Unit 2 Creating Systems to Manage Information

BTEC

Level 3 National in Information Technology

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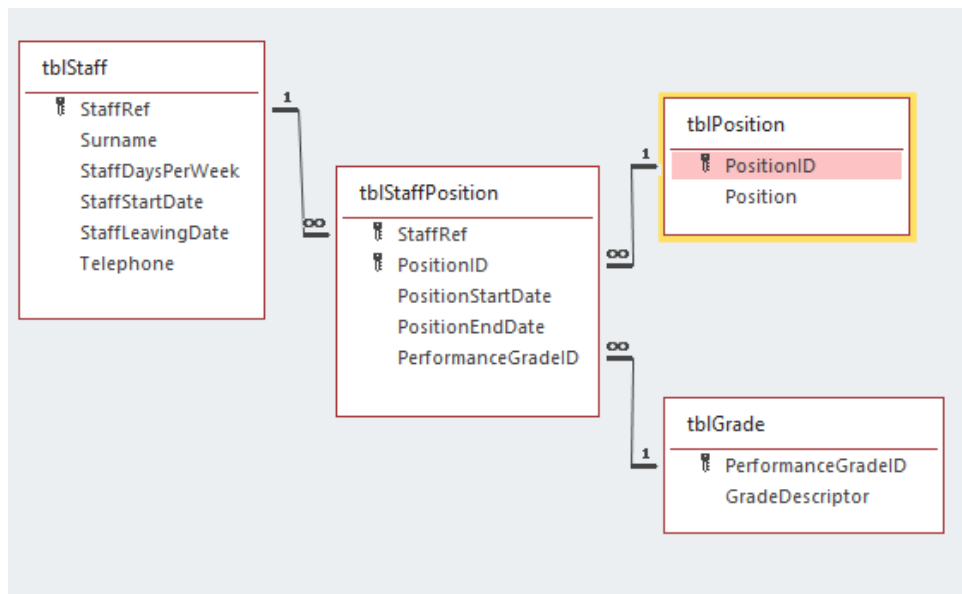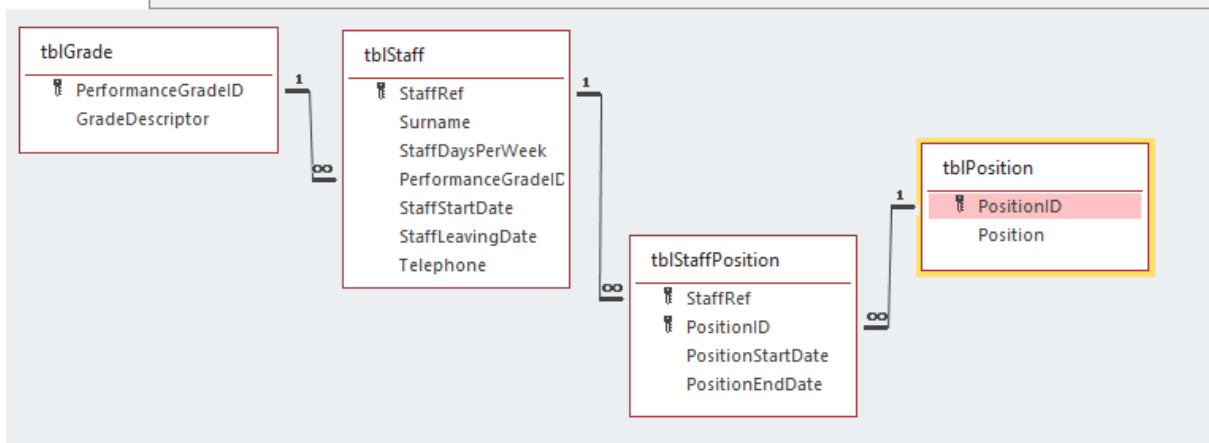Marking Guidance

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.

Trait 1	**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, PositionID should be in tblPosition and tblStaffPosition. 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

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

Trait 2	**Relationship lines**
	• Check lines only. DO NOT look at fields
	Relationship types
	• Link on correct fields and referential integrity enforced

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

Activity 2 – Table Structures and Validation (45 mins)
How examiners must approach marking this activity

Trait 1	Look for naming conventions and whether fields are sensible • 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 their 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. • StaffDaysPerWeek: Number • StaffStartDate: Date/Time • StaffLeavingDate: Date/Time • PositionStartDate: Date/Time • PositionEndDate: Date/Time • Telephone: Short text (or equivalent) • 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** • Not all staff members work five days a week. The minimum number of days they can work is two. **Activity/testing requirements** • A record for a staff member will not save if the surname is not present • A record for a staff member will not save if the staff start date is not present • A record for a staff member will not save if the telephone number is not in the correct format • A record for a staff member will not save if the number of days they work is below the accepted range • A record for a staff member will not save if the number of days they work is above the accepted range • A record for a staff member will not save if the performance grade id is invalid.

