



Data Technician

Name:

Course Date:

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Day 1: Task 1

Please research and complete the below questions relating to key concepts of cloud.

Be prepared to discuss the below in the group following this task.

What can cloud computing do for us in the real-world?	store and back up data, host websites and applications, enable real-time collaboration, run data analysis, support AI/ML, and deliver services like streaming or telemedicine securely and efficiently.
How can it benefit a business?	by reducing IT costs, improving scalability, enabling remote work, enhancing data security, supporting faster innovation, and providing access to advanced tools like analytics and AI without heavy infrastructure investment.
What's the alternative to cloud computing?	"On-premises IT infrastructure" where a business hosts and manages its own servers, storage, and software locally instead of using remote cloud services.
What cloud providers can we use, what are their features and functions?	<ul style="list-style-type: none">- Amazon Web Services (AWS)- Microsoft Azure- Google Cloud Platform (GCP)- IBM Cloud- Oracle Cloud

Day 1: Task 2



Pricing Calculator: In this exercise, you use the Pricing calculator to estimate the cost of running a basic web application on Azure.

[Exercise - Estimate workload costs by using the Pricing calculator - Training | Microsoft Learn](#)

Cost of a basic web application

£874.27

Please review this learning path if you finish early.

[Introduction to Cloud Infrastructure: Describe Cloud Concepts - Training | Microsoft Learn](#)

Day 1: Task 3

Please research the below cloud offerings, explain what they are and examples of use cases.

Cloud Offerings	Explain what it is	When / how might you use this service in the real-world?
IaaS (Infrastructure as a service)	Provides virtualized computing resources over the internet. You control the operating system, applications, and configurations.	Renting virtual servers and storage from a cloud provider to host your website or run custom applications without buying physical hardware
PaaS (Platform as a service)	Provides a ready-made platform. You focus on building and deploying applications without managing the underlying infrastructure	Using a platform like Microsoft Azure App Service to develop, test, and deploy a web app without worrying about servers or infrastructure
SaaS (Software as a service)	Provides fully functional software over the internet. Users access it	Using Gmail or Microsoft 365 to send emails, create documents, or collaborate with colleagues online



	<p>via a browser without worrying about installation or infrastructure</p>	<p>without installing any software locally.</p>
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Day 1: Task 4

Please research the below terms and explain what they are, when they would be appropriate and a real-world example of where it could be implemented (i.e. what type of organisation).

Public Cloud

- **What it is:** Cloud services offered over the internet by third-party providers, shared among multiple organisations. Examples: AWS, Microsoft Azure, Google Cloud.
- **When appropriate:** Best for organisations that want low cost, scalability, and don't need strict control over security.
- **Real-world example:** Startups hosting their website or app on AWS to quickly scale without investing in hardware.

Private Cloud

- **What it is:** Cloud infrastructure dedicated to a single organisation, either on-premises or hosted by a provider. Offers more control and security.
- **When appropriate:** Ideal for businesses with sensitive data, strict regulatory requirements, or custom security needs.
- **Real-world example:** A bank or government agency storing confidential customer data on a private cloud.

Hybrid Cloud

- **What it is:** A combination of public and private clouds that work together, allowing data and applications to move between them.
- **When appropriate:** When organisations need flexibility—keeping sensitive data private while using public cloud for less-critical tasks.
- **Real-world example:** A healthcare provider storing patient records in a private cloud but running non-sensitive analytics on a public cloud.



Community Cloud

- **What it is:** Cloud infrastructure shared by several organisations with similar requirements, policies, or security needs.
- **When appropriate:** When multiple organisations need to collaborate or share resources while maintaining compliance.
- **Real-world example:** Universities in a consortium sharing research data on a community cloud platform.

Day 2: Task 1

Describe, with examples, the **three** major areas that the Computer Misuse Act deals with.

Area	Description	Example
Unauthorised access to computer material	Accessing someone else's computer or system without permission , even if no damage is done	Hacking into a colleague's work computer to read files without consent.
Unauthorised access with intent to commit further offence	Accessing a computer system without permission with the intention of committing a crime such as fraud or theft.	Logging into a banking system illegally to transfer money.
Unauthorised modification of computer material	Making unauthorised changes to computer programs or data, including deleting or corrupting files.	Introducing a virus or malware to corrupt a company's database.



