Class Tasks A1.1

Database Key Concepts

Suggested Answers

# Class Task 1.1.1 – Data and Information

* Look at the following list of Items for each given scenario.
* Identify whether these are data or information and explain why. The first one has been done for you. If the item is information, what calculations are being carried out?
* Discuss your findings with the group.
* **Time allowed**: 12 minutes.

## Scenario 1 – A Vehicle Database for a Car Rental Company.

A company rents out vehicles to customers. Vehicles can have different fuel types (e.g., petrol, diesel or electric). Each vehicle could be a car or van and has a different cost. Customers hire vehicles out on a date and then return them on another date.

### Suggested Answers

|  |  |  |
| --- | --- | --- |
| Item | Data or Information? | Reason |
| Vehicle Registration Number | Data | Represents a single fact about a vehicle – the registration number |
| Fuel Type | Data | Represents a single fact about a vehicle – the fuel type, could be Petrol, Diesel or Electric |
| Number of Petrol Cars in Stock | Information | Represents the answer to a question – adding up all the cars with the petrol type of Diesel |
| Ford Fiesta 1.6 Diesel | Information | Represents a collection of individual data items to describe an object in the database |
| Hire Cost | Data | Represents a single fact about a vehicle – how much it costs to hire one vehicle |
| Number of vehicles hired on the 28th of November | Information | Represents the answer to a question – adding up all the vehicles hired on the given daty |
| Hire Start Date | Data | Represents a single fact about a vehicle – when the vehicle hire started |
| Hire End Date | Data | Represents a single fact about a vehicle – when the vehicle hire ended |
| Vehicle Type | Data | Represents a single fact about a vehicle – what sort it is e.g., Car or Van. |

## Scenario 2 – A DVD Database for a Media Sales Company.

A company has a stock of DVDs for sale both in store and online. The company always has a certain number of these in DVDs in stock and records the number of items sold in any customer order.

### Suggested Answers

|  |  |  |
| --- | --- | --- |
| Item | Data or Information? | Reason |
| Title | Data | Represents a single fact about a DVD – the title of the film or TV series |
| Director | Data | Represents a single fact about a DVD – the director of the film or TV series |
| Price | Data | Represents a single fact about a DVD – the price of a single unit |
| Number In Stock | Data | Represents a single fact about a DVD – the quantity of DVDs of a specific title held in stock |
| Number Sold in October 2020 | Information | Represents the answer to a question – adding up all the items sold in November |
| Total Number of Items Sold | Information | Represents the answer to a question – obtained by adding up all the numbers sold |
| Number Sold | Data | Represents a single fact about a DVD – number of those items sold |
| Number Remaining In Stock | Information | Represents the answer to a question – obtained by subtracting the number of DVDs sold from the number of DVDs in stock |

# Class Task 1.1.2 – Tables, Columns and Rows

* You have been given two scenarios and some data.
* For each identified data item for each scenario, identify whether it is a table, record, field or cell.
* Discuss your findings with the group.
* **Time allowed**: 10 minutes.

## Scenario 1 – A Vehicle Database for a Car Rental Company.

A company rents out vehicles to customers. Vehicles can have different fuel types (e.g. petrol, diesel or electric). Each vehicle could be a car or van and has a different cost. Customers hire vehicles out on a date and then return them on another date.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| tblVehicleRental | | | | | | | |
| Vehicle Registration | Vehicle Make | Fuel Type | Rental  Cost | Customer Name | Date  Hired | Date Returned | Problems with Vehicle |
| RX45 4BP | Ford | Petrol | £49.99 | Smith | 1/1/2022 | 3/1/2022 | Yes |
| AB13 6RF | BMW | Diesel | £99.99 | Jones | 1/1/2022 | 4/1/2022 | Yes |
| DT22 9TJ | BMW | Diesel | £99.99 | Jones | 1/1/2022 | 2/1/2022 | No |
| GH67 9FB | Ford | Hybrid | £69.99 | Hussain | 1/1/2022 | 5/1/2022 | No |
| AC23 4BG | VW | Petrol | £39.99 | Hussain | 2/1/2022 | 2/1/2022 | No |
| GH46 8HJ | VW | Petrol | £39.99 | Hussain | 2/1/2022 | 3/1/2022 | No |
| RH92 1TH | VW | Hybrid | £49.99 | Williams | 2/1/2022 | 3/1/2022 | Yes |

### Suggested Answers

|  |  |
| --- | --- |
| Data Item | Type |
| BMW | Cell |
| Vehicle Make | Field |
| Rental Cost | Field |
| DT22 9TJ BMW Diesel £99.99 Jones 1/1/2022 2/1/2022 No | Record |
| tblVehicleRental | Table |
| Hussain | Cell |
| Problems with Vehicle | Field |
| £69.99 | Cell |