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**.

tblStaffPosition and field PositionID

General	Lookup	
Display Control	Combo Box
Row Source Type	Table/Query
Row Source	SELECT [tblPosition].[PositionID], [tblPosition].[Position] FROM tblPosition;
Bound Column	1
Column Count	2
Column Heads	No
Column Widths	1.588cm;2.963cm
List Rows	16
List Width	4.55cm
Limit To List	Yes

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**

StaffSurname

General	Lookup
Format	
Caption	
Default Value	
Validation Rule	Is Not Null
Validation Text	Please enter a valid surname.
Required	No
Allow Zero Length	Yes

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**
	• StaffSurname - validation rule and suitable validation text
	Correct check
	• StaffSurname – validation rule without suitable validation text or Required set to Yes
	Attempted
	• Presence check on any field other than primary keys or StaffSurname using a validation rule or required set to yes
Length	**Required check**
	• Any field that has a suitable length check
	Attempted
	• Field size not left at default of 255 but not good
Value lookup or Range	**Required check**
	• StaffDaysPerWeek minimum of 2 and maximum of 5
	• Combo box (does not need to have limit to list set to Yes)
	• Validation rule e.g., between 2 and 5, with validation text

		Correct check	
		- StaffDaysPerWeek - Incorrect range e.g. minimum 1 and maximum 5 - 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. [tblStaff]	
		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. [tblStaff]	
		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 Telephone e.g. 00000\ 000000	
		Correct check	
		Input mask is for Telephone but missing the space e.g. 00000000000	
		Attempted	
		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 **twelve** points in total. **One** point is awarded for each field that appears in the query grid up to **twelve**. NOTE POINTS ARE NOT MARKS
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 an alphabetically sorted list of positions that have at least two staff members currently in that position. It must show the name of the position and the number of staff members only.	
Trait 1 Any view	Position(1) Position End Date or Staff Leaving Date (1) Field that could be used in the calculation for the total number of staff in each position (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 Position has ascending/descending sort (1) Total number of staff in each position calculated e.g. count (1) **(Can be a number or text field)** Total number of staff is at least 2 e.g. >=2 (1) **(Can award this without count as long as it is NOT on a text field)** Current staff in each position (Position end date e.g. is Null) (1)

Trait 3	Ordering of columns is appropriate **(Position first)** (1) No truncation (datasheet view field names and data) (1) These fields **only** are displayed (1) • Position • Number of staff **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)

Query B	

(b) Create a query to display what the bonus will be for each current staff member.
  Calculate:
  • the number of years worked
  • the bonus.
  Display:
  • the staff surname
  • the staff start date
  • the number of years worked
  • the bonus.	

Trait 1	**From any view** Surname (1) Staff start date (1) **Design view only** Field that could be used in the calculation for number of years worked (1) Relevant field used in the if statement/calculation for bonus(1)
Trait 2	If there is only one big table used for query B and/or report cannot get past top of band 2. Length of employment calculated **(this could use StaffLeavingDate or PositionEndDate)** OR current staff members only (Staff end date e.g. Is Null) (1) Length of employment calculated as a whole year (1) Performance Grade ID of 1 OR Performance Grade of Excellent Bonus of 1000 OR 200 (1) **(At least one of the amounts for the mark)** If statement fully correct (1)
Trait 3	Ordering of columns is appropriate (1) No truncation (datasheet view - field names and data) (1) These fields **only** should be displayed (1) • Surname • Staff start date • Years • Bonus **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)

Report
(c)Report – Create a report that shows a list of positions. For each class, calculate the total number of current staff who hold or have held that position: Display: • a suitable report title • the name of the position • the surname of each staff member • the position start date • the position end date • the total number of staff.

Trait 1	Position (1) Surname (1) Position start date (1) Position end date (1) Field that could be used in calculation for the total number of staff per position(1) **(Field name or asterisk on report or could be part of a query)**
Trait 2	If there is only one big table used for query B and/or report then cannot get past top of band 2 • Current staff members only (Staff leaving date e.g. Is Null) (1) • Total number of staff calculated (count) (1) **(Count may have a field name or an asterisk)** • Correct total number of staff in correct group header/footer (1) **(Count may have a field name or an asterisk)**
Trait 3	**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)

Activity 4 – Testing (20 minutes)
How examiners must approach marking this activity

Tests to be carried out

1. A record for a staff member will not save if the surname is not present
2. A record for a staff member will not save if the staff start date is not present
3. A record for a staff member will not save if the telephone number is not in the correct format
4. A record for a staff member will not save if the number of days they work is below the accepted range
5. A record for a staff member will not save if the number of days they work is above the accepted range
6. A record for a staff member will not save if the performance grade is invalid.

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.

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:
        - there are several job positions in the company, for example a vending machine operator
        - each staff member has one job position at a time; they can have many different job positions during their employment
        - not all staff members work five days a week. The minimum number of days they can work is two
        - once a year each current staff member is given a performance grade. The company does not keep a record of past performance grades.
        -

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.