The computer misuse act 1990 is an act where an individual can be criminalised because of computer related offense. Describe three extra powers that the Police and Justice Act 2006 (Computer Misuse) has added.

Description
Increased penalties: The Police and Justice Act 2006 raised the maximum prison sentences for serious computer misuse offences, such as unauthorised access with intent to commit further crimes, to up to 10 years.
Denial-of-service (DoS) attacks: The Act made it explicitly illegal to carry out attacks that deliberately disrupt a computer system or network, making it unavailable to users
Malware creation and distribution: It criminalised the making, supplying, or obtaining of malware and hacking tools intended to commit computer misuse offences

Look at the below website to answer the questions:

<https://www.gov.uk/personal-data-my-employer-can-keep-about-me>

Write down three items of data which a company can store about an employee.
Employment terms and conditions (e.g., pay, hours of work, holidays, benefits, absence)
Name, address, and date of birth
National Insurance number and tax code

Give three more examples of data that an employer can only store if they first get the employee's permission.
Health and medical information – e.g., medical history, disability details, or occupational health records.
Criminal convictions or background check details – e.g., DBS checks for certain roles



Sensitive personal data – e.g., religious beliefs, sexual orientation, or trade union membership

Conduct further research to answer the below questions.

Question	Answer
Provide one example of: Copyright infringement	Uploading a full movie to a public file-sharing site without the permission of the copyright holder.
Provide one example of: Plagiarism	Copying paragraphs from a published journal article into your essay and submitting it as your own work without citing the source
What are two consequences of copyright infringement and software piracy?	<ol style="list-style-type: none">1. Legal action: fines and/or criminal prosecution for infringing material2. Economic damage: loss of revenue for creators/companies and reduced investment in new software.
Give three possible consequences for individuals when using pirated software	<ol style="list-style-type: none">1. Exposure to viruses, malware or other security threats because pirated copies may be tampered with2. No access to updates, support or warranties, which means higher risk of software failure or data loss3. Legal risk: being investigated for copyright infringement or software piracy, possible fines or criminal charges

Listed below are some laws which we have covered today:

1. Computer Misuse Act 1990



2. Police and Justice Act 2006 (Computer Misuse)
3. Copyright, Designs and Patents Act 1988
4. Copyright (Computer Programs) Regulations 1992
5. The Health and Safety (Display Screen Equipment) Regulations 1992
6. Data Protection Act 2018
7. Consumer Rights Act 2015

- Insert a number in the first column of each row to match each of the statements with one of the above Acts.
- One of statements is incorrect and not illegal. For this statement, write 'Not illegal'.

Act number	Clause
4	With some exceptions, it is illegal to use unlicensed software
7	Any product, digital or otherwise, must be fit for the purpose it is supplied for
1	Unauthorised modification of computer material is illegal
2	It is illegal to create or use a hacking tool for penetration testing
6	Personal data may only be used for specified, explicit purposes
5	Employers must provide their computer users with adequate health and safety training for any workstation they work at



2	It is illegal to distribute hacking tools for criminal purposes
3	It is illegal to distribute an illicit recording
6	Personal data may not be kept longer than necessary
1	Gaining unauthorised access to a computer system is illegal
5	Employers must ensure that employees take regular and adequate breaks from looking at their screens
2	It is illegal to prevent or hinder access (e.g. by a denial-of-service attack) to any program or data held in any computer
6	Personal data must be accurate and where necessary kept up to date

Day 3: Task 1

Please complete the below lab (3) '*Explore relational data in Azure*' and paste evidence of the completed lab in the box provided.

