L3 Lead Examiner Report 1906

June 2019

Level 3 Nationals
Information Technology

Unit 2
Creating Systems to Manage Information
(31761H)

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June 2019
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A grade boundary is where we set the level of achievement required to obtain a certain grade for the externally assessed unit. We set grade boundaries for each grade, at Distinction, Merit and Pass. The grade awarded for each unit contributes proportionately to the overall qualification grade and each unit should always be viewed in the context of its impact on the whole qualification.

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When we set grade boundaries, we look at the performance of every learner who took the external assessment. When we can see the full picture of performance, our experts are then able to decide where best to place the grade boundaries – this means that they decide what the lowest possible mark is for a particular grade.

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Each external assessment we set asks different questions and may assess different parts of the unit content outlined in the specification. It would be unfair to learners if we set the same grade boundaries for each assessment, because then it would not take accessibility into account.

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Unit 2 Creating Systems to Manage Information

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	0	10	20	32	44

Introduction

Please note there is a paper-based solution, marking guidance and two marked live scripts available for use with this examiner's report.
The resources are available here and will be referred to throughout this report.
This unit is a mandatory synoptic unit, which requires candidates to complete set tasks to design, create, test and evaluate a relational database system that manages information. The scenario in this examination was based around a company offering Christmas events.
Many candidates coped well with the content, requirements and degree of difficulty, fewer were not ready for assessment i.e. not fully prepared or without the necessary skills to access the tasks or prepare the evidence.
In terms of administration it was pleasing to see that most candidates submitted only the evidence requested and ensured they followed the naming conventions specified in the paper. Most centres printed the required documents and sent them with the USB or disc. However, if possible, USBs are preferable as not all computers have disc drives which could prove difficult for some examiners. Increasingly, examiners are unable to access candidate work due to password protection. If centres are password protecting USBs/CDs then they must ensure Pearson are informed of the password so that it can be passed to the examiner.
Centres **must** use the examination templates provided with each examination paper.
Candidates are not required to create any new attributes, they should use ***all, and only,*** the attributes present in the datafile they have been given. Please note using all and only the attributes given does not mean that candidates cannot rename attributes. This is perfectly acceptable.

Task 1 – Database relationship screenprint

This task is designed to test the candidates' knowledge and skills in terms of database modelling via creating a database skeleton structure that reflects third normal form. They should use ***all, and only***, the attributes given in the data file.

Teachers are advised to download Script A, Script B and the example solution. In terms of this task these pages are of relevance:

Script A	3
Script B	3
Example Solution	3

The evidence expected here is ***database relationship screenprint*** taken from their **actual** database.

No annotations are required, and candidates should be discouraged from including them.

The screenprint should include:

- each table in their solution
- fields in each table
- assigned primary keys
- foreign keys (where appropriate)
- relationships between tables
- the enforcement of referential integrity

It was good to see that all candidates attempted this question with many candidates achieving full marks.

Please note that it was perfectly acceptable to include the SeatPrice in the seat sale table as opposed to the seat table. However, it should not have appeared in both.

Where marks were not achieved it tended to be because:

- fields were truncated in tables. Each attribute that cannot be seen is taken as an instance of data redundancy.
- referential integrity was not enforced
- links between the table were not on the correct fields

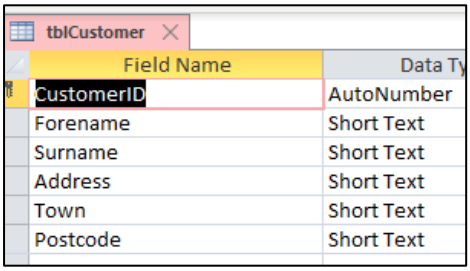
Task 2 – Table structures and validation

Candidates **must** use the template provided in each examination series for this task. Examiners mark the evidence against the candidates' own entity relationship screenprint (activity 1) to ensure candidates are not double penalised for any errors occurring in activity 1. Where candidates have not included an activity 1, their structure is marked against our solution. It is designed to test their ability to build the database tables following standard naming conventions including the good use of field names, relevant data types, assignment of primary and foreign keys and a range of suitable validation.

Teachers are advised to download Script A, Script B and the example solution. In terms of this task these pages are of relevance:

Script A	4-10
Script B	5-10
Example Solution	4-6

Traits 1, 2 and 3



The evidence expected is one screen print per table. This covers all of the first three traits.