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 staff data • repeated position data • repeated performance grade 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 days • Should talk about using table lookup 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 machine 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
  - combo box to select brand ID/brand
  - MachineID disabled
- Save button
- Layout good

Meter readings form

- Sensible title
- Data input aids e.g.:
  - instructions on how to use,
  - asterisk(s) where data entry is required
  - combo box to machine 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 (ignore content of fields)
  - Highest meter reading
  - Number of drinks sold
  - Money expected
  - Whether to call an engineer or not

Band	Comments
1	- Do not reflect their purpose - Are mostly/are default - Are not user friendly: o Default titles, labels and field widths o No data input aids o No disabled fields o House style does not exist o Layout poor
2	- Better matched to purpose - Not all default based on wizard - Are more user friendly (will include **some** of these): o titles relevant to purpose o data input aids present e.g. asterisks, instructions though may not use combo boxes for machine ID o disabled fields

		o field widths not left at default though may not be entirely sensible o some labels amended from default where appropriate o Layout good in places

	3	• Add machine form fully matches purpose
		• Mostly user friendly (**do not need all** of these but a very good attempt):
		  o relevant titles
		  o some data input aids e.g. asterisks, instructions and combo boxes field widths sensible
		  o some information shown
		  o some of the fields for calculations shown
		  o some disabled fields
		  o layout mostly good

	4	• Are very user friendly:
		  o relevant titles
		  o data input aids present where suitable including combo boxes on both forms
		  o all information generated
		  o all of the fields for calculations shown
		  o all field widths sensible
		  o all fields that should be automatically generated disabled
		  o consistent house style for both forms
		  o layout very good

Trait 2	**Add machine form**
	• ID would be generated (default of AutoNumber is fine for this)
	
	Meter readings form
	Criteria
	    • Highest meter reading found for the machine selected **(Must be linked for more than attempted)**
	Calculations
	    • Number of drinks sold
	    • Money expected
	    • Whether or not to call engineer
	
	For MachineID to be automatically generated and mark point awarded look for:
	    • Add machine form bound and (New) in MachineID field
	    • Add machine form bound, missing MachineID field but SaveRecord in code
	    • Add machine form unbound – needs an appropriate append query in design view, query and SaveRecord in code
	
	{{TABLE}}

Band	Comments
1T	• MachineID would be automatically generated
2T	• MachineID automatically generated • Meter reading analysis from – some attempted but may not work
3T	• MachineID automatically generated Meter reading analysis form - some of the criteria and calculations work as expected
4T	• MachineID automatically generated

		Meter reading analysis form • All of the criteria and calculations work as expected

Trait 3	This trait bout validation and automation.
	
	 Add machine form
	 • Opens at a new record
	 • Validation to ensure the purchase date is present and not in the future, the machine has to be assigned a valid brand **(presence check for date must be in macro or code)**
	 • Saving includes:
	    o appending valid data to the machine table
	    o displaying a save message
	    o displaying suitable error message(s)
	    o clearing the form ready for next data entry
	
	 Meter readings form
	 • When a machine ID is selected and the week beginning, current meter reading and money collected input:
	    • Highest meter reading is displayed
	    • Number of drinks sold is displayed
	    • Money expected is displayed
	    • Call engineer displays if applicable
	 • Generated date refreshes when another machine is selected and data input
	
	 <table><tr><th>Band</th><th>Comments</th></tr><tr><td>1</td><td>Add machine form. Will be a form that may not reflect its purpose. May not open at a new record. MachineID automatically generated. Save button present but no indication of how the save will be carried out. Will be mostly default</td></tr><tr><td>2</td><td>Will have had a good attempt at the machine form or weaker attempts at both forms</td></tr><tr><td>3</td><td>Will have had a good attempt at the machine form and a good attempt at the meter reading analysis form</td></tr><tr><td>4</td><td>Very little, if anything will not have been evidenced and works.</td></tr></table>

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 machine input form is ready for data entry when the form opens
2. The purchase date must be present
3. The purchase date must not be in the future
4. The machine must be assigned a valid brand
5. A record will save in the machine table if all the required data is present and valid
6. These details appear on the meter reading analysis form after the machine ID has been selected and the week beginning date, meter reading and money collected have been input:
   - the highest meter reading stored in the table for that machine which is the most recent meter reading
   - the number of drinks sold
   - the amount of money expected
   - the words call engineer if appropriate.

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.

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:

Machine form

- The machine form is ready for data entry when the form opens
- The purchase date must be present
- The purchase date must not be in the future
- The machine must be assigned a valid brand
- A record will save in the machine table if all the required data is present and valid

Meter reading analysis form

- These details appear on the meter reading analysis form after the machine ID has been selected and the week beginning date, meter reading and money collected have been input:
  - the highest meter reading stored in the table for that machine which is the most recent meter reading
  - the number of drinks sold
  - the amount of money expected
  - the words call engineer if appropriate.

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**.

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.