Explore relational data in Azure

Learning Path 02 (CSS)

Duration:	2 Hours, 15 Minutes
Lab Series:	DP-900T00-A Microsoft Azure Data Fundamentals [Cloud Slice Provided]
Virtualization Platform:	Hyper-V
RAM:	6.5GB
Cloud Platform:	Azure
Content Version:	2
Is Exam:	No
Status:	Not Running

[Launch](#)



Completed lab

The screenshot shows the Microsoft Azure portal with the 'AdventureWorks' database selected. In the center, the 'Query editor (preview)' pane is open, displaying a query to join two tables:

```
SELECT
    p.ProductID,
    p.Name AS ProductName,
    c.Name AS Category,
    p.ListPrice
FROM SalesLT.Product AS p
INNER JOIN SalesLT.ProductCategory AS c
    ON p.ProductCategoryID = c.ProductCategoryID;
```

The results pane shows a table with four columns: ProductID, ProductName, Category, and ListPrice. The data includes several rows for Mountain-100 Silver Mountain Bikes.

On the right side of the screen, there is a 'Tip' section and a checklist:

- Tip: The JOIN shows how to pull related data (the category name) from another table using a matching ID.
- 15. Close the query editor pane, discarding your edits.
- Tip: If you've finished exploring Azure SQL Database, you can delete the resource group that you created in this exercise. Deleting the resource group removes all the resources in one step. It also minimizes cost.

At the bottom right, a progress bar indicates '1 Hr 47 Min Remaining'.

Day 3: Task 2: Skillable

Complete below exercises in lab environment using AdventureWorks DB.

-- 1. Customers with last names starting with 'A'

-- Scenario: The marketing department is preparing a campaign targeting customers whose last names begin with the letter 'A'. They need a list of these customers to personalize outreach messages.

```
SELECT LastName
FROM SalesLT.Customer
WHERE LastName LIKE 'A%';
```

-- 2. Customers with first name starting with 'A' and last name ending with 'a'

-- Scenario: The CRM team is analyzing customer name patterns for personalization strategies. They're particularly interested in users with a first name starting with 'A' and a last name ending in 'a'.

```
SELECT FirstName, LastName
FROM SalesLT.Customer
WHERE FirstName LIKE 'A%' and LastName LIKE '%a';
```



-- 3. Count of customers with first name starting with 'A' and last name including 'o'

-- Scenario: A data analyst is generating statistics for a name segmentation report and needs to count how many customers meet both criteria: first name starts with 'A' and last name contains the letter 'o'.

```
SELECT COUNT(*)  
FROM SalesLT.Customer  
WHERE FirstName LIKE 'A%' and LastName LIKE '%o';
```

-- 4. Top 3 black products of size 'S' ordered by list price

-- Scenario: The merchandising team is curating a list of 'Black' colored products in size 'S' for a limited-time promotion. They want to showcase the top 3 most affordable options first.

```
SELECT *  
FROM SalesLT.Product  
WHERE color = 'BLACK' AND size = 'S'  
ORDER BY ListPrice DESC;
```

-- 5. Average standard cost of products

-- Scenario: The finance team is calculating the average standard cost across all products to assess baseline production expenses.

```
SELECT AVG(StandardCost)  
FROM SalesLT.Product;
```

-- 6. Difference between average standard cost and average list price

-- Scenario: The pricing strategy team is examining the average markup between the standard cost and the list price to evaluate profitability trends.

```
SELECT AVG(ListPrice) - AVG(StandardCost)  
FROM SalesLT.Product;
```

-- 7. Product with highest profit margin

-- Scenario: Management wants to identify the most profitable product by finding the item with the highest difference between list price and standard cost.



```
SELECT NAME, ListPrice - StandardCost AS profit_margin  
FROM SalesLT.Product  
ORDER BY profit_margin DESC;
```

-- 8. Number of products per category

-- Scenario: Inventory control needs a summary of how many products exist in each product category to manage stock levels effectively.

```
SELECT pc.Name, COUNT(p.ProductID)  
FROM SalesLT.Product AS p  
JOIN SalesLT.ProductCategory AS pc  
ON p.ProductCategoryID = pc.ProductCategoryID  
GROUP BY pc.Name
```

-- 9. Average list price by category

-- Scenario: The product pricing team is reviewing average list prices by category to adjust pricing strategies and identify outliers.

```
SELECT pc.Name, AVG(p.ListPrice)  
FROM SalesLT.Product AS p  
JOIN SalesLT.ProductCategory AS pc  
ON p.ProductCategoryID = pc.ProductCategoryID  
GROUP BY pc.Name
```