## Scenario 2 – A DVD Database for a Media Sales Company.

A company has a stock of DVDs for sale both in store and online. The company always has a certain number of these in DVDs in stock and records the number of items sold in any customer order.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | tblDVDStockItems | | | | | | | |
| DVD Title | | Director | Genre | Rating | Item Cost | Number Sold | Number In Stock | Reorder Stock |
| Up | | Pete Doctor | Animation | U | £9.99 | 900 | 25 | Y |
| Jaws | | Steven Spielberg | Thriller | PG | £9.99 | 445 | 25 | Y |
| Alien | | Ridley Scott | Horror | 18 | £14.99 | 789 | 100 | N |
| Avatar | | James Cameron | Science Fiction | PG | £19.99 | 12134 | 65 | N |
| Blazing Saddles | | Mel Brooks | Comedy | 15 | £14.99 | 557 | 45 | N |
| Airplane | | David Zucker | Comedy | PG | £9.99 | 1012 | 36 | N |
| Spartacus | | Stanley Kubrick | Historical | PG | £19.99 | 657 | 17 | Y |

### Suggested Answers

|  |  |
| --- | --- |
| Data Item | Type |
| Rating | Field |
| Item Cost | Field |
| Y | Cell |
| Comedy | Cell |
| tblDVDStockItems | Table |
| Genre | Field |
| spartacus | Cell |
| Spartacus Stanley Kubrick Historical PG £19.99 657 17 Y | Record |

# Class Task 1.1.3 – Datatypes

* Look at the scenarios given to you.
* For each field, identify the Datatypes as well as any possible alternatives. Justify your selection.
* Discuss your findings with the group.
* **Time allowed**: 10 minutes.

## Scenario 1 – A Vehicle Database for a Car Rental Company.

A company rents out vehicles to customers. Vehicles can have different fuel types (e.g., petrol, diesel or electric). Each vehicle could be a car or van and has a different cost. Customers hire vehicles out on a date and then return them on another date.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| tblVehicleRental | | | | | | | | |
| ID | Vehicle Registration | Vehicle Make | Fuel Type | Rental  Cost | Customer Name | Date  Hired | Date Returned | Problems with Vehicle |
| 1 | RX45 4BP | Ford | Petrol | £49.99 | Smith | 1/1/2022 | 3/1/2022 | Yes |
| 2 | AB13 6RF | BMW | Diesel | £99.99 | Jones | 1/1/2022 | 4/1/2022 | Yes |
| 3 | DT22 9TJ | BMW | Diesel | £99.99 | Jones | 1/1/2022 | 2/1/2022 | No |
| 4 | GH67 9FB | Ford | Hybrid | £69.99 | Hussain | 1/1/2022 | 5/1/2022 | No |
| 5 | AC23 4BG | VW | Petrol | £39.99 | Hussain | 2/1/2022 | 2/1/2022 | No |
| 6 | GH46 8HJ | VW | Petrol | £39.99 | Hussain | 2/1/2022 | 3/1/2022 | No |
| 7 | RH92 1TH | VW | Hybrid | £49.99 | Williams | 2/1/2022 | 3/1/2022 | Yes |

### Suggested Answers

|  |  |  |  |
| --- | --- | --- | --- |
| Field | Datatype | Alternate  Datatype | Justification |
| ID | Number | Autonumber | The data has to be numerical that changes each column.  Because it starts at 1, it could be autonumber |
| Vehicle Registration | Short Text | None | Is a mixture of letters and numbers |
| Vehicle Make | Short Text | None | Is just text and single words |
| Fuel Type | Short Text | None | Is just text and single words |
| Rental Cost | Currency | Number | Decimal number with a pound sign in front of it |
| Customer Name | Short Text | None | Is just text and single words |
| Date Hired | Date Time | Short Text | Three-part date format of day, month and year |
| Date Returned | Date Time | Short Text | Three-part date format of day, month and year |
| Problems with Vehicle | Yes / No | Short Text | Can only be one of two options |

## Scenario 2 – A DVD Database for a Media Sales Company.

A company has a stock of DVDs for sale both in store and online. The company always has a certain number of these in DVDs in stock and records the number of items sold in any customer order.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| tblDVDStockItems | | | | | | | | |
| DVD ID | DVD Title | Director | Genre | Rating | Item Cost | Number Sold | Number In Stock | Reorder Stock |
| 101 | Up | Pete Doctor | Animation | U | £9.99 | 900 | 25 | Y |
| 102 | Jaws | Steven Spielberg | Thriller | PG | £9.99 | 445 | 25 | Y |
| 103 | Alien | Ridley Scott | Horror | 18 | £14.99 | 789 | 100 | N |
| 104 | Avatar | James Cameron | Science Fiction | PG | £19.99 | 12134 | 65 | N |
| 107 | Blazing Saddles | Mel Brooks | Comedy | 15 | £14.99 | 557 | 45 | N |
| 108 | Airplane | David Zucker | Comedy | PG | £9.99 | 1012 | 36 | N |
| 110 | Spartacus | Stanley Kubrick | Historical | PG | £19.99 | 657 | 17 | Y |

