Unit 2 Creating Systems to Manage Information

Level 3 National in Information Technology

May 2023

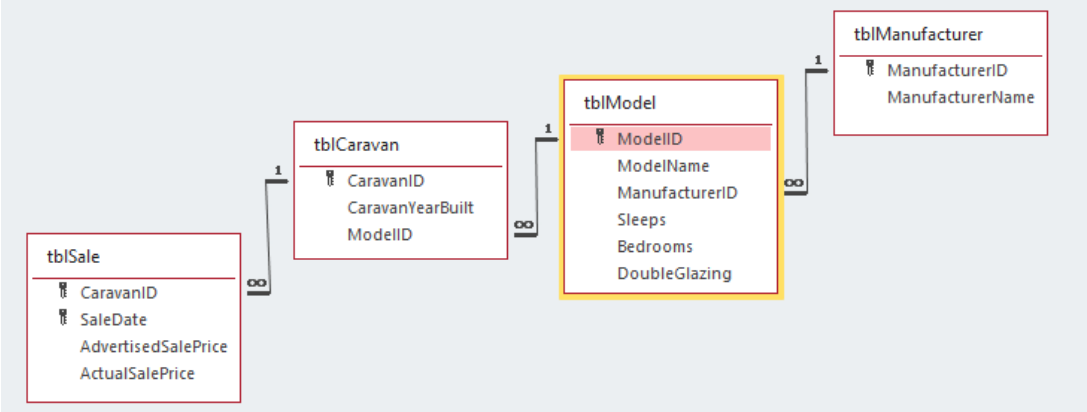
Marking Guidance

Contents

Activity 1 – Database Relationship Screenprint (45 mins)

How examiners must approach marking this activity

You can only award marks for a relationship screenprint and NOT for table designs. If you have any doubt, contact your Team Leader. If ERD is at the beginning of Activity 2, you should still mark it.



<table>
<tr><td>Trait 1</td><td>

General

- Candidates should be using ***all and only*** attributes given in data extract
- Look at each field. Count an error with a field **only once**. For example, ModelID should be in tblModel and tblCaravan. If it is not in both that is **one** error
- If tables are truncated then the fields you cannot see are missing
- If fields are truncated so long as you can determine what they are being used for then accept

<table>
<tr><td>Band 1</td><td>More than 2 attributes in wrong table/missing</td></tr>
<tr><td>Band 2</td><td>2 attributes in wrong table/missing</td></tr>
<tr><td>Band 3</td><td>1 attribute in wrong table/missing</td></tr>
<tr><td>Band 4</td><td>All correct including keys and no extra attributes or tables</td></tr>
</table>

</td></tr>
<tr><td>Trait 2</td><td>

Relationship lines

- Check lines only. DO NOT look at fields

Relationship types

- Link on correct fields and referential integrity enforced

<table>
<tr><td>Band 1</td><td>• One relationship line correct
• Ignore relationship type</td></tr>
<tr><td>Band 2</td><td>• Minimum of two relationship lines correct
• Ignore relationship type</td></tr>
<tr><td>Band 3</td><td>• Exactly four tables, three relationships and three relationship types present
• Two out of three relationships and relationship types correct</td></tr>
<tr><td>Band 4</td><td>• Exactly four tables, three relationships and three relationship types present
• All relationship lines and relationship types correct.</td></tr>
</table>

</td></tr>
</table>

Activity 2 – Table Structures and Validation (45 mins)

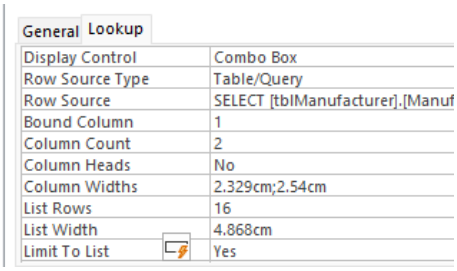
How examiners must approach marking this activity

If no table structure screenshots, may be able to award some marks from screenshots for validation for traits 1, 2 and 3.