-- 10. Orders with customer information

-- Scenario: The operations team needs a comprehensive report of customer orders, including order details and basic customer info, to review sales performance.

```
SELECT soh.SalesOrderID,  
       soh.OrderDate,  
       c.FirstName,  
       c.LastName,  
       c.EmailAddress,  
       sod.ProductID,  
       sod.OrderQty,  
       sod.UnitPrice,  
       sod.LineTotal  
  FROM SalesLT.Customer AS c  
 JOIN SalesLT.SalesOrderHeader AS soh  
    ON c.CustomerID = soh.CustomerID  
   JOIN SalesLT.SalesOrderDetail AS sod  
    ON soh.SalesOrderID = sod.SalesOrderID
```



-- 11. Products priced above average list price

-- Scenario: The sales team wants to identify premium products that are priced above the average list price for highlighting in high-end marketing campaigns.

```
SELECT Name, ListPrice  
FROM SalesLT.Product  
WHERE ListPrice > (  
SELECT AVG(ListPrice)  
FROM SalesLT.Product  
);
```

-- 12. Total quantity sold per product

-- Scenario: The business intelligence team is evaluating product performance by analyzing the total quantity sold for each product across all orders.

```
SELECT p.Name, SUM(p.ProductID)  
FROM SalesLT.Product AS p  
JOIN SalesLT.SalesOrderDetail AS sod  
ON p.ProductID = sod.ProductID  
GROUP BY p.Name;
```

-- 13. Total sales per customer

-- Scenario: The customer success team wants to calculate the total value of orders placed by each customer to identify high-value clients for loyalty programs.

```
SELECT soh.CustomerID, SUM(sod.LineTotal)  
FROM SalesLT.SalesOrderHeader AS soh  
join SalesLT.SalesOrderDetail AS sod  
ON soh.SalesOrderID = sod.SalesOrderID  
GROUP By soh.CustomerID;
```



Day 3: Task 3: Skillable

Please complete the below lab (4) '*Explore non-relational data in Azure*' and paste evidence of the completed lab in the box provided.

Explore non-relational data in Azure

Learning Path 03 (CSS)

Duration:	2 Hours, 15 Minutes
Lab Series:	DP-900T00-A Microsoft Azure Data Fundamentals [Cloud Slice Provided]
Virtualization Platform:	Hyper-V
RAM:	6.5GB
Cloud Platform:	Azure
Content Version:	2
Is Exam:	No
Status:	Not Running

Launch

Completed lab

Are you sure you want to end this lab?



Sales Report

Sum of Revenue by Category

Category	Sum of Revenue
Bikes	252 (12%)
Helmets	121 (5.5%)
Gloves	115 (5.2%)
Shoes	100 (4.5%)
Shorts	80 (3.6%)
Pedals	64 (3.0%)
Mountain Bikes	52 (2.4%)
Road Bikes	39 (1.8%)
Bicycles	20 (1.0%)

Sum of Quantity by Category

Category	Sum of Quantity
Bikes	252 (12%)
Helmets	121 (5.5%)
Gloves	115 (5.2%)
Shoes	100 (4.5%)
Shorts	80 (3.6%)
Pedals	64 (3.0%)
Mountain Bikes	52 (2.4%)
Road Bikes	39 (1.8%)
Bicycles	20 (1.0%)

Instructions Resources

12. In the map, note that you can drag, double-click, use a mouse-wheel, or pinch and drag on a touch screen to interact. Then, select a city, and note that the other visualizations in the report are modified to highlight the data for the selected city.

Tip: Cross-highlighting lets users interact with one visual and see related changes across the page—turning a static report into an interactive experience.

13. On the File menu, select Save. Then save the file as SalesReport.pbix. You can open the file and explore data modeling and visualization further at your leisure.

Tip: Saving a pbix keeps your model, queries, and report together so you can re-open and iterate later.

If you've got a Power BI service subscription, you can sign into your account and publish the report to a Power BI workspace.

Tip: Publishing to the Power BI service lets you share the report, schedule refresh, and collaborate with others in your workspace.

Congratulations!

You have successfully completed this lab. Click End to mark the lab as Complete.

Previous End 27 Minutes Remaining

Day 4: Task 1: MS Fabric using Just IT

Please follow the link below to complete the lab using your Just IT account in MS Fabric. There are 3 modules to complete.