Trait 1 Very few candidates did not use standard naming conventions and consistency of naming fields.

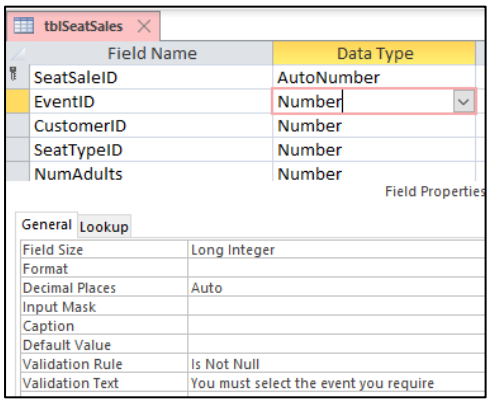
Trait 2 Very few candidates did not manage to ensure the structure matched the structure in their activity 1. It is worthwhile advising candidates that if they do make changes to the structure in this activity then they should update their screenprint in activity 1.

Trait 3 Many candidates did use the correct data types for all fields:

- NumAdults, Number
- NumChild, Number
- SeatPrice, Currency
- EventDate, Date/Time
- primary keys, any suitable data type
- foreign keys match their primary (eg number -> AutoNumber)
- everything else text

Trait 4
Evidence for this trait should include:

Presence Check

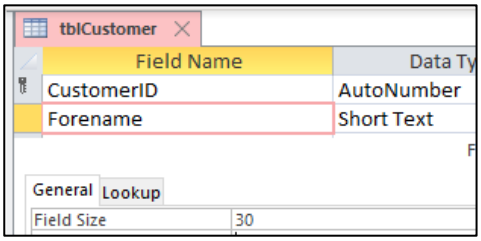


One screenprint, **in design view,** showing the field name, presence check and suitable validation text.

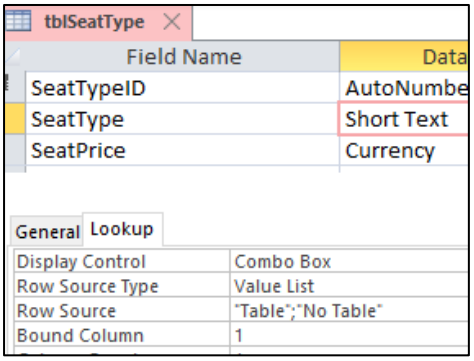
A list of the tables and fields where others have been applied.

Length Check

Three screenprints, **in design view**, on **text** fields that show the field names and lengths applied.



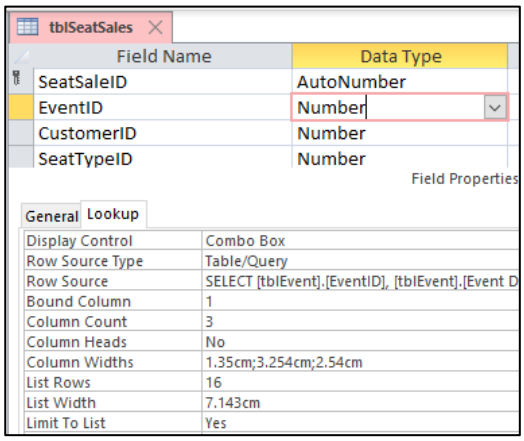
Value Lookup



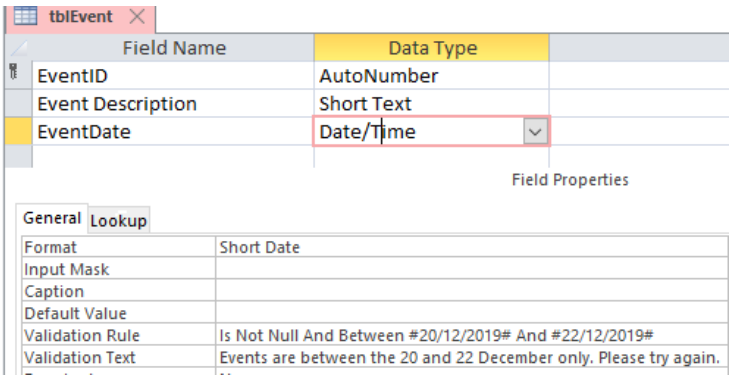
A screenprint, **in design view**, for each value lookup applied showing the field name and values used.

