T Level Technical Qualification in Digital Business Services

Occupational specialism assessment (OSA)

Data Technician

Task 3 - Pass

Guide standard exemplification materials

NCFE

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Occupational specialism assessment**

Guide standard exemplification materials

Data Technician

Task 3

Contents

Introduction

The material within this document relates to the Data Technician occupational specialism sample assessment. These exemplification materials are designed to give providers and students an indication of what would be expected for the lowest level of attainment required to achieve a pass or distinction grade.

The examiner commentary is provided to detail the judgements that examiners will undertake when examining the student work. This is not intended to replace the information within the qualification specification and providers must refer to this for the content.

In task 3, part B, the student must use the provided datasets to produce a dashboard using appropriate software. The dashboard will include a summary and will highlight relevant trends and patterns appropriate to the brief. Students must also keep a written decision-making log, which is similar to task 2, where progress and decision-making is recorded.

In part B, students must perform an appropriate statistical test and explain their findings to the client within the written log.

After each live assessment series, authentic student evidence will be published with examiner commentary across the range of achievement.

Task 3:

Time limit and marks available

Maximum time allowed = 8 hours (you can use this time how you want during each session, but task 3 must be completed within this time limit).

(40 marks)

Instructions for students

Part A

Tony has provided you with some internal and external datasets. You have been provided with clean, individual datasets and a single joined dataset.

Tony requires you to produce a dashboard for your client. You are not being asked to join the data but may use each dataset how you wish, to help build the dashboard. The dashboard will be presented to the board of directors so must be easy to interact with, be professionally formatted and have obvious variable names and values.

The dashboard should be created using appropriate software and will typically include graphs, tables, and filters.

You should automate the dashboard where possible, creating pivot tables and pivot charts, which allow the user to interact with the data as they please.

The client wishes to identify trends and patterns in their in-house data and demographic data to help them meet their objectives.

Some of the things that the client has told you they are interested in include, but are not limited to:

- high level sales statistics by various customer attributes:
  - o the popularity of different products by age
  - o sales by postcode area and postcode sector
- appropriate demographics of areas they may wish to target - this may include:
  - o size of the houses
  - o the age distribution of a neighbourhood
  - o the distribution of property type

You will also need to keep a written decision-making log, that is similar to task 2, where you must keep a record of the following:

- justification of your choices of the type of visualisation you included

- an explanation of the insights each visualisation provides

- an explanation of how the visualisations are appropriate to the client's objectives

Part B

Your client has also asked if there is a correlation between average house price and the percentage of houses with more than 5 bedrooms in a given postcode sector. Perform an appropriate statistical test and explain your findings to the client within the written log. Make sure you reference any appropriate evaluation metric. Explain the reason why you chose the statistical test you performed.

Resources

You will have access to the following resources for both parts of the task, plus the original brief:

- task 3 data sets (provided by NCFE):
    - Client_data_personal
    - Client_data_sales
    - Client_product_list
    - HHDemographics
    - Single_set
- software applications to clean and blend data, and create dashboard information
- word processing and spreadsheet software

Evidence required for submission to NCFE

- a dashboard for your client containing detailed information, including trends and patterns you have identified, which help the client towards their business objectives
- a written log containing decisions about selected data to represent insights and how it relates to the clients' brief
- evidence that an appropriate statistical test has been completed

Student evidence

Please see the following file for student evidence for task 3:

- task 3 evidence

Part A

The following charts are on the dashboard that I have created. I intend to do the following for each chart:

- justify the choices of the type of visualisation that I included
- explain the insights of each visualisation
- explain how the visualisation aligns with the company's objectives
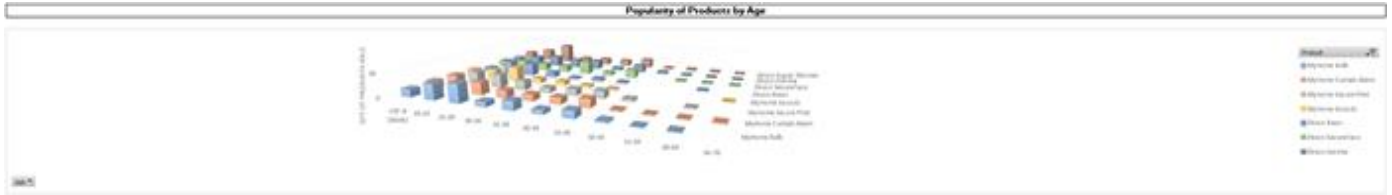
Popularity of products by age

I picked this chart because it looks futuristic and gives the client the indication that we are a modern and forward-thinking agency who will showcase their data in the best possible way. It does appear that their information regarding not being very popular with over 55's is correct.