### Suggested Answers

|  |  |  |  |
| --- | --- | --- | --- |
| Field | Datatype | Alternate  Datatype | Justification |
| DVD ID | Number | None | Has to be numerical that changes each column. Cannot be Autonumber as the numbers are not in sequence |
| DVD Title | Short Text | None | Is just text and single words |
| Director | Short Text | None | Is just text and single words |
| Genre | Short Text | None | Is just text and single words |
| Rating | Number | Short Text | Just a number |
| Item Cost | Currency | Number | Decimal number with a pound sign in front of it |
| Number Sold | Number | Short Text | Just a number |
| Number In Stock | Number | Short Text | Just a number |
| Reorder Stock | Yes / No | Short Text | Can only be one of two options |

# Class Task 1.1.4 – Primary Keys

* Look at the scenarios given to you.
* For each field, identify whether it is a key or non-key field, and the key type.
* Discuss your findings with the group.
* **Time allowed**: 5 minutes.

## Scenario 1 – A Vehicle Database for a Car Rental Company.

A company rents out vehicles to customers.

Vehicles can have different fuel types (e.g., petrol, diesel or electric). Each vehicle could be a car or van and has a different cost.

Customers hire vehicles out on a date and then return them on another date.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| tblVehicleRental | | | | | | | | |
| ID | Vehicle Registration | Vehicle Make | Fuel Type | Rental  Cost | Customer Name | Date  Hired | Date Returned | Problems with Vehicle |
| 1 | RX45 4BP | Ford | Petrol | £49.99 | Smith | 1/1/2022 | 3/1/2022 | Yes |
| 2 | AB13 6RF | BMW | Diesel | £99.99 | Jones | 1/1/2022 | 4/1/2022 | Yes |
| 3 | DT22 9TJ | BMW | Diesel | £99.99 | Jones | 1/1/2022 | 2/1/2022 | No |
| 4 | GH67 9FB | Ford | Hybrid | £69.99 | Hussain | 1/1/2022 | 5/1/2022 | No |
| 5 | AC23 4BG | VW | Petrol | £39.99 | Hussain | 2/1/2022 | 2/1/2022 | No |
| 6 | GH46 8HJ | VW | Petrol | £39.99 | Hussain | 2/1/2022 | 3/1/2022 | No |
| 7 | RH92 1TH | VW | Hybrid | £49.99 | Williams | 2/1/2022 | 3/1/2022 | Yes |

### Suggested Answers

|  |  |  |
| --- | --- | --- |
| Field | Key /  Non Key | Key Type |
| ID | Key | Primary |
| Vehicle Registration | Non-Key |  |
| Vehicle Make | Non-Key |  |
| Fuel Type | Non-Key |  |
| Rental Cost | Non-Key |  |
| Customer Name | Non-Key |  |
| Date Hired | Non-Key |  |
| Date Returned | Non-Key |  |
| Problems with Vehicle | Non-Key |  |

## Scenario 2 – A DVD Database for a Media Sales Company.

A company has a stock of DVDs for sale both in store and online.

The company always has a certain number of these in DVDs in stock and records the number of items sold in any customer order.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| tblDVDStockItems | | | | | | | | |
| DVD ID | DVD Title | Director | Genre | Rating | Item Cost | Number Sold | Number In Stock | Reorder Stock |
| 101 | Up | Pete Doctor | Animation | U | £9.99 | 900 | 25 | Y |
| 102 | Jaws | Steven Spielberg | Thriller | PG | £9.99 | 445 | 25 | Y |
| 103 | Alien | Ridley Scott | Horror | 18 | £14.99 | 789 | 100 | N |
| 104 | Avatar | James Cameron | Science Fiction | PG | £19.99 | 12134 | 65 | N |
| 107 | Blazing Saddles | Mel Brooks | Comedy | 15 | £14.99 | 557 | 45 | N |
| 108 | Airplane | David Zucker | Comedy | PG | £9.99 | 1012 | 36 | N |
| 110 | Spartacus | Stanley Kubrick | Historical | PG | £19.99 | 657 | 17 | Y |

### Suggested Answers

|  |  |  |
| --- | --- | --- |
| Field | Key /  Non-Key | Key Type |
| DVD ID | Key | Primary |
| DVD Title | Non-Key |  |
| Director | Non-Key |  |
| Genre | Non-Key |  |
| Rating | Non-Key |  |
| Item Cost | Non-Key |  |
| Number Sold | Non-Key |  |
| Number In Stock | Non-Key |  |
| Reorder Stock | Non-Key |  |

Logo, company name

Description automatically generated

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