Part 1

Question 1

* 1. SQL helps one to be able to extract information quickly from websites. You submit your T-shirt query and the database engine finds all that is categorised as T-shirts, sizes and colours. The compiler gets to work, it translates your SQL query into a series of instructions for virtual machine, the instructions specify how to search the database for products matching your criteria. The virtual machine takes charge and then data gets retrieved and delivered.
  2. SQL is a database management system used to create and manage servers. With SQL programming language knowledge, you can easily navigate through massive amounts of data and understand how to retrieve data from a web application.
  3. Data integrity, Easy to use, data manipulation.
  4. Efficiency- it presents a simple and efficient way to access and manipulate large amounts of data stored in a database and it allows you to retrieve specific pieces of data from a database, update and delete existing data.

Data organisation- Arranging of data in a particular way and order, such as alphabetical order or numerical order, sorting can be done in ascending or descending order based on a selected column.

-Data retrieval capabilities- it enables users to extract and manipulate data according to their needs, perform calculations, apply filters, combine data from multiple tables, group data and sort out the results.

1.5 – MySQL, Oracle Database and MongoDB

Part 2

Question 2

2.1 They are database objects that contain all the data in a database, data is logically organised in a row and column format similar to a spreadsheet. Each row represents a unique record and each column represents a field in the record.

2.2 Data types define what kind and range of data can be stored in a given field or column. The kind of integers, text, real numbers and the possible value ranges (0-1000, any characters) correspond to specific database and data types.

2.3 – Text data type stores any kind of text data and it can contain both single-byte and multibyte characters that locate supports. The term simple large objects refers to an instance of a text or byte data type.

- Number data type is a primitive data type represented by the number 1 in the database dictionary. A number indicates an amount and can be either a whole number, a positive or negative number or a floating point number.

- Date is an abstract data type. Date values can be either absolute dates and times or time intervals. Dates are specified as quoted character strings.

Part 3

3.1

- Expense Amount

- Date

- Category

- Payment Method

- Description

3.2

|  |  |  |
| --- | --- | --- |
| Expenses | Expense\_id | INT |
| Expenses | amount | DECIMAL |
| Expenses | date | DATE |
| Expenses | category | TEXT |
| Expenses | Payment\_method | TEXT |
| Expenses | description | TEXT |