Table Lookup

A screenprint, **in design view**, for each foreign key table lookup applied showing the field name and lookup used.



Range Check



A screenprint, **in design view**, for each range check applied showing the field name, range used and suitable validation text.

Note, if the value lookup had limit to list set to yes then this was also taken as proof of a suitable range check.

Some candidates could not be credited with proving evidence of suitable validation because:

- primary/foreign keys – the table name and/or field name could not be seen
- all other fields – field names could not be seen.

Evidence in terms of validation was mixed:

Presence checks	Generally, well evidenced though some candidates are still using 'Required' set to 'Yes' as opposed to a validation rule. A validation rule is preferred as validation text can be used to produce a good, customised error message. Also, some are still showing presence checks on primary keys which is not suitable. Some do not ensure they include a good error message in the validation text.
Length checks	This was very well evidenced.
Value lookups	There was generally good evidence for this. The scenario pointed to the seat type being suitable and many had used this for the value lookup. Some had chosen to apply value lookups on the number of seats that could be bought (adults or children). It was expected that candidates would realise one depended on the other and that the validation was better suited to being applied in activity 3 at form level, however, they were accepted as being suitable for value lookups in activity 2 too, so long as they were sensible. There should be no value lookups on primary keys. Candidates are not penalised for including unsuitable checks, but they do not add anything to the evidence either.

Table lookups

The evidence for this is getting better with each exam.

A table lookup for each foreign key is expected with 'limit to list' set to 'Yes' for all of them. At times, however, limiting the list to yes was missed or candidates used the looked up to the wrong table.

Range checks

In this paper the most suitable range check was EventDate, for the reasons given above in value lookup comments. However, range checks applied to the number of tickets (adults or children) were also accepted.

Format checks

The only format checks that are of interest in terms of marking are those that are specified on relevant text fields.

Discourage candidates from showing format checks for any other type of field as they are ignored.

Format checks should only be included where the data warrants it. In this exam:

- Postcode
- TelephoneNumber

Task 3 – Interface and Functionality

This task is designed to test the candidates' ability to build the forms, queries and report required to meet the specification requirements. It should be noted that candidates only include annotations where they think it is **absolutely necessary** in order to explain the method used. Candidates can certainly achieve full marks in this task without any annotations at all.

It should be noted that where it says "*ensure you have included enough detail to fully show how …. works"* it is not a prompt for the candidate to write about what they have done or to show the forms etc. working (that is carried out in the testing activity). It is a prompt to make sure they check they have included enough detail in the evidence they have already provided above that statement eg form view, design view, method of generating keys, sources of combo boxes, queries used, code/macros used etc. The question to ask themselves is *"would the examiner know exactly what my forms, queries and report look like, what criteria has been used and exactly how they work?"*

Candidates **must** use the template provided in each examination.

Teachers are advised to download Script A, Script B and the example solution. In terms of this task these pages are of relevance:

Script A	11-22
Script B	11-20
Example Solution	7-18

It is worthwhile considering the focus of the traits in terms of assessment.

Trait 1 This focuses on whether the candidate has included the range of objects required and that what appears on them is what is expected.

Trait 2 This focuses on **criteria** and **calculations**. This applied to the specified queries and the report in the exam paper only.

Trait 3 This focuses on the **interface only** and has **nothing to do with automation**.

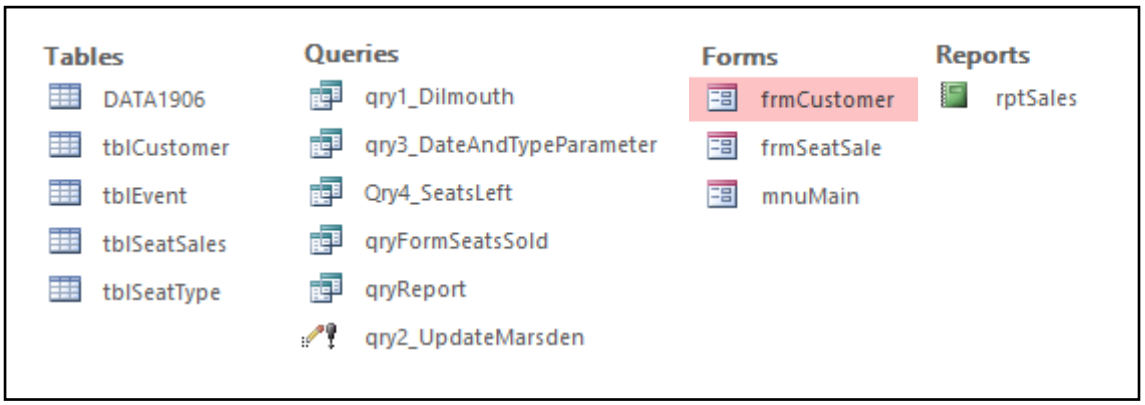
- Forms - how they look, what user aids have been provided, good labels, disabled fields, asterisks etc.
- Queries - naming of generated fields.
- Report – layout, labels, grouping etc.

