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:
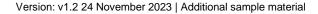
Task 1 – 5 hours

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.

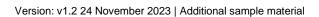Read the instructions carefully.

Performance outcomes (POs)

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

Task 3

This task is divided into 2 parts (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

Data analytics is surging in popularity; a core reason for this is that data can be used to make strategic and impactful business decisions. The data collected allows businesses to identify gaps in the market which in turn can create further business opportunities and growth.

Market trends regularly change, and it is important this is tracked through data analytics. Start-up Analytics is a company that specialises in data trends and market change. The company has become popular over recent years as a result of more data being tracked and stored through digital media. External clients use Start-up Analytics to create business strategies based on data analysis. With the increased use of internet-connected devices, there are more opportunities to work with large data sources to predict future forecasts.

About you and your employer

You are the junior data technician for the research and development department and work for a company called Start-up Analytics who specialise in providing data relevant to new business ventures looking to start operations within England. You work in a small team of 5 and are led by the data analytics manager, Charlie Johnson. Your role includes analysing existing data provided by the client and collecting, cleaning, and analysing data from a range of external datasets available from websites, social media, and demographic sources. As a junior data technician for a business analytics agency, you report to the experienced data analytics manager to produce reports which are used for increasing sales and supporting start-up businesses.

Charlie Johnson works closely with Muhammad Mia who is the business consultant for Start-up Analytics. Together they advise clients on how to focus on key areas for success. Muhammad will regularly hold meetings with Charlie and request reports on trends and growth around the country, these reports and basic information keep Muhammad informed to allow for the client to receive a clear business strategy. As the data analytics manager, Charlie will receive reports directly from you and you must work with raw data to provide conclusions into new business opportunities.

About the client

Your client works in the education sector and is aiming to be one of the largest providers in the country offering private qualification training, they are considering branching out into apprenticeship qualifications. The client has limited knowledge on the apprenticeship sector and is unsure where to open their hubs and which apprenticeship qualifications to focus on.

The clients new vision statement is: "To provide earn while you learn opportunities through apprenticeships".

The client's objectives for the coming year are:

- open multiple training hubs across the country, which provide 12 to 18 month apprenticeship qualifications

- highlight the most popular industries, locations and sectors to start apprenticeships within and use their already large training resources to work with current customers

- highlight and work within well-populated and high-salaried locations to minimise lead time and close sales

- build their credibility throughout the country to be the number one training provider

- promote equality within the education sector with a focus on reducing the gender pay gap

The brief

The client has selected Start-up Analytics to help determine suitable locations for training centres across England. They have a range of resources at their disposal, but are unsure on what location, industry and sector to focus on.

As a junior data technician, you will provide the client with information to help them succeed in meeting their business objectives. This will be done by sourcing an array of appropriate information available online, including data from the Office of National Statistics (ONS). You will source up to date data on the types of apprenticeships available, the most sought-after qualifications and industries to start business within. The client requests the proposal before starting the procurement of buildings and staff. The client is also interested in data insights to support working with young and vulnerable people in the education sector.

The average age of the clients' customers is 16 to 30 years of age, they understand how GDPR can impact how they use their data to make profit within the education sector. The client believes that the digital sector should be their main focus. They believe the sector has the highest salaries and that salaries are higher in the south of England. However, they have no data to support this.

The client has told you the following:

- on average, customers are under the age of 30

- the current qualifications the business focus on are accountancy, customer service and administration

- they have one office, in York, England

- they currently offer in-house and location-based training, but are interested in moving towards a remote and virtual model of training

The client has provided you with data focusing on salaries over the years, gender pay gap, pay by industry and salary by geographical location. Use this dataset, business objectives and what the client has told you about their business to justify your decisions throughout the project.

Your role

Throughout this project you are required to collate appropriate data from a variety of sources, both internal and external. You will need to judge how useful the data is towards the company objectives; you will also need to bring together multiple datasets into a combined location to provide correlation and solution. The client has not cleansed any data and it includes a range of structured and unstructured data; it is up to you to provide clarity for the client based around their objectives.

You are required to identify trends or patterns you see in the data you collect; once data has been cleansed, transformed, and modelled, you are required to provide a data dashboard to summarise the data for the client.

To support future analysis, you have been asked to log the types of data formatting used and the methods for verification and validation of your data. It is critical that security measures are considered and that you are in line with relevant legislation. When using all available resources, this shall provide reason behind your insights and recommendations. This will also be important for the client to understand the rationale and whether the return on investment will be made when taking on apprenticeships. The proposal must be data driven and allow for the client to explore possible options for growth.

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

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

Charlie 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 Muhammad who in turn will present this to the client, so must be easy to interact with, be professionally visualised 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 external data to help meet their objectives.

Some of the things the client is interested in include, but are not limited to:

- highest paying regions within England and the highest volume of apprenticeship qualification type within those regions
- the median salary per age category aggregated with those under the age of 30
- occupations or industry with the highest gender pay gap, this is so the client will avoid this industry

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 also asked if there is a correlation between average salary earned and being further south in England. 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.
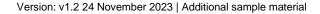
Resources

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

- task 3 datasets:
    - annual full-time gross pay by occupation.xls
    - apprenticeship_demographic.xls
    - average hourly pay (excluding overtime) in the regions and devolved countries of the UK.xls
    - average weekly earnings by industry.xls
    - median_hourly_by_age.xls
    - prov - age by occupation SOC10 Table 20.12 Gender pay gap 2021.xls
    - prov - home geography Table 8.12 Gender pay gap 2021.xls
    - prov - work region PubPriv Table 25.7a Annual pay - Gross 2021.xls
- for example, software applications to clean and blend data and create dashboard information
- for example, word processing and spreadsheet software

Note: you will not have access to the internet during this task.

Evidence required for submission

- 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

Document information

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Owner: Head of Assessment Design

Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Additional sample material		01 February 2023
v1.1	Minor amends following proofread		01 September 2023
v1.2	Sample added as a watermark	November 2023	24 November 2023