
   - Decision support functions
   - Mathematical and statistical functions
   - Formulas and array functions
3. Preparing data for analysis
   - Creating tables – Good practice
   - Viewing data: auto-filters and advanced filter
   - Removing duplicates
   - Text as columns tool
   - Text functions
   - Eliminating data errors
4. Collaboration in Excel and creating worksheets for other users
   - Data validation
   - Protecting a worksheet and locking cells
   - Hiding formulas and securing a worksheet
   - Creating your own forms and using formants
5. Pivot tables
   - Creating a pivot table
   - Modifying a pivot table
   - Filtering and sorting
   - Slicers
   - Grouping data
   - Benchmarking using a pivot table
   - Fields and calculation elements
6. Extending Pivot Tables – Power Pivot
   - Adding Excel tables to the model
   - Creating joins between tables

- Pulling data from other sources into the data model
- Creating hierarchies
- Formatting data
- Sorting, filtering and hiding data

7. Situational analysis and optimisation
   - Scenario analysis – Scenario manager
   - Search for a result
   - Solver
8. Using external data
   - Importing data from external databases (MS Access, SQL Server)
   - Importing data from text files
   - Importing data from websites
   - Exporting data
9. Collecting and transforming data using Power Query
   - Importing data (e.g. from the Internet and databases)
   - Preparing data for analysis – Introduction to M language formulas
   - Transforming reports into a form enabling further analysis
10. Visualizing data with conditional formatting
    - Using built-in templates
    - Creating rules based on formulas
    - Illustrating shares, discrepancies and exceptions

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Data visualisation

1. Data visualization with charts
   - Types of charts and their uses
   - Chart styles – Built-in and custom charts
   - Irregular charts
   - Charts based on grouped data
   - Frequency charts
   - Time charts
   - Pivot charts
2. Interactive scenario analysis – Dashboard
   - Control of report parameters using formants
   - Charts with selectable series displayed
   - Coupling of tables and pivot charts using slicers

Statistical methods

1. Analysis ToolPak - launching and usage
2. Introduction to statistical methodology
   - Basic concepts: population, sample, random variables, hypothesis, statistical significance
   - Sampling – Principles of data collection
3. Descriptive statistics
   - Basic functions and descriptive statistics: mean, median, variance, standard deviation, skewness, kurtosis
   - Frequency, relative and cumulative frequency, quantiles
   - Histograms and resolution series
   - Trend analysis using graphs
4. Mathematical statistics
   - Basic concepts: probability, distribution, most frequently used distributions (normal, exponential, t-Student, chi-square)
   - Generation of random numbers with different distributions
   - Most important statistical tests in applications: t-Student test, z-test, F-test, chi-square test, analysis of variance
   - Searching for potential relations between data: covariance and correlation – Calculation and interpretation

- — Trend analysis and prediction: regression analysis
- — Data waveform analysis and forecasting – Moving average, time series smoothing, exponential smoothing

5. What's next?
   - — Presentation of data mining methods using machine learning

MS Access

1. Introduction to Microsoft Access 2016
   - — Uses and capabilities of the program
   - — Building Access databases: forms, tables, queries, reports
   - — Basics of using ready-made databases created in Access
   - — Import/export of data between Excel and Access
   - — When to use Access and when to use Excel?
2. Fundamentals of database design
3. Creating tables
   - — Data types
   - — Relationships between tables, foreign keys and primary keys
   - — Default values
4. Queries
   - — Query Wizard
   - — Query Design View
5. Forms
   - — Form Wizard
   - — Form Design View
6. Reports
   - — Report Wizard
   - — Report Design View
7. Printing data and reports

SQL language in Access and MS SQL Server

1. Relational databases – basics
   - — The concept of relations
   - — Table, row, column
   - — Key, primary key
   - — Foreign keys and relationships between tables.
2. Basic views and operations in a database program (on the example of MS SQL Server and MS Access).
3. SQL Language
   - — Simple Queries – SELECT structure
   - — Functions and operators
   - — Row selection – WHERE clause
   - — Ordering of data – ORDER BY clause
   - — TOP clause
   - — Joining multiple tables
   - — Row grouping
   - — Aggregating functions
   - — Selecting groups of rows – HAVING clause
   - — Subqueries
   - — Theory and multiplicity operations
4. Database schema
   - — Data types
   - — Creating tables – CREATE TABLE
   - — Consistency ties
   - — Row autonumbering.
5. Adding and modifying data
   - — Adding data – INSERT

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— Modifying data – UPDATE
— Deleting data – DELETE

Target audience and prerequisites

The participants should have the basic knowledge of Excel, no knowledge of data analysis is required.

Certificates

Course participants receive completion certificates signed by ALX.

Locations

— Warsaw (English) – Jasna 14/16A
— Online (English) – your home, office or wherever you want
— any other location (London, UK, EU) on request

Price

999 EUR

The price includes:

— course materials,
— snacks, coffee, tea and soft drinks,
— course completion certificate,
— one-time consultation with the instructor after course completion.

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