This allows the management team to identify which age groups have the highest sales, and from this they can filter and break down this information to look at an individual group or groups.

This meets the requirement for the management team to be able to identify the popularity of different products by age at a glance and get some more detail if they want to.

The marketing team should be able to use this information to push the right adverts out to the right age groups.
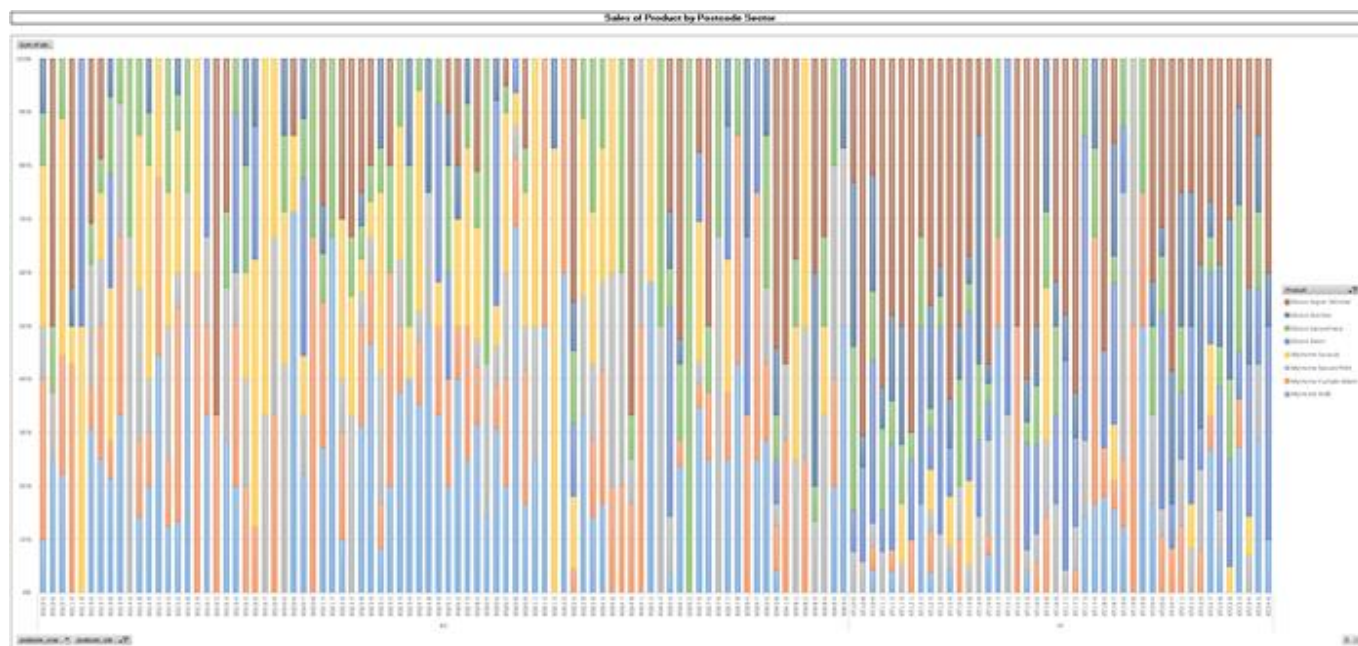
Sales of products by postcode sector

This chart was selected to show the management team the "sales by postcode area and postcode sector". This chart lets them identify which postcodes have higher levels of sales, and they can also filter to see what they need to see; it does appear that some products sell much better in different postcodes, and this can be seen when you filter the records down.


In the chart above, you can see between the 2 postcodes that different products sell very differently in each area – this data can be used to identify which products sell in each area.

