Practise data understanding in Excel

This planning document is intended to support teachers who are delivering the NPA/PDA Data Science or for students who are learning independently. It also aligns with the Data Skills for Work framework.

The lesson has been designed for learners using Microsoft Excel. Most of the information in the lesson will work for other spreadsheets tools. However, if another tool is being used by the learners (such as Google Sheets) the step-by-step instructions will need to be adjusted.

Contents

Version Control

Version number	Purpose/Change	By	Date
1.0	Published by Effini	Emma Nylk	16 May 2022

Lesson Description

Lesson Overview	This follows on from the Dataset understanding in Excel lessons. It gives learners a chance to practise the dataset understanding skills, specifically • Using data dictionaries/metadata • Identifying size and shape • Identifying missing values and outliers
Topic	Analysis
Book Chapter(s)	Analysing data

NPA level	4, 5, 6
PDA level	7, 8
Data skills for work level	Core, Analysis

Lesson Contents

This lesson consists of:

- A lesson plan (this document)
- A PowerPoint/PDF presentation, 'Practise Dataset understanding in Excel'
- Question worksheet (for learners) on 'Practise Dataset understanding in Excel' in Excel
- Answers worksheet (for teachers) on 'Practise Dataset understanding in Excel' in Excel

Learning Intentions

We will be learning how to apply data understanding techniques to understand an unfamiliar dataset using Excel, specifically,

- how to import a csv dataset and how to remove the metadata

- how to use a data dictionary to find out about a dataset

- how to find the shape, size and format of datasets, using Excel

- how to find the data types of variables in a dataset, using Excel

- how to identify outliers and missing values in Excel

Success Criteria

I can *import* a dataset and remove any metadata in Excel

I can *use* a data dictionary to find out about a dataset

I can *find* the shape, size and format of datasets, using Excel

I can *identify* outliers and missing values in Excel

Knowledge Prerequisites

Learners should know:

- what a dataset is
- data can be used to solve problems and find answers to questions
- that data understanding is part of the analysis steps
- what techniques are used within the dataset understanding step

Lesson Requirements

	PDA	NPA	Data Skills for work
Qualification	Yes	Yes	Yes
Outcome ID(s)	CD7.1c, CD7.1f, WD8.1e, WD8.1f	DC4.2b, DC5.2b, DC6.2b	A1.2, A1.3, C2.1
Outcome description(s)	CD7.1c Types of data CD7.1f Data quality WD8.1e Data quality WD8.1f Stages in the data analysis process	DS4.2b Describe how data can be analysed, DC5.2b Explain how data can be analysed, DC6.2b Explain how data can be analysed	A1.2 Data quality A1.3 Interpretation and insight C2.1 Vocabulary used in data science and analytics
Level	7, 8	4, 5, 6	Core, Analysis
Software language	N/A	N/A	N/A
Required equipment /software for student	Lesson: PowerPoint/PDF, Worksheet: Excel	Lesson: PowerPoint/PDF, Worksheet: Excel	Lesson: PowerPoint/PDF, Worksheet: Excel

Task-types

In the worksheet for this lesson, there are up to 6 task-types to that become increasingly challenging to support the students learning. Based on the student's previous knowledge it is possible to select the task-types that are relevant to their stage.

Task-type	Description
1. Recall	To be able to recognise definitions or procedures.
2. Define	To be able to define definitions or procedures.
3. Rephrase	To be able to use their own words to describe definitions or procedures.
4. Apply	To be able to apply definitions or procedures to problem-solving activities.
5. Create	To be able to apply definitions or procedures and create their own solutions to a defined problem.
6. Active	Using knowledge from the lesson which they apply to scenarios they have researched/designed themselves.

Worksheet

The worksheet associated with this lesson is available either in Excel or as a PDF that can be printed. The answer worksheet is available in both formats too.

Worksheet section ID	Description	Task-type	Number of questions
1.1	Importing and metadata	Apply	2
1.2	Importing and metadata	Apply	2
2.1	Understanding the dataset	Apply	3
2.2	Understanding the dataset	Apply	2
2.3	Understanding the dataset	Apply	3
2.4	Understanding the dataset	Apply	3
2.5	Understanding the dataset	Apply	1
Total			16

How you can use this lesson

This lesson has been created by Effini in partnership with Data Education in Schools, The Data Lab and Data Skills for Work, with funding from the Scottish Government.

Alternative format

If you require this document in an alternative format, such as large print or a coloured background, please contact

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