[Data Factory end-to-end tutorial introduction and architecture - Microsoft Fabric | Microsoft Learn](#)

Day 4: Task 2: Skillable

In your teams, complete the Azure DP-900 practice exam and paste your result below – this is open book and please research and discuss your answers as a team.

The screenshot shows a learning pathway interface. On the left, a vertical blue bar labeled "Result" contains a green button with the number "6" and a link icon. To its right is a white card for a "Practice Assessment: DP-900T00-A Microsoft Azure Data Fundamentals". The card includes a "Details" link, a "Required: No" status, and a "Started: 20 November 2025 00:33 (GMT Standard Time)" timestamp. A "Launch" button is at the bottom. To the right of the card is a "Additional Details" section with "Required: No", "Available Instructor-Led: Yes", and "Available Self-Paced: Yes".



Day 4: Task 2 (Optional)

1. Scenario Background

"Paws & Whiskers" is a growing pet shop that aims to improve its business by analysing sales, customer information, and inventory data. Currently, the data is collected manually or stored in spreadsheets. Management is interested in transitioning to Microsoft Azure to streamline data storage, analysis, and reporting, enabling them to make data-driven decisions.

2. Data Laws and Regulations

Identify and explain the data laws and regulations relevant to handling customer data within the proposal. Ensure you cover the following points:

- **GDPR Compliance:** Highlight the importance of adhering to the General Data Protection Regulation (GDPR), particularly as it relates to storing and processing customer information.
- **Data Protection Act (DPA) 2018:** Outline how the DPA 2018 may affect the way "Paws & Whiskers" collects and stores data, ensuring compliance with UK laws on data privacy.
- **Other Industry Standards:** Research any additional data protection standards or regulations that may apply to pet shop data, particularly if they involve sensitive or payment information.

3. Azure Service Recommendations

Recommend Microsoft Azure services that would suit the company's data analysis needs and explain why these services are suitable. Your recommendations should include:

- **Data Storage:** Identify suitable storage options, such as **Azure Blob Storage** or **Azure SQL Database**, and discuss the benefits of each for storing large datasets, including inventory, sales transactions, and customer details.
- **Data Analysis Tools:** Recommend tools such as **Azure Machine Learning** for customer behaviour analysis or **Azure Synapse Analytics** for analysing sales trends.
- **Data Integration and Automation:** Explain how services like **Azure Data Factory** could automate data collection and integration processes, improving efficiency.

4. Data Types and Data Modelling

Define the types of data "Paws & Whiskers" will need to work with and describe your approach to data modelling:



- **Data Categories:** Identify key data types, such as customer demographics, transaction history, pet inventory, and product categories.
- **Data Modelling Approach:** Outline how you would structure this data using a relational model or a data warehouse approach, considering factors like tables, entities, relationships, and primary keys.

5. Data Storage Formats and Structures in Azure

Discuss how you would store data within Azure and the formats you would recommend:

- **Data Formats:** Specify recommended formats (e.g., CSV for raw data imports, JSON for structured data, Parquet for analytics) and explain why these formats are suitable for specific data types.
- **Data Security and Encryption:** Include recommendations for securing data using Azure's built-in encryption features and access controls to ensure compliance with data privacy regulations.

