



ICDL Module Data Analytics

Syllabus Version 1.0

Purpose

This document details the syllabus for the Data Analytics module. The syllabus describes, through learning outcomes, the knowledge and skills that a candidate for the Data Analytics should possess. The syllabus also provides the basis for the theory and practice-based test in this module.

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Data Analytics Module

This module sets out essential knowledge and skills relating to data analytics concepts, statistical analysis, data set preparation, data set summarisation and data visualization.

Module Goals

Successful candidates will be able to:

- Understand the key concepts relating to the application of data analytics in business.
- Understand and apply key statistical analysis concepts.
- Import data into a spreadsheet and prepare it for analysis using data cleansing and filtering techniques.
- Summarise data sets using pivot tables and pivot charts.
- Understand and apply data visualization techniques and tools.
- Create and share reports and dashboards in a data visualization tool.

CATEGORY	SKILL SET	REF.	TASK ITEM	
1 Concepts and Statistical Analysis	<i>1.1 Key Concepts</i>	1.1.1	Identify the main types of data analytics: descriptive, diagnostic, predictive, prescriptive, quantitative, qualitative.	
		1.1.2	Outline the business benefits of data analytics: identifies patterns/trends, improves efficiency, supports decision making, presents information effectively.	
		1.1.3	Identify the main phases of data analysis: business understanding, data understanding, data preparation, modelling, evaluation, deployment.	
		1.1.4	Recognise data protection considerations when analysing data like: anonymise personal data if possible, comply with applicable data protection regulations.	
	<i>1.2 Statistical Analysis</i>	1.2.1	Describe measures of central tendency of a data set: mean, median, mode.	
		1.2.2	Calculate the central tendency value of a data set using a function: mean, median, mode.	
		1.2.3	Describe measures of variation of a data set: quartiles, variance, range.	

CATEGORY	SKILL SET	REF.	TASK ITEM	
2 Data Set Preparation	<i>2.1 Importing, Shaping</i>	1.2.4	Calculate the variation of a data set: quartile, variance, range.	
		2.1.1	Import data into a spreadsheet application: .csv file, spreadsheet, website table, database table.	
		2.1.2	Remove duplicate data.	
		2.1.3	Validate that given values belong to a reference data set using the lookup function.	
		2.1.4	Validate that given values belong to a specified range using one or more if functions.	
3 Data Set Summarisation	<i>2.2 Filtering</i>	2.1.5	Extract values from a string using text functions: left, right, len, mid, find.	
		2.2.1	Format a data set as a built-in table.	
		2.2.2	Insert and use table slicers.	
		<i>3.1 Pivot Table Data Aggregation</i>	3.1.1	Change the method of aggregation for a value: sum, average, count, minimum, maximum.
			3.1.2	Display multiple aggregation values.
	3.1.3		Display values as: % calculation, difference from specific values, running total, ranked.	
	<i>3.2 Pivot Table Frequency Analysis</i>	3.2.1	Automatically, manually group data and rename groups.	
		3.2.2	Ungroup data.	
	<i>3.3 Filtering Pivot Tables</i>	3.3.1	Use the report filter.	
		3.3.2	Insert and use slicers to filter single, multiple pivot tables.	
3.3.3		Insert and filter a timeline.		
<i>3.4 Using Pivot Charts</i>	3.4.1	Insert a pivot chart for an existing pivot table.		
	3.4.2	Create a pivot chart from fields in a data set.		

CATEGORY	SKILL SET	REF.	TASK ITEM
4 Data Visualization	4.1 Concepts and Setup	4.1.1	Understand the concept of data visualization using reports and dashboards. Outline common visualizations like: charts, key performance indicators (KPIs), maps.
		4.1.2	Recognise common data visualization tools and their functions like: visualise data, publish and share business intelligence.
		4.1.3	Understand good design practice in reports and dashboards like: clean and uncluttered layout, descriptive titles, consistent fonts and colour, use of colour for emphasis and understanding.
		4.1.4	Import a data set from a spreadsheet into a data visualization tool and save the file.
	4.2 Visualization	4.2.1	Create tables in a report.
		4.2.2	Visualise data as a chart: column, bar, line, pie.
		4.2.3	Apply, edit font and background conditional formatting to show: high/low values, above/below average values.
		4.2.4	Apply, edit data bars.
		4.2.5	Apply, edit visual level filters.
	4.3 Publishing and Sharing	4.3.1	Publish a report.
		4.3.2	Create a dashboard.
		4.3.3	Share a report, dashboard using a link. Share a report to web.