This should be very supportive to the company in looking at how they can market their products in the future and target particular postcodes for different products.
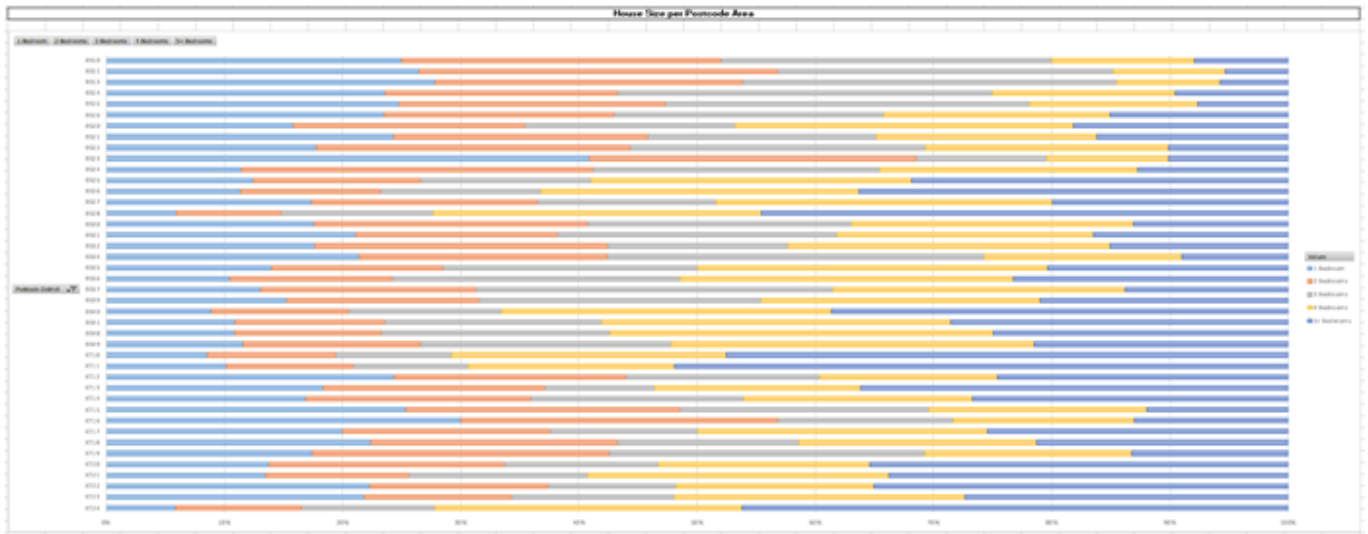
House size per postcode area

This chart was selected using percentages to ensure that it gave an overall view, using the information that the "customers with larger houses usually buy more products". This would mean that they could target specific areas based on them having more bedrooms in their houses.
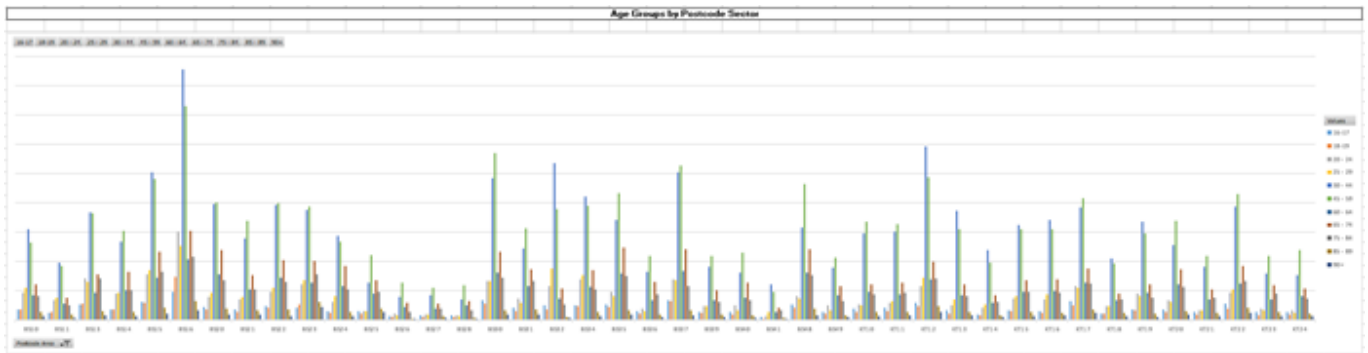
Age groups by postcode sector

