Data Analyst (code: LC-ANALYSIS)

Overview

Ask for details
Phone +44 203 608 6289
info@alx.academy

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.

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

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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

— 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.

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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.