6. Additional Considerations

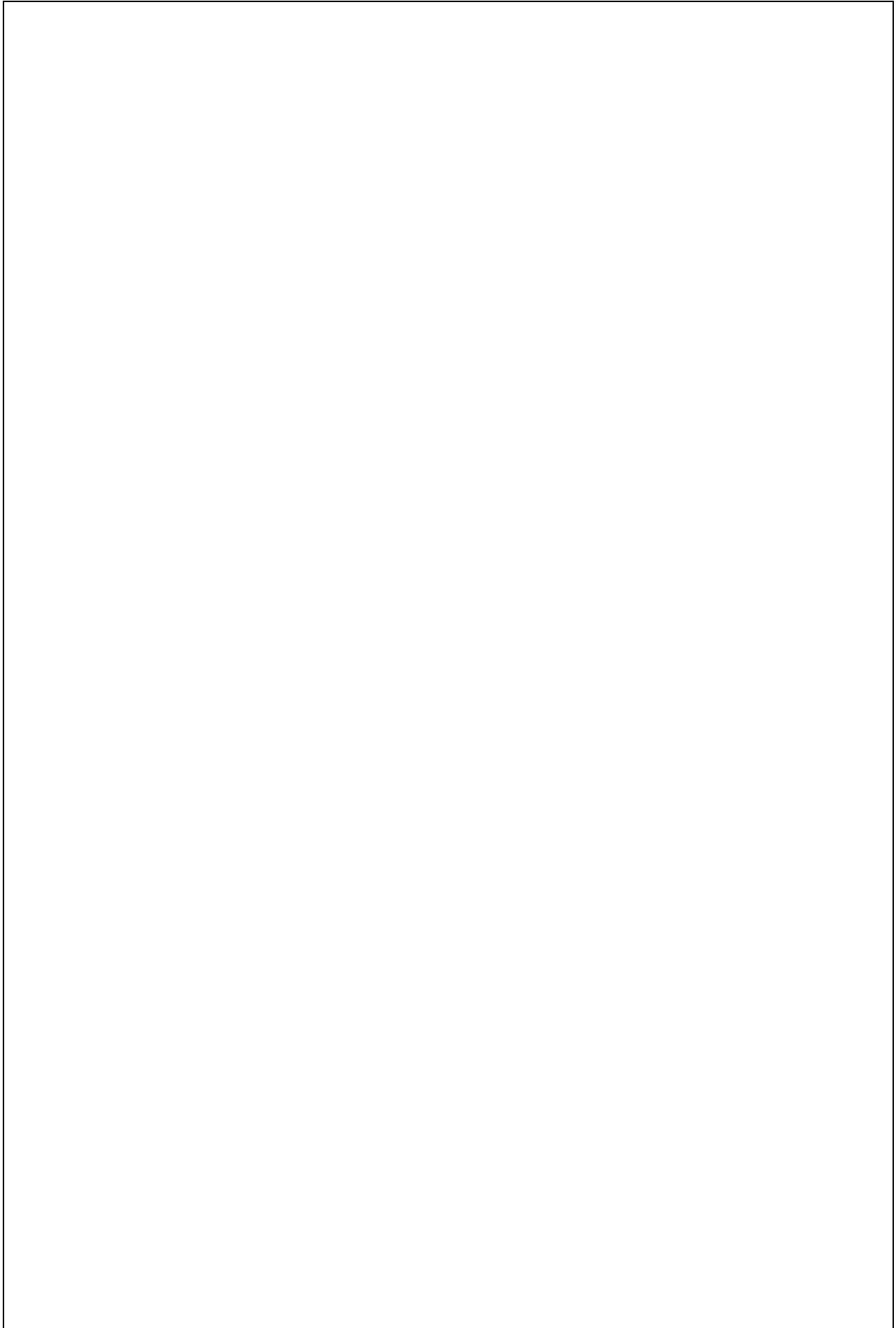
Provide any other considerations that might enhance data handling and efficiency in Azure, such as:

- **Backup and Disaster Recovery:** Outline a backup plan using **Azure Backup** or **Azure Site Recovery** to safeguard against data loss.
- **Data Visualisation:** Discuss potential use of **Power BI** within Azure for creating dashboards that provide management with real-time insights into sales and customer trends.
- **Future Scalability:** Comment on how Azure services can scale as the business grows, accommodating larger datasets and more complex analyses.

Submission Guidelines:

1. **Structure:** Ensure your report is well-organised, with sections for each task (e.g., Data Laws, Azure Services, Data Types, etc.).
2. **Formatting:** Include headings, bullet points where appropriate, and any visuals or diagrams that support your explanations.
3. **References:** Cite any resources or regulations referenced in the report.
4. **Length:** Aim for 1500-2000 words.







Course Notes

It is recommended to take notes from the course, use the space below to do so, or use the revision guide shared with the class:



We have included a range of additional links to further resources and information that you may find useful, these can be found within your revision guide.

END OF WORKBOOK

Please check through your work thoroughly before submitting and update the table of contents if required.

Please send your completed work booklet to your trainer.