This graph shows the age distribution of the neighbourhoods, and with the use of the filter (bottom left) it is possible to look at individual postcodes, it appears that certain postcodes have much younger residents and therefore it may be better to try and target those areas.
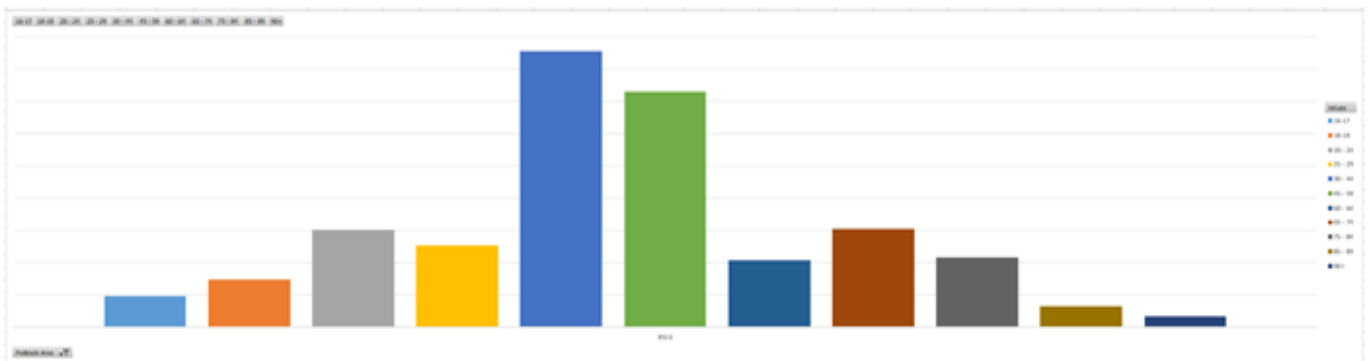
You can see below where I have used the filter to look at one postcode in more detail.

This definitely shows that there are areas that the client could pursue based on their information, some of their products are more popular with certain age groups, as we saw earlier.
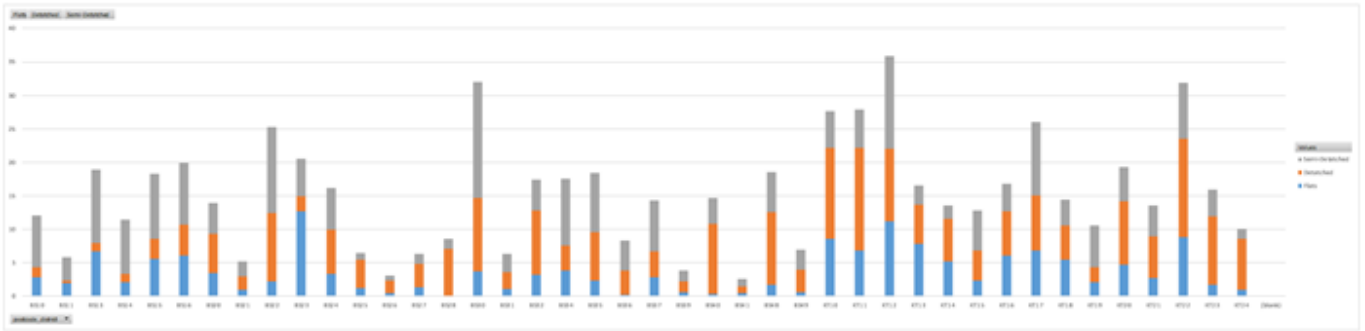
Distribution of property type by postcode district

This was selected in order to demonstrate the breakdown of different types of properties in each postcode area, and also shows the differences between the sizes of the different postcode areas. This might help the client to target areas where there are more detached houses – as this might support them having more than 5 bedrooms as the client suggests that gets them more product sales.