Trait 4 This focuses on **automation** and **validation**.

Trait 5 This considers all the other traits and, in particular, traits 2 to 4.

Object Names

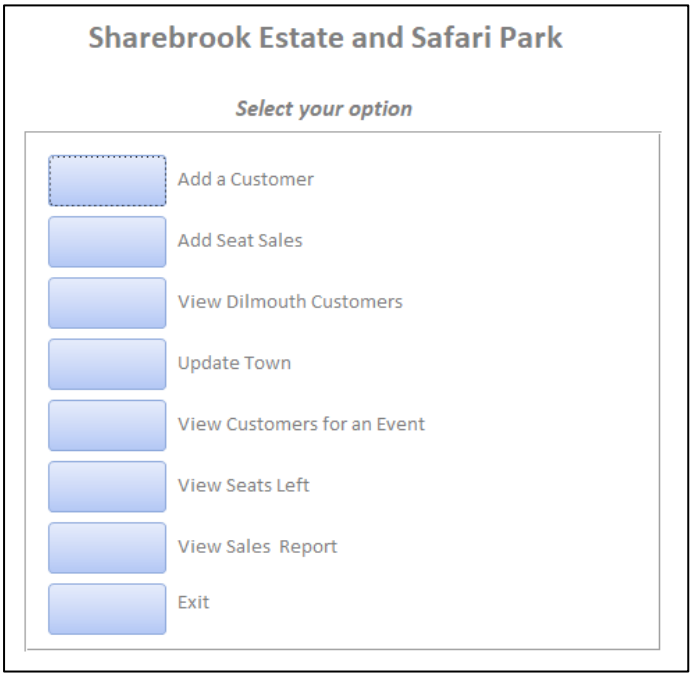
The evidence expected is a screenprint of the object window clearly showing the names of each object. This evidence was considered in traits 1, 3 and 5. Most candidates included this.



However, weaknesses were found:

- some candidates did not name objects appropriately meaning weakness in trait 3 in terms of maintaining the database
- some candidates truncated the screenprint meaning the full names of objects could not be seen
- objects appeared in the object window, but their implementation was missing or the implementation did not reflect the intended purpose of the object

Menu



The evidence expected was a screenprint of the menu in form view, design view and screenprints of any macros or code used to automate the buttons.

This evidence was considered in traits 1, 3, 4 and 5.

The menu should have provided access to all the specified forms, queries and the report.

The evidence for this was very good, overall.

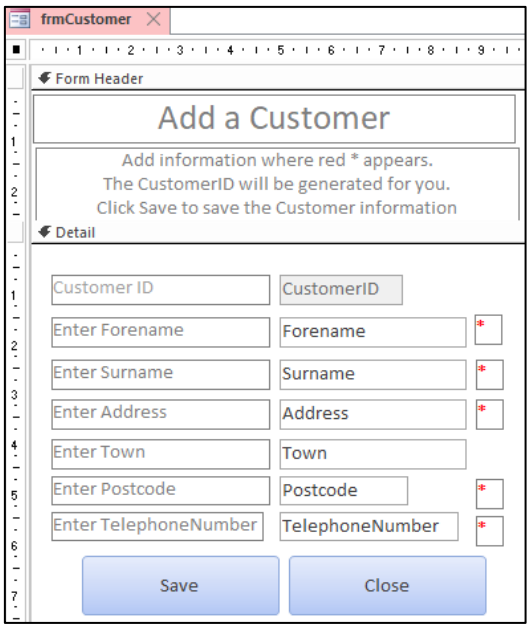
However, there were some candidates who:

- did not provide a menu
- did not attempt to customise the form eg ensure the lay out was consistent
- did not provide evidence of their automation. Candidates can provide screenprints of code, written by themselves of generated from macros, or macros themselves. If the examiner cannot fully determine what happens when the buttons are pressed, then they cannot determine how well it automates processes.