Trait 1	**Do not look at ERD** Look for naming conventions and whether fields are sensible. As long as at least two tables with two fields in them, then mark from what you can see. • tbl for table • Fields should be consistent either have spaces or do not, camel case etc, so long as consistent. Check ID fields for consistency. ID fields may not match the rest of the fields but must be consistent with each other • If standard naming conventions are used for the tables but the fields are not consistent then cannot get higher than Band 3 for trait 1 • If standard naming conventions are not used for table but fields consistent then cannot get higher than Band 3 for trait 1
Trait 2	**Check against the learner's ERD structure in activity 1** • Primary and foreign keys should match what they had in activity 1 • Band 3 can also be read as "all foreign and most primary" • No activity 1 then check against ERD given in solution
Trait 3	Look at data types. • CaravanYearBuilt: Number • Sleeps: Number • Bedrooms: Number • AdvertisedSalePrice: Currency • ActualSalePrice: Currency • DoubleGlazing: Yes/No • SaleDate: Date/Time • Primary keys – any sensible • Foreign keys – must match primary (e.g. AutoNumber primary, Number foreign, Number primary, Number foreign etc.) • **Limited** means **more than one** different datatype is incorrect
Trait 4	**Scenario requirements** • The minimum number of bedrooms is one and the maximum number of bedrooms is three. **Activity/testing requirements** • A record for a new manufacturer will not save if the manufacturer ID is not in the correct format • A record for a new manufacturer will not save if the manufacturer name is not present • A record for a new model will not save if the manufacturer ID is not present • A record for a new model will not save if the manufacturer ID is invalid • A record will not save if the number of bedrooms is below the accepted range • A record will not save if the number of bedrooms is above the accepted range. **Watch out for screenprints that do not show the actual field the validation is applied to. If you cannot see the actual validation rule/check just the table view then don't award any marks.**

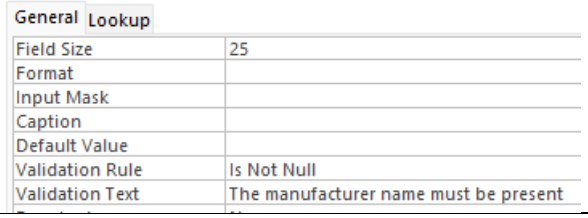
Just acceptable for keys
Would need to see name of table and field name (could be written). If you cannot see the table name and field name it must only be classed as **Attempted**.

tblModel and field ManufacturerID



Just acceptable for non-keys
Table name need not be seen, field name is enough (could be written). If you cannot see the field name it must only be classed as **Attempted**

ManufacturerName



Band 1	At least 1 type of validation has been **attempted**
Band 2	All attempted or 2 types of validation are **correct**
Band 3	3 types of validation are **required** checks
Band 4	All are **required** checks

Presence	**Required check**
	• ManufacturerName **OR** Foreign key ManufacturerID - validation rule and suitable validation text
	Correct check
	• ManufacturerName **OR** foreign key ManufacturerID • validation rule without suitable validation text **OR** Required set to Yes
	Attempted
	• May not see the field name or table name. Presence check on any field using a validation rule
Length	**Required check**
	• Any field that has a suitable length check
	Attempted
	• May not see the field name or table name. Field size not left at default of 255 but not good
Value lookup or Range	**Required check**
	• NumberBedrooms minimum of 1 and maximum of 3 • Combo box (does not need to have limit to list set to Yes) • Validation rule e.g., between 1 and 3, with validation text
	Correct check
	• NumberBedrooms

		○ Incorrect range e.g. minimum 1 and maximum 4 ○ Validation rule with no validation text ○ If a combo used may show you in datasheet view rather than design view must see all the values.
		Attempted
		• Combo box in datasheet view but cannot see ALL of the items • Any other value lookup/range that works
	Table lookup Must be from design view	**Required check**
		• A lookup from any of their foreign keys to their primary keys • Limit to list set to Yes • Row source may be truncated but you should still see the name of the table in the select statement e.g. [tblCaravan]
		Correct check
		• A lookup from any of their foreign keys to their primary keys • Limit to list is No • Row source may be truncated but you should still see the name of the table in the select statement e.g. [tblCaravan]
		Attempted
		• Table lookup that is invalid e.g., looking up to the key in its own table.
	Format	**Required check**
		• Correct input mask (or equivalent) for ManufacturerID e.g. >LLL
		Correct check
		• Input mask is for ManufacturerID but not forced to uppercase e.g.LLL
		Attempted
		• Not forced to letters e.g. L?? • Suitable format check on any **TEXT** field

