**Creating a new database**

Using SQL, create a new database called protein.

The CREATE DATABASE command creates a new database given the specified name. It is best practice to use a database name with no spaces.

**Syntax:**

CREATE DATABASE [database\_name]

**Example:**

The following example creates a database called protein:

CREATE DATABASE protein

**Creating new tables**

Ensure that you are in the context of the protein database prior to executing any SQL statements.

Using SQL, create three new tables from the definitions below.

The CREATE TABLE command creates a new table given in the current database (check the context level). It is best practice to use a table name with no spaces.

**Syntax:**

CREATE TABLE [table\_name]   
(   
[column\_name] [data\_type] {NULL | NOT NULL},   
...   
PRIMARY KEY ([column\_name], [column\_name...])   
);

**Example:**

The following statement creates a new table called gene\_product

.

CREATE TABLE `gene\_product`   
(   
`protein\_id` VARCHAR(100) NOT NULL ,   
`organism` VARCHAR(255) NOT NULL ,   
`gene` VARCHAR(10) NOT NULL ,   
`protein` VARCHAR(255) NOT NULL ,   
`date\_created` DATETIME NOT NULL ,   
`gene\_function` TEXT NULL ,   
PRIMARY KEY (`protein\_id`)   
);

## Altering a table

Using the ALTER TABLE statement, perform the following tasks.

1. Alter the gene\_product table and remove the date\_created column.
2. Alter the ontology table and set the definition column to allow NULL values.

### Syntax:

Adding a column:

ALTER TABLE [table\_name]   
ADD [column\_name] [data\_type] {NULL | NOT NULL};

Dropping a column:

ALTER TABLE [table\_name]   
DROP [column\_name];

Altering a column:

ALTER TABLE [table\_name]   
MODIFY [column\_name] [data\_type] {NULL | NOT NULL};

### Example:

The following example adds the column taxon to the gene\_productdatabase.

ALTER TABLE gene\_product   
ADD taxon VARCHAR(255) NOT NULL;

The following example drops the axon table from the gene\_productdatabase.

ALTER TABLE gene\_product   
DROP taxon;

The following example modifies the gene column of the gene\_producttable, sets the data type to VARCHAR(50) and allows NULL values.

ALTER TABLE gene\_product   
MODIFY gene VARCHAR(50) NULL;

**Altering a table**

Using the ALTER TABLE statement, perform the following tasks.

1. Alter the gene\_product table and remove the date\_created column.
2. Alter the ontology table and set the definition column to allow NULL values.

**Syntax:**

Adding a column:

ALTER TABLE [table\_name]   
ADD [column\_name] [data\_type] {NULL | NOT NULL};

Dropping a column:

ALTER TABLE [table\_name]   
DROP [column\_name];

Altering a column:

ALTER TABLE [table\_name]   
MODIFY [column\_name] [data\_type] {NULL | NOT NULL};

**Example:**

The following example adds the column taxon to the gene\_productdatabase.

ALTER TABLE gene\_product   
ADD taxon VARCHAR(255) NOT NULL;

The following example drops the axon table from the gene\_productdatabase.

ALTER TABLE gene\_product   
DROP taxon;

The following example modifies the gene column of the gene\_producttable, sets the data type to VARCHAR(50) and allows NULL values.

ALTER TABLE gene\_product   
MODIFY gene VARCHAR(50) NULL;