Number of Customers per Postcode

Customer demographics

Customer gender

Customer Gender

48.29%
51.71%

■ Male ■ Female
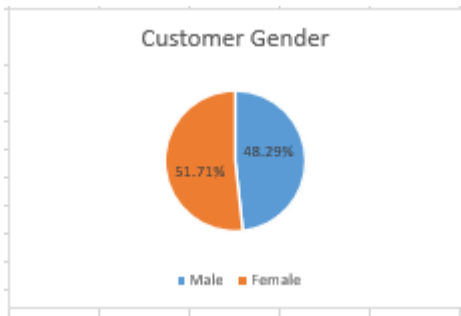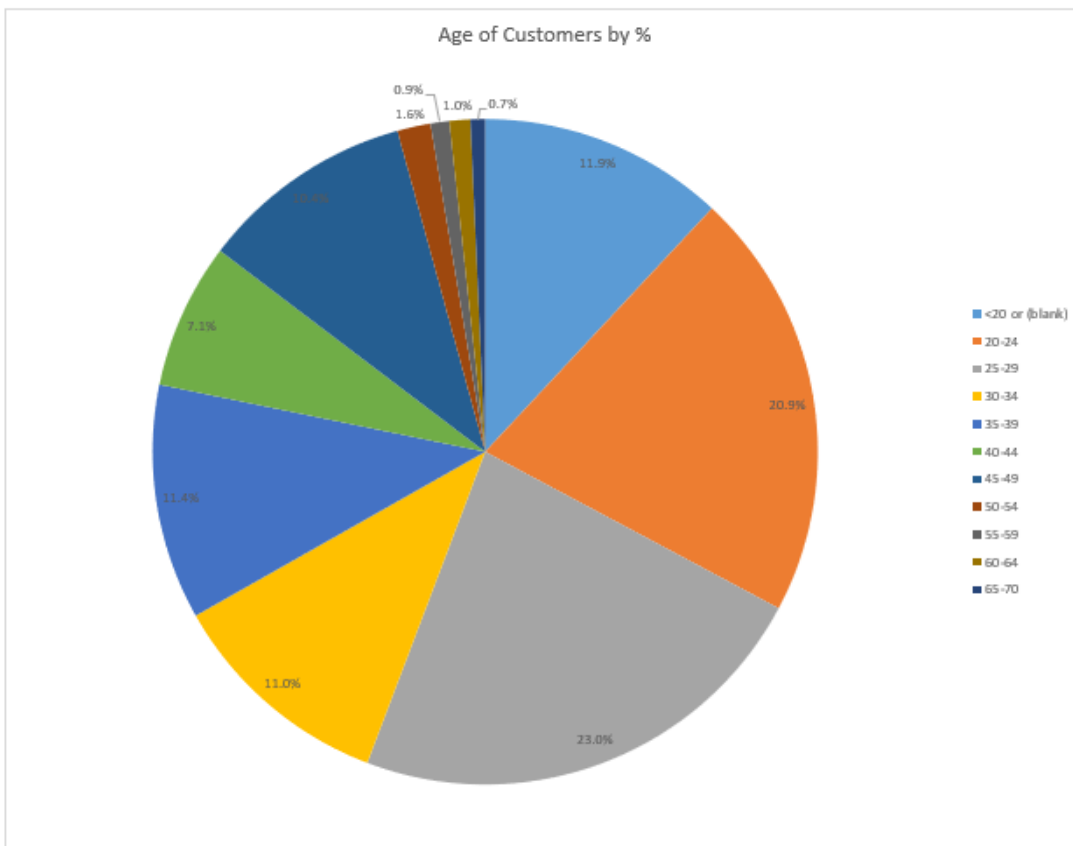
This information could be used to support the marketing team to write their adverts in a way that would attract their target audience more.

Age of customers by percentage

Age of Customers by %

0.9% 1.0% 0.7%
1.6%
11.9%

7.1%

11.4%

11.0%

23.0%

20.9%

■ <20 or (blank)
■ 20-24
■ 25-29
■ 30-34
■ 35-39
■ 40-44
■ 45-49
■ 50-54
■ 55-59
■ 60-64
■ 65-70

This pie chart shows you that the information gathered from the client about their products being unpopular with

those over 55 is correct, approximately 97% of the client base is under the age of 55.