Activity 3 – Queries and Report (40 minutes)

How examiners must approach marking this activity

Trait 1	This trait focusses on the candidate being able to recognise the fields that will be required to produce the results requested. There are sixteen points in total. **One** point is awarded for each field that appears in the query grid up to **twelve**.
Trait 2	This trait focusses on the candidate being able to use sort(s), criteria and calculations. There are **twelve** points in total **One** point is awarded for each of the points achieved. If there is only one big table used for query B and/or report then the candidate cannot get past top of band 2. In the examiner record, award all the points that would have been achieved to get the suggested mark and band but ensure you take it into account for the given mark i.e. override the suggested mark and explain why in the comment box
Trait 3	This trait focusses on the candidate being able to display: • **only** what has been requested • in a manner that would aid readability and understanding of data (ordering of columns in queries, no truncation of data, only what has been asked to be displayed is displayed etc.) There are **twelve** points in total **One** point is awarded for each of the points achieved.

Query A	
Create a query to display a sorted list of models that have no more than two bedrooms and have double glazing. It must display only the manufacturer name, the model name, and the number of bedrooms from highest to lowest.	
Trait 1 Any view	Manufacturer name (1) Model name (1) Number of bedrooms (1) Double glazing (1)
Trait 2 Design view	If there is only one big table used for query B and/or report then cannot get past top of band 2 Number of bedrooms descending sort (1) Number of bedrooms does not accept 0 and does not accept >3 e.g. between 1 and 2, >0 and <3, >=1 and <=2 or equivalent(1) Double Glazing Yes or equivalent (1)
Trait 3	Ordering of columns - bedrooms as the last field (1) No truncation (datasheet view field names and data) (1) These fields **only** are displayed (1) • Manufacturer name • Model name • Number of bedrooms **Addition** This point can only be awarded **once** throughout the entire activity. At least one generated field named sensibly (in this query or the report) (1)

<table>
<tr><th colspan="2">Query B</th></tr>
<tr><td colspan="2">(b) Each caravan sale is given a rating.

If the actual sale price is more than £500 below the advertised sale price then the rating is Poor, otherwise the rating is Good.

Create a query to display the rating for caravan sales where there is a difference between the advertised sale price and the actual sale price.

Calculate:
• the difference between the advertised sale price and the actual sale price
• the rating.

Display:
• the caravan ID
• the advertised sale price
• the actual sale price
• the difference between the advertised sale price and the actual sale price
• the rating</td></tr>
<tr><td>Trait 1</td><td>From any view
CaravanID (1)
Advertised sale price (1)
Actual sale price (1)

Design view only
Relevant field used in the calculation for the difference (1)
Relevant field used in the calculation for the rating (could be generated field for different or correct calculation used) (1)</td></tr>
<tr><td>Trait 2</td><td>If there is only one big table used for query B and/or report cannot get past top of band 2.

Difference calculated (1)
Criteria >0, >=1 for criteria for the difference (1)
Rating – Check the size of the difference (+ or -500 or equivalent) (1)
Rating – Outcomes correct for the size of the difference +-500 is better than +-15000 (closer to the Advertised selling price is better) (1)
Rating fully correct (IIf statement) (1)</td></tr>
<tr><td>Trait 3</td><td>Ordering of columns is appropriate (1)
No truncation (datasheet view - field names and data) (1)
These fields only should be displayed (1)
• CaravanID
• Advertised sale price
• Actual sale price
• Difference
• Rating

Additional
This point can only be awarded once throughout the entire activity.
• At least one generated field named sensibly (in this query or the report) (1)</td></tr>
</table>

<table>
<tr><th colspan="2">Report</th></tr>
<tr><td colspan="2">(c) Create a report that shows a list of models.

For each manufacturer, calculate:
• the total number of models
• the total number of models that have double glazing.

Display:
• a suitable report title
• the manufacturer name
• the model name
• the number of people the model sleeps
• the number of bedrooms
• whether the model has double glazing or not
• the total number of models for each manufacturer
• the total number of models that have double glazing.