New Customers

The evidence expected here was one form that would allow the user to record the sales of seats and for these sales to be added to the system in the relevant table.

Candidates were to include the form in design view and form view along with details of any queries, code/macros used.



Trait 3

For trait 3 it was expected that the candidates would:

- include a suitable title
- include suitable instructions for use
- prevent the user from accessing the CustomerID
- provide useful labels for fields
- use suitable field widths
- ensure the user would know which fields were required
- ensure there was a button that would allow the user to start the save process
- use a sensible layout/house style

There was some excellent evidence for trait 3. However, it ***still*** does not appear to get as much consideration as it should. A candidate achieving band 4 for this trait and band 1 for trait 4 (automation) can still achieve a very good mark for this activity overall. It gives the candidates who find automation difficult a great opportunity to demonstrate their skills in other areas and getting good credit for it. Even some of the candidates who had gone to the trouble of customising the form still left the labels as their defaults.

Trait 4

For trait 4 it was expected that the candidates would:

1. ensure the form was ready for data entry as it opened
2. generate the new CustomerID and assign this to the CustomerID field
3. provide a method of saving the record
    a. cancel the save process if there were errors (with suitable error messages)
    b. save/append the new customer into the correct table if there were no errors (with a suitable save message)
    c. clear the form again ready for the next data entry.

It was pleasing to see the many different creative methods candidates used to meet the automation requirements.

Candidates used a mixture of bound and unbound forms.

1. Ensure the form was ready for data entry as it opened

- Unbound forms did not require anything special to do this
- Bound forms tended to include evidence of the form's 'Data Entry' property being set to yes or by using a macro/VBA code to go to a new record.
- Any method was acceptable providing the examiner could determine it would work.

2. Generate the new CustomerID and assign this to the CustomerID field

- Bound forms included the use of AutoNumber as the method of generating the new key.
- This could be seen by either 'New' in form view, or the candidate specifically showing the data type.
- Others chose to generate the highest existing ID and add one to it, ensuring it was allocated to the key field (eg query to find highest and add 1, DMAX, MAX etc.).

Candidates used the latter method on most of the unbound forms seen.

3. Provide a method of saving the record

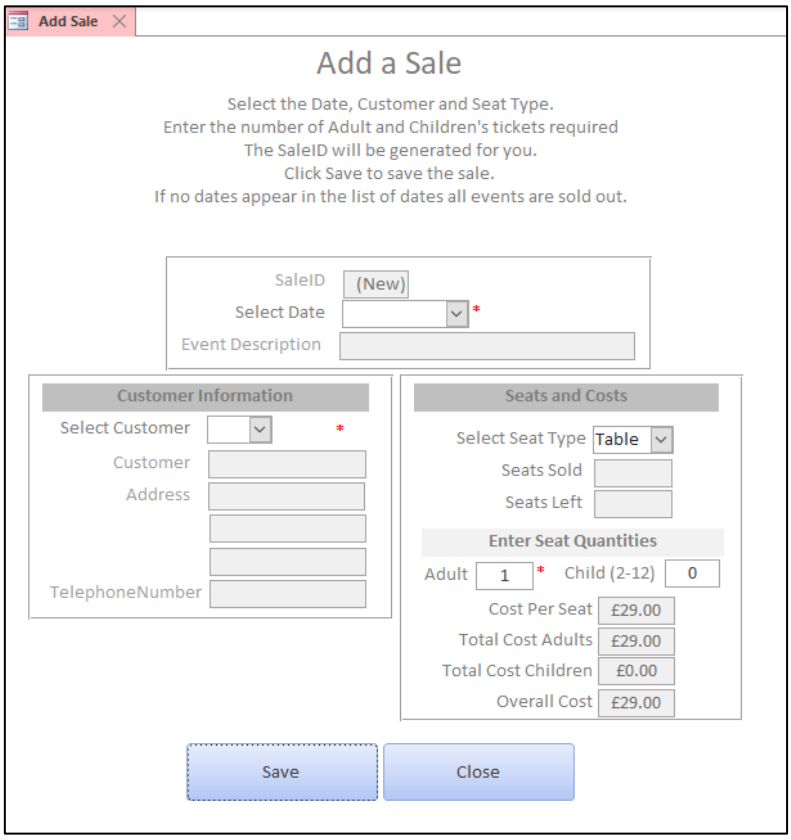
a. cancel the save process if there were errors (with suitable error messages)
b. save/append the new customer into the correct table if there were no errors (with a suitable save message)
c. clear the form again ready for the next data entry.