Number of customers by postcode

Whilst this graph is not the easiest to read, it gives further insight to the company regarding which postcodes their sales are in, this again with other data should support their marketing team to create more targeted marketing.

Part B

The client wanted to know if there was a correlation between the cost of houses and the areas that had the highest number of bedrooms; I made a graph with the data and then sorted this data from lowest to highest on cost. This graph then demonstrated that as the number of houses with 5+ bedrooms went up then so did the cost of the houses.

Using the CORREL function I have identified the figure to support this being the case is 0.754, which is based on a maximum of 1, showing that there is a strong connection.

After completing some research, I selected the CORREL function as it seemed the most straightforward way to identify a correlation between 2 sets of values. The graph I produced below demonstrates this.
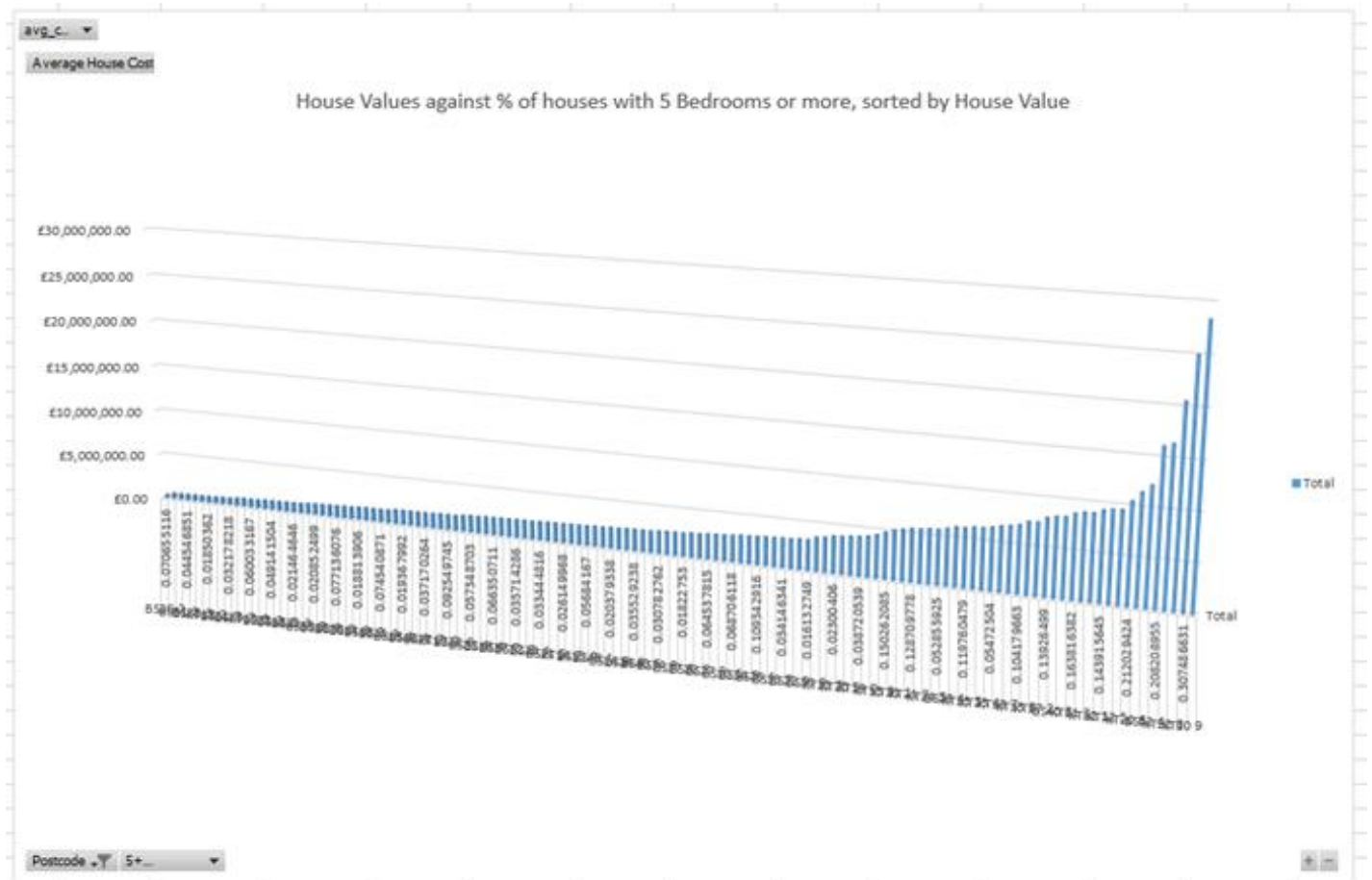
Examiner commentary

For this task, the student has used 2 datasets to produce a data dashboard. This is accompanied by a written explanation highlighting key findings and their methodology.