The report must fit on one page.</td></tr>
<tr><td>Trait 1</td><td>Manufacturer name (1)
Model name (1)
Sleeps (1)
Number of bedrooms (1)
Double glazing (1)
Field that could be used in calculation or the Total number of models e.g. ModelName or * (1)
Field that could be used in calculation for the Number of models with double glazing e.g. Sum, SumIF (1)</td></tr>
<tr><td>Trait 2</td><td>If there is only one big table used for query B and/or report then cannot get past top of band 2
• Calculation for the Total number of models e.g. Count(*), Count(ModelName) (1)
• Calculation or the Number of models with double glazing e.g. Sum, SumIF, Count, CountIF (1)
Calculation for double glazing – only counts or sums if it should (1)
Both totals are per manufacturer (1)</td></tr>
<tr><td>Trait 3</td><td>From any view
Title is appropriate (1)
Labels good (1)

PDF
No truncation (1)
Report is fit for purpose (1)
Report fits on one page (1)

Additional
This point must only be assigned once. If it has already been awarded in Query A or Query B then do not award again here.
• At least one generated field named/labelled sensibly (1)</td></tr>
</table>

Activity 4 – Testing (20 minutes)

How examiners must approach marking this activity

Tests to be carried out

1. A record for a new manufacturer will not save if the manufacturer ID is not in the correct format
2. A record for a new manufacturer will not save if the manufacturer name is not present
3. A record for a new model will not save if the manufacturer ID is not present
4. A record for a new model will not save if the manufacturer ID is invalid
5. A record will not save if the number of bedrooms is below the accepted range
6. A record will not save if the number of bedrooms is above the accepted range.

The descriptions given here are **FOR THE TOP OF THE BAND**.

Place each test in the **BEST FIT** for the band.

For example, if the candidate does not meet all the descriptors you can still place in that band providing they meet most of what is there (i.e., sounds like a better fit in that band than the band below it).

Note: tests may not be in the order we have asked for or they may have extra tests – do not penalise but the only tests to mark are our tests.

Band 1	• The test will not be from the tests given or it is from the list but inappropriate • There will be no test data, or it will not relate to the test being carried out • Expected results may be inappropriate • Errors may be present that have not been identified • Do not take type of test into account – we know what they are testing
Band 2	• The test will be from the tests given, but it may not be entirely appropriate • There will be test data, but it may be incomplete or general e.g., leave surname blank rather than stating exactly what data will be used in each field or if the test data given is a copy of the test from the paper then look for test data in the actual results • Expected results will be sensible but may not be detailed e.g. 'error message' rather than 'error message saying surname has to be present' • Actual results will be present and appropriate though data used may not match test data (or there is no test data for it to match) • Errors may/may not have been found or may not be understood • Do not take type of test into account – we know what they are testing
Band 3	• The test will be from the tests given and it will be appropriate • Test data will be specific for **all** fields in the table • Expected results will be specific • Actual results will show **all** the test data used and any relevant messages. Data used will match test data • Do not penalise if there are no errors and the testing is accurate • Errors that are present should be picked up on and understood • Do not take type of test into account – we know what they are testing

Overall Band and Marks

Place in the BEST FIT for the band and the mark.

Activity 5 – Evaluation (20 minutes)

How examiners approach marking this activity

- Read the evaluation and determine ***best fit*** for the band based on understanding of technical concepts and technical vocabulary
- Input the mark in that band that you think it should have
- What should be evaluated:
    - how well your database structure has minimised data duplication
    - how well your database structure meets these requirements:
        - each caravan is built by a manufacturer
        - each manufacturer builds its own models
        - each caravan is a model
        - each model has a range of features. For example, the number of bedrooms and
        - whether it has double glazing
        - the minimum number of bedrooms is one and the maximum number of
        - bedrooms is three
        - when a caravan is sold the advertised sale price and actual sale price are recorded.

Part A evaluation should focus purely on showcasing the candidate's knowledge and understanding of normalisation and database structure in relation to their solution. There is no need to focus on the user as that is the focus of the Part B evaluation.

Note: Ignore screenprints – mark on written content.

