Sure, here are the answers to the tasks:

### Basic Tasks

\*\*Task 1:\*\*

- Organize yourself into small groups (2 – 3 students).

- Save your work in a document on Microsoft One Drive.

- If working in a group, make sure to share this with your team members.

\*\*Task 2:\*\*

- \*\*What is Data?\*\*

- Data refers to raw facts and figures that can be processed or analyzed for various purposes. It includes numbers, words, measurements, observations, etc., which are collected through experiments, surveys, or other means of observation.

- \*\*What is Information?\*\*

- Information is data that has been processed, organized, and presented in a meaningful way. It provides context and relevance, allowing users to understand its significance and use it effectively.

- \*\*Difference between Data and Information:\*\*

- Data is raw and unprocessed, while information is structured and meaningful.

- Data lacks context, whereas information provides context and interpretation.

- Data is often quantitative, while information can be both qualitative and quantitative.

- \*\*What is Metadata?\*\*

- Metadata is data about data. It describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource.

- \*\*Why we need metadata:\*\*

- Helps in organizing and categorizing data efficiently.

- Facilitates search and retrieval of information.

- Provides context and meaning to data, making it more understandable.

- Supports decision-making processes by providing additional insights.

### Medium Tasks

\*\*Task 3:\*\*

- \*\*Data Protection:\*\*

- \*\*What is Data Privacy?\*\*

- Data privacy refers to the right of individuals to control how their personal data is collected, used, disclosed, stored, and disposed of. It involves protecting sensitive information from unauthorized access, use, disclosure, disruption, modification, inspection, recording, or destruction.

- \*\*Key elements organizations use to maintain data privacy compliance:\*\*

- Implementing robust security measures such as encryption, firewalls, and intrusion detection systems.

- Establishing clear policies and procedures for handling personal data.

- Training employees on data protection practices and regulations.

- Regularly auditing and monitoring data processing activities.

- Ensuring compliance with relevant laws and regulations like GDPR, CCPA, etc.

- \*\*Justify if Data Privacy is important to both an individual and a business:\*\*

- For individuals:

- Protects against identity theft and fraud.

- Maintains personal autonomy and freedom.

- Prevents misuse of personal information.

- For businesses:

- Builds trust with customers and stakeholders.

- Avoids legal penalties and reputational damage.

- Enhances brand image and customer loyalty.

- \*\*How Data Privacy differs between individuals and businesses:\*\*

- Individuals focus on protecting personal information such as names, addresses, financial details, health records, etc.

- Businesses deal with a broader range of data including employee information, customer data, trade secrets, intellectual property, etc.

- \*\*Concerns for each category:\*\*

- For individuals: Identity theft, loss of privacy, targeted advertising, discrimination based on personal data.

- For businesses: Data breaches, loss of competitive advantage, regulatory non-compliance, financial losses due to data theft or misuse.

Here are the answers to the advanced tasks:

### Advanced Tasks

\*\*Task 13:\*\*

- Consider this text "Fear leads to anger; anger leads to hatred; hatred leads to conflict; conflict leads to suffering". Write a statement to return the same text but swap the word 'anger' for 'panic buying'.

```

SELECT REPLACE('Fear leads to anger; anger leads to hatred; hatred leads to conflict; conflict leads to suffering', 'anger', 'panic buying');

```

\*\*Task 14:\*\*

- The data in the CUSTOMER table that holds the FED\_ID is currently held in two different formats. Either nnn-nnnnnn or nn-nnnnnn (where n is a number). The bank wishes to standardise the format so that all values in FED\_ID are stored as nnnnnnnn. Write an update statement to do this.

```sql

UPDATE CUSTOMER

SET FED\_ID = SUBSTRING(FED\_ID, 1, 8)

WHERE FED\_ID LIKE '\_\_-\_\_\_\_\_\_\_\_';

```

\*\*Task 15:\*\*

- Write a query to return the year portion of the account transaction date and the number of transactions that took place in each year. The output should look similar to:

```

Year Count(\*)

---- --------

2000 3

2001 4

```

```sql

SELECT YEAR(AccountTransactionDate) AS Year, COUNT(\*) AS Count

FROM AccountTransactions

GROUP BY YEAR(AccountTransactionDate);

```

\*\*Task 16:\*\*

- There have been some inconsistencies in the way data has been entered into the system. As SQL is case sensitive this has caused problems when searching for data. To prevent problems, update the EMPLOYEE table to store everyone's job title in Uppercase.

```sql

UPDATE EMPLOYEE

SET JobTitle = UPPER(JobTitle);

```

- Produce a report showing the number of employees that have Teller as part of their job title and a count of all other employees that have a job title other than Teller. The report should show ‘Cashier’ instead of ‘Teller’ or ‘Head Teller’. The output should look something like:

```

Count(\*) JobTitle

---------- ----------

13 Cashier

5 Other

```

```sql

SELECT

CASE

WHEN JobTitle IN ('Teller', 'Head Teller') THEN 'Cashier'

ELSE 'Other'

END AS JobTitle,

COUNT(\*) AS Count

FROM EMPLOYEE

GROUP BY JobTitle;

```

\*\*Task 17:\*\*

- Produce a list of customers whose accumulated available balance is less than £5000.

```sql

SELECT \*

FROM CUSTOMER

WHERE AccumulatedAvailableBalance < 5000;

```

\*\*Task 18:\*\*

- Produce a report showing the total number of staff assigned to each branch.

```sql

SELECT BranchID, COUNT(\*) AS TotalStaff

FROM STAFF

GROUP BY BranchID;

```

\*\*Task 19:\*\*

- Using only the ACCOUNTS Table; produce a report showing the total number of accounts which have the product codes CHK and SAV. Your output should display the following text for each product code:

```

Count(\*) Product Type

---------- -------------

16 Checking Account

10 Savings Account

```

```sql

SELECT

CASE

WHEN ProductCode = 'CHK' THEN 'Checking Account'

WHEN ProductCode = 'SAV' THEN 'Savings Account'

END AS ProductType,

COUNT(\*) AS Count

FROM ACCOUNTS

WHERE ProductCode IN ('CHK', 'SAV')

GROUP BY ProductCode;

```