T Level Technical Qualification in Digital Business Services

Occupational specialism assessment (OSA)

Data Technician

Task 3

Assignment brief

NCFE

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Contents

About this assignment

Introduction

This occupational specialism assessment (OSA) is set by NCFE and administered by your provider during a 3 week window. It contains 4 separate tasks which will be completed one after the other during this assessment window.

All 4 tasks will be completed under supervised conditions.

You must complete all tasks in this assignment independently. You are required to sign a declaration of authenticity to confirm that the work is your own. This is to ensure authenticity and to prevent potential malpractice and maladministration. If any evidence was found not to be your own work, it could impact your overall grade.

You will be given a copy of the assignment brief and any relevant supporting information with each task, so you do not have to memorise any information.

Timings

You have a total maximum time of 29 hours to complete all tasks within this assignment, and each task has the following number of hours to complete it:

Task 1 = 5 hours

Task 2 = 10 hours

Task 3 = 8 hours

Task 4 = 6 hours

Individual tasks must be completed within the timescales stated, but it is up to you to decide how long you spend on each part of the task, therefore you should manage your time appropriately.

Details on the separate marks available are provided in each task.

You should attempt to complete all of the tasks.

Read the instructions carefully.

Performance outcomes

Marks will be awarded against the skills and knowledge performance outcomes (POs) as follows:

Task 3

This task is divided into 2 parts (part A and B) and carries a total of 40 marks.

These are divided between the following performance outcomes:

- PO3: Analyse structured and unstructured data to support business outcomes (8 marks)

- PO4: Interpret data and communicate a result appropriate to the audience (20 marks)

- PO6: Discover, evaluate and apply reliable sources of knowledge (12 marks)

Scenario

Many businesses use data analytics as it enables them to discover new insights into their business and collect data. This leads to smarter decisions, more efficient operations, higher profits, and happier customers.

Work in a data analytics business is usually done by a small, specialised team of people who are focused on industry.

About you and your employer

Your employer, Rankins Analytics Ltd, specialises in providing decision support solutions for various industries.

You work in the automotive data analytics department at Rankins as a junior data technician. You work with a small team of 3 people, including your data analytics manager, John Hopkins.

John Hopkins reports regularly to Fathema Patel, who is the corporate analytic lead for the leadership group. John is responsible for monitoring the progress and performance of all data departments. John will need you to assist in the following:

- locating and mining data sources

- reviewing and validating sources

- identifying trends, patterns and possible issues in data sources

- occasionally producing reports for Fathema

About the client

Your client is a successful vehicle dealership business. The client sells new and used vehicles regionally and nationally in the UK. They advertise vehicles online on CarBay marketplace and in the Vehicle Daily Trader. The client wants to change to supplying and selling electric vehicles only. The client has limited knowledge of the electric vehicle market and is unsure how to make this change in the business.

The client's objectives for the next 5 years are:

- short-term:

  o to upskill and educate current and new staff on the electrical vehicle industry and its technology to increase electric vehicle sales

  o to implement an efficient marketing strategy to promote the sales of electric vehicles

- long-term:

  o to supply and sell both new and used electric vehicles with net zero emissions that cater for both the affordable and prestige market

  o to retain current customers' loyalty and support customers in the transition from petrol and diesel to electric vehicles

  o to efficiently stock the types of vehicles that are in demand and reflect prices people can afford

The brief

The client has selected Rankins Analytics Ltd to help them make informed decisions about how they are going to change to supplying and selling electrical vehicles only.

As a junior data technician, your role will be to inform the client about the current electric vehicle industry in the UK. You must source and select the most appropriate datasets. You will research both internal and external data sources on the electric vehicles industry. You will source relevant, up-to-date data on the types of vehicle technology, with a focus on consumer perceptions and attitudes towards electric vehicles.

The client wants to see a proposal before the project starts. The client is also concerned about the amount of data the company has on its vehicle owners and drivers. The client wants to know how well his business strategies and business practices protect that data. The company is particularly interested in protecting the data using connective automotive technology.

The client has told you the following things about his business:

- most of his sales are still petrol and diesel new and used vehicles in the UK

- there is a lack of demand for electrical vehicles as consumers are concerned about charging times, costs and the availability of chargers in the UK

- electric vehicles can be charged at home, work and at public charging stations, however, there are a range of technical differences such as charging speed, voltages, battery sizes, mileage ranges and connector types

- there is a government plan to ban all sales for new diesel and petrol vehicles by 2030

- customers who purchase electrical vehicles may be eligible for a grant up to £3,000

- electric vehicle owners pay zero vehicle tax (unless vehicle is over £40,000)

- installation of vehicle charger at home is £800, and there is an electric home charger grant scheme of up to £350

The client has provided you with vehicle sales information, the business objectives and the electric vehicle incentives available in the UK. Use this information to help you justify the decisions about the project.

Your role

You need to collect and select relevant data from a variety of different sources both internal and external. These data should meet the client's short- and long-term business objectives and their target audience for this project. You need to judge how useful the data is. You need to combine datasets that do not contain errors. Datasets may need fixing (cleaning) before they can be used by the client, as they are often not properly structured. You must consider all the client's business objectives, even though not all of these will be relevant to every task. This will make sure the work you produce will help the client to make important strategic decisions.

Your role is to identify any trends or patterns you see in the data you collect. You may need to process statistical data that needs to be cleaned, transformed and modelled so it is useful for business decision-making. Once this has been completed, you will present the results on a summarised dashboard.

Throughout the project you must keep a log of the decisions that you have made. The log will include the types of data formatting and the methods for verification and validation of your data. You also need to consider the security measures you took to minimise the risks of control and data handling; you must consider current legislation. You will provide the client with a detailed proposal that helps them to understand fully your insights and recommendations. The client should be able to explore the possible options and possible outcomes based on your data.

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

John Hopkins has given you some internal and external datasets. You have clean individual datasets and a single joined dataset.

John needs you to produce a dashboard for the client. He does not ask you to join the data, but you may use each dataset how you wish to help build the dashboard.

The dashboard will be presented to Rankins Analytics Ltd's leadership group, so it must be easy to interact with, be professionally formatted and have obvious variable names and values. You should create the dashboard using appropriate software and you will need to use graphs, tables and filters. You should automate the dashboard where appropriate to 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 so they can meet their objectives.

Some of the things the client has told you they are interested in are included below.

The client is interested in looking at appropriate demographic data from the electrical vehicle industry, this information may include:

- number of vehicles owned per household and income
- customer attitudes towards buying a vehicle
- types of purchase plans for vehicles

The client also has concerns over greenhouse gas emissions of the transport industry and wants a clear picture of the importance of why their business needs to change to electric vehicles. This may include:

- numbers of vehicles on the road in the UK
- greenhouse gas emissions
- comparison of the running costs of petrol and diesel vehicles and electric vehicles

You will also need to keep a written decision-making log where you must keep a record of:

- 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 asked if there is a correlation between income and vehicles per household and the types of purchase plans for a particular electrical vehicle. 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 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 datasets:
    - client_data_payment
    - client_data_personal
    - client_data_products_information
    - client_data_sales
    - greenhouse_emissions
    - public_attitudes
    - traffic_miles
- software applications to create dashboard information
- word processing and spreadsheet software

Evidence required for submission to NCFE

- a suitably automated 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 client's brief
- evidence that an appropriate statistical test has been completed

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