Band 1	Will be very superficial with major omissions but with reference to the scenario somewhere
Band 2	Will relate aspects sensibly to their own solution though may not fully explain them.
Band 3	**Indicative content** *May not cover these exactly. This is a guide. However, should not be discussing anything other than the tables. Ignore query, report and testing comments.* Will discuss data duplication in terms of: • repeated manufacturer data • repeated model data • repeated caravan data • removing repeated data into tables whilst maintaining the links It needs to be clear that they are talking about their solution and not just trying to slip in technical vocabulary. Need to see clear understanding. **Meeting requirements** • Should talk about their choice of validation for number of bedrooms • Should talk about using table lookups to validate foreign keys

Activity 6 – Interface and functionality (70 mins)

How examiners must approach marking this activity

Trait 1

This is all about how the forms look, how easy they would be to use and how relevant they are to the scenario and tasks.

Add owner form

- Sensible title
- Relevant, consistent, easy to read labels (e.g. spaces)
- Field widths appropriate for data they will hold
- Data input aids e.g.:
  - instructions on how to use,
  - asterisk(s) where data entry is required
  - possibly combo box to select number of bedrooms
  - OwnerID disabled
- Save button
- Layout good

Fee analysis form

- Sensible title
- Data input aids e.g.:
  - instructions on how to use,
  - asterisk(s) where data entry is required
  - combo box to select position/position ID
  - all fields that should be generated disabled
- Relevant, consistent, easy to read labels (e.g. spaces)
- Field widths appropriate for data they will hold
- Layout good
- These generated fields should be on the form when it opens (must be generated) (ignore content of fields)
  - the highest year ID
  - the basic site fee (based on the highest year ID)
  - the council fee (based on the highest year ID)
  - the next year ID, which should be one higher than the current highest year ID.
- These generated fields should be on the form when a position/position ID is selected and inputs have taken place
  - New basic site fee
  - Yearly site fee adjustment (based on the position)
  - New site fee calculated
  - Total fees calculated

Band	Comments

1	• Do not reflect their purpose
	• Are mostly/are default
	• Are not user friendly:
	  ○ Default titles, labels and field widths
	  ○ No data input aids
	  ○ No disabled fields
	  ○ House style does not exist
	  ○ Layout poor

2	• Better matched to purpose • Not all default based on wizard

		• Are more user friendly (will include **some** of these): ○ titles relevant to purpose ○ data input aids present e.g. asterisks, instructions ○ disabled field(s) ○ field widths not left at default though may not be entirely sensible ○ some labels amended from default where appropriate ○ layout good in places
	3	• Add owner form fully matches purpose • Mostly user friendly (**do not need all** of these but a very good attempt): ○ relevant titles ○ some data input aids e.g. asterisks, instructions and combo boxes field widths sensible ○ some information shown ○ some of the fields for calculations shown ○ some disabled fields ○ layout mostly good
	4	• Are very user friendly: ○ relevant titles ○ data input aids present where suitable including combo boxes ○ all information generated ○ all of the fields for calculations shown ○ all field widths sensible ○ all fields that should be automatically generated disabled ○ consistent house style for both forms ○ layout very good

Trait 2

Add owner form

- ID would be generated (default of AutoNumber is fine for this) – check if form is bound – if so and has (New) for OwnerID then award, if bound and cannot see OwnerID or not (New) and Save present then award, else need to check process e.g. append query and OpenQuery in code

Fee analysis form

Generated data

- Highest year ID generated
- Basic site fee and council fee linked to the highest year ID
- Next year ID generated (highest year ID + 1)
- New basic site fee generated (basic site fee + increase)
- Yearly site fee adjustment linked to position
- New site fee generated (new basic site fee + yearly site fee adjustment %)
- Total fees generated (new site fee + new council fee)

Band	Comments
1T	• OwnerID would be automatically generated
2T	• OwnerID automatically generated • Fee analysis form – some attempted but may not work
3T	• OwnerID automatically generated • Fee analysis form - some of the generated data works as expected
4T	• OwnerID automatically generated • Fee reading form - all of the generated data works as expected

Trait 3

This trait about validation and automation.