- Bound forms tended to use 'saving' the record method, unbound tended to use the 'append' method. The evidence used had to be appropriate for the type of form used.
- For the actual save process itself, many candidates chose to evidence it via screenprints of the macro actions, others chose VBA code written by themselves and others macro actions converted to VBA code.

Where candidates had attempted automation, the main weaknesses were that the candidate did not fully evidence their method(s). For example, examiners cannot guess that the method of generating the key works unless they are shown the full process, the examiners cannot guess the save works without seeing the full process. Candidates should ask themselves *"can the examiner see exactly how my form works from start to finish?"*.

Seat Sales
The evidence expected here was one form that would allow the user to record the sale of seats.

Candidates were to include the form in design view and form view along with details of any queries, code/macros used.



Trait 3

For trait 3 is was expected that the candidates would:

- include a suitable title
- include suitable instructions for use
- prevent the user from accessing the SaleID
- provide useful labels for fields
- use suitable field widths
- ensure the user would know which fields were required
- ensure the user could select the event, customer and seat type
- ensure fields were present for extra information to be displayed after event, customer or seat type selected and disable them
- ensure fields were present for the calculations required (total cost of adult seats, total cost of child seats, overall cost and disable them
- ensure there was a button that would allow the user to start the save process
- use a sensible layout/house style

Trait 4

For trait 4 it was expected that candidates would:

1. ensure the seat sale form was ready for data entry as it opened
2. generate the new SeatSaleID and assign this to the SeatSaleID field
3. ensure some relevant event information would appear after the selection of an event, a customer and the seat type
4. correctly calculate and display the total cost of adult seats, the total cost of child seats (10% cheaper than adult seat) and the overall cost
5. ensure no more than 56 non-table seats and no more than 46 table seats could be sold
6. ensure at least 1 adult seat was and no more than 8 seats could be bought
7. provide a method of saving the record
    a. cancel the save process if there were errors (with suitable error messages
    b. save/append the new seat sale record into the correct table if there were no errors (with a suitable save message)
    c. clear the form again ready for next data entry.

It was also pleasing to see the many different creative methods candidates used to meet the automation requirements of this form.

Candidates also used a mixture of bound and unbound forms.

1. Ensure the seat sale form was ready for data entry as it opened

- Unbound forms did not require anything special to do this.
- Bound forms tended to include evidence of the form's 'Data Entry' property being set to yes or by using a macro/VBA code to go to a new record.
- Any method was acceptable providing the examiner could determine it would work.

2. **Generate the new SeatSaleID and assign this to the SeatSaleID field**
    - Bound forms included the use of AutoNumber as the method of generating the new key.
    - This could be seen by either 'New' in form view, or the candidate specifically showing the data type.
    - Others chose to generate the highest existing ID and add one to it, ensuring it was allocated to the key field (eg query to find highest and add 1, DMAX, MAX etc.).

3. **Ensure some relevant event information would appear after the selection of an event, a customer and the seat type**
    - There was a mixture of evidence for this. Some candidates preferred using DLookup, others chose to include the fields in the combo boxes and then set the relevant field to the value in the relevant column in the combo box.

4. **Correctly calculate and display the total cost of adult seats, the total cost of child seats (10% cheaper than adult seat) and the overall cost**
    - It was nice to see how many candidates attempted the calculations. Many displayed all three accurately. Fewer thought about displaying monetary amounts as currency.

5. **Ensure no more than 56 non-table seats could be sold and ensure no more than 46 table seats could be sold**
    - Candidates who had chosen, after selecting the event, to display the number of non-table and table seats left had the most success with implementing this validation. Many were then able to use either VBA or macros to determine whether allowing the purchase would exceed the maximums.

6. **Ensure at least 1 adult seat was purchased and no more than 8 seats could be bought**
    - This was well attempted and evidenced overall with many candidates improving on the table level validation to ensure both fields worked together. There were good VBA and/or macros seen that also displayed good error messages.