The student has shown the ability to apply the basic skills needed in this sector by carrying out simple analysis tasks using a given dataset. They have interpreted the brief from their client in a relatively simplistic way, simply providing headline data directly related to the criteria given by their client.

Some basic data blending skills have been demonstrated by the student in preparing their data set by removing some blank or duplicate values, although this has not been fully completed.

A basic understanding of routine tasks has been demonstrated, with simple use of techniques, such as pivot charts and the use of formulae in the analysis of data. Explanation of the data is simple, showing some understanding of the information contained within their dashboard. The dashboard is adequately presented, and the range of visualisations used by the student are satisfactory, at the borderline for adequacy at this grade boundary.

Data has been communicated in a basic way, showing some awareness of the relevance of this data to business objectives.

The implications of GDPR has been identified with some attempt to explain how this might be applied to the work undertaken in this task. Other relevant laws, such as the data protection act, have not been identified.

Grade descriptors

The performance outcomes form the basis of the overall grading descriptors for pass and distinction grades.

These grading descriptors have been developed to reflect the appropriate level of demand for students of other level 3 qualifications and the threshold competence requirements of the role and have been validated with employers within the sector to describe achievement appropriate to the role.

Grade	Demonstration of attainment
Pass	The evidence is logical and displays the basic knowledge and skills expected of an employee in this sector in the context of the set brief.
	The student demonstrates theoretical knowledge of the sources, foundations, usage, and quality of data that is used for analysis. They are able to carry out routine administrative and analytical tasks using simple datasets.
	The student demonstrates an understanding of data blending techniques and is able to carry out routine data blending tasks.
	The student is able to give a simple explanation of how and why data is analysed by a business. They are able to follow the data process in order to build and test a dataset.
	The student is able to demonstrate understanding of visualisation and communication techniques. They are able to provide evidence of communicating data which is relevant to stated business objectives.
	The student is able to state legal and professional principles that are relevant to the manipulation of data. They are able to carry out routine tasks using data in a way that complies with relevant laws and professional standards.
	The student is able to explain how appropriate sources of information can be selected and evaluated. They are able to search for relevant information and can assess the reliability of the knowledge that they generate.
Distinction	The evidence produced in response to the brief is precise and logical, displaying a secure grasp of the knowledge and skills that would be expected of a new recruit in the industry.
	The student demonstrates a thorough understanding of the sources, foundations, usage, and quality of data that is used for analysis. They are able to carry out complex and non-routine administrative and analytical tasks with minimal supervision, using both simple and complex datasets.
	The student demonstrates a secure understanding of a range of data blending techniques and is able to carry out both routine and non-routine data blending tasks competently.
	The student is able to demonstrate a detailed understanding of the reasons why a range of businesses might analyse data. They are able to use their own initiative to follow the data process with minimal supervision in order to build and test a complex dataset in response to a specified business problem.
	The student is able to demonstrate a detailed understanding of a range of visualisation and communication techniques that might be appropriate to a range of organisational needs. They are able to work collaboratively to communicate and visualise data, showing links to business objectives in the materials that they produce.

	The student is able to explain the legal and professional principles that are relevant to a range of different data manipulation tasks. They are able to consistently carry out both routine and non-routine tasks in a way that complies with legal requirements and professional standards.
	The student is able to give a detailed explanation of how to select and evaluate a range of different sources of information for a specific task. They are able to search for data that is appropriate to a given task and can corroborate their findings using appropriate methods to evaluate the suitability of data making appropriate recommendations for improvements in the collation of data for future tasks.

Document information

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Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Published final version.		May 2021
v1.1	NCFE rebrand		September 2021