Add owner form

- Opens at a new record
- Validation to ensure the surname, the number of key fobs is in range (1-3) **presence check for surname must be in macro or code)**
- Saving includes:
  - appending valid data to the owner table
  - displaying a save message
  - displaying suitable error message(s)
  - clearing the form ready for next data entry

Fee analysis form

- When the form opens:
  - Generated Highest year ID displayed
  - Generated Basic site fee and council fee display
  - Generated Next year ID displays
- After the basic site fee increase has been input the new basic site fee displays
- After the position is selected and other inputs present
  - Generated yearly site fee adjustment displays
  - Generated new site fee generated displays
  - Generated total fees displays

Band	Comments
1	**Add owner form** Will be a form that may not reflect its purpose • May not open at a new record • OwnerID automatically generated • Save button present but no indication of how the save will be carried out • Will be mostly default
2	Will have had a good attempt at the owner form or weaker attempts at both forms
3	Will have had a good attempt at the owner form and a good attempt at the fee analysis form
4	Very little, if anything will not have been evidenced and works.

Trait 4

This trait is about functionality automatically awarded.

Activity 7 – Testing (20 minutes)

How examiners approach marking this activity

Tests to be carried out

1. The owner input form is ready for data entry when the form opens
2. The surname must be present
3. The number of key fobs cannot be above the top of the range
4. The number of key fobs cannot be below the bottom of the range
5. A record will save in the owner table if all the required data is present and valid
6. These details appear on the fee analysis form when the form opens:
    - the highest year ID
    - the basic site fee
    - the council fee
    - the next year ID, which is one higher than the current highest year ID
7. Once the user has input the amount of increase, the new council fee and a position has been selected, these details should be calculated and displayed in fields:
    - the new basic site fee
    - the new site fee for the selected position
    - the total fees for the selected position.

The descriptions given here are **FOR THE TOP OF THE BAND**.

Place each test in the **BEST FIT** for the band.

For example, if the candidate does not meet all the descriptors you can still place in that band providing, they meet most of what is there (i.e., sounds like a better fit in that band than the band below it). Overall, it is possible to get the full 6 marks even with some weaknesses.

Note: tests may not be in the order we have asked for or they may have extra tests – do not penalise but only mark our tests.

Band 1	• The test will not be from the tests given or it is from the list but inappropriate • There will be no test data, or it will not relate to the test being carried out • Expected results may be inappropriate • Errors may be present that have not been identified • Do not take type of test into account – we know what they are testing
Band 2	• The test will be from the tests given, but it may not be entirely appropriate • There will be test data, but it may be incomplete or general e.g. I will use a wrong brand • Expected results will be sensible but may not be detailed e.g., 'error message' rather than what the error message will say • Actual results will be present, and appropriate • Errors may/may not have been found • Do not take type of test into account – we know what they are testing
Band 3	• The test will be from the tests given and it will be appropriate • Test data will be specific for **all** fields • Expected results will be specific • Actual results will show **all** the test data used and any relevant messages • Do not penalise if there are no errors and the testing is accurate • Errors that are present should be picked up on • Do not take type of test into account – we know what they are testing

Overall Band and Marks

Place in the BEST FIT for the band and the mark.

Activity 8 – Evaluation (20 minutes)

How examiners approach marking this activity

- Read evaluation and determine ***best fit*** for band based on understanding of technical concepts and technical vocabulary
- Input the mark that best fits the evidence

What should be evaluated:

Owner form

- the owner form is ready for data entry when the form opens
- the surname must be present
- the number of key fobs must be within the specified range
- a record will save in the owner table if all the required data is present and valid
- the form should clear ready for the next data entry.

Fee analysis form

- these details appear on the fee analysis form when the form opens:
  - the highest year ID
  - the basic site fee
  - the council fee
  - the next year ID, which is one higher than the current highest year ID.
- once the user has input the amount of increase, the new council fee and a position has been selected, these details are calculated and displayed in fields:
  - the new basic site fee
  - the new site fee for the selected position
  - the total fees for the selected position.

Part B evaluation should focus on the quality, performance, and usability of the interface through the eyes of the **user**. Part A was about structure this is about how well the database meets the requirements and what this means for the **user**.

Note: Ignore screenprints – mark on written content.

Band 1	Will be very superficial with major omissions
Band 2	Will discuss the form(s) they have built – some aspects sensibly though may not fully explain them or relate them well to their own solution.
Band 3	Will discuss **both** forms. Will relate to the scenario (they do not need to explicitly mention the scenario, but you should see what they are talking about relates to the scenario). Will be able to see comments relating their solution to the **end user** and what it will mean for them.