7. **Provide a method of saving the record**
    a. cancel the save process if there were errors (with suitable error messages
    b. save/append the new rental record into the correct table if there were no errors (with a suitable save message)
    c. clear the form again ready for next data entry.

    - Bound forms tended to use 'saving' the record method, unbound tended to use the 'append' method. The evidence used had to be appropriate for the type of form used.
    - For the actual save process itself, many candidates chose to evidence it via screenprints of the macro actions, others chose VBA code written by themselves and others macro actions converted to VBA code.
    - Clearing the form tended to be either moving to a new record or closing and reopening the form.

Where candidates had attempted automation, the main weaknesses found were that the candidates did not fully evidence their method(s). For example, examiners cannot guess that the method of generating the key works unless they are shown the full process, the examiners cannot guess the save works without seeing the full process. Candidates should ask themselves *"can the examiner see exactly how my form works from start to finish?"*.

Queries

Evidence expected here was design view and datasheet view of the specified queries and there was some excellent evidence seen. There were different approaches to the queries with many of the producing the required results. The evidence for these was considered in traits 1, 2, 3 and 5. It was nice to see that some candidates managed to build all four queries accurately.

Weaknesses in the evidence included:

- not including design view and/or not including datasheet view of the queries
- truncating the criteria
- not assigning names to generated fields
- not including suitable parameter input messages
- not including additional design and datasheet view of queries where more than one had been used to produce the required output

Report

The evidence expected here was design view of the database report, design and datasheet view of any queries used and the report itself saved as a separate pdf.

The report was supposed to:

- display the forename, surname, number of adult seats bought and number of child seats bought for each customer.
- calculate and display the total number of seats each customer bought and the sales income this would generate, without any child discount.
- calculate and display the overall number of seats sold and sales income without any child discount.

It was pleasing to see how many candidates had thought about the layout and house style for the report rather than just relying on a wizard to produce results. Most candidates attempted the report with varying degrees of success.

Weaknesses in the evidence included:

- not including the design and datasheet view of any queries used
- not ensuring there was a separate pdf of the actual database report
- not using useful labels (leaving them as defaults)
- not including the calculations

Task 4 – Testing

Traits 1 and 2 focus on planning whilst traits 3 and 4 focus on the results of this testing.

Candidates **were** to use the template provided in each examination and should only carry out the tests specified.

Teachers are advised to download Script A, Script B and the example solution. In terms of this task these pages are of relevance:

Script A	23-30
Script B	21-27
Example Solution	20-30

It is still apparent that some candidates do not fully understand the testing process and how to complete these testing tables.

Where weaknesses were found they tended to be:

- test data
  - none, not specific, irrelevant for the test being carried out. For example, if the test was to ensure a customer forename has to be present in order to save then the test data should give specific values for the rest of the fields in the record and indicate that the forename will be left blank
- expected results
  - irrelevant to the test being carried out, not specific. For example, if an error message should display then what error message should that be. Taking on board comments made in previous examiner reports about setting Required to 'Yes' not being the most appropriate way of applying a presence check, this would be an ideal place for candidates to realise that if they specified what error message would be expected. The inbuilt messages are not very user friendly at all. If they do not realise that whilst building the system they should pick up on it while testing.
- actual results
  - Not being able to see the form itself or the data on it
  - Not showing everything that happens. For example, proving the save works should include:
    - screenshot(s) of the table(s) prior to save so that the last ID can be identified
    - screenshot of the form with the data clearly visible and the save message on screen
    - screenshot of the form cleared (if applicable)
    - screenshot of the new record in the table(s).
- errors
  - Not recognising the test results are incorrect, not commenting on errors, correcting the error(s).

Task 5 – Evaluation

This task is designed to test the candidates' ability to evaluate their database.

Teachers are advised to download Script A, Script B and the example solution. In terms of this task these pages are of relevance:

Script A	31-32
Script B	28-30
Example Solution	31

There were very few instances of candidates only saying 'Yes' or 'No' though some did do this. These did not attract any marks.

It was nice to see how many candidates could evaluate their solution, showcasing their knowledge and understanding whilst focusing on the user rather than themselves. Candidates who did this tended to achieve very good marks in this task.

However, many are still treating the evaluations as an opportunity to describe how they built the database. The examiners have already seen how they built the database and the candidates have already been given credit for that.

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