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EXAMINATION NATIONAL SENIOR CERTIFICATE	
GRADE	12
DATE	JUNE 2024
SUBJECT	INFORMATION TECHNOLOGY
PAPER	1
MARK TOTAL	150
DURATION (HOURS)	3
NUMBER OF PAGES	26 plus 2 planning pages





INSTRUCTIONS TO CANDIDATES

1. In your examination folder, DATAJUN2024 you'll find the folders and incomplete programs for four questions.
2. Rename the folder DATAJUN2024 by adding on (appending) your final examination number e.g. DataJUN2024_62493.
3. You may make backup copies of the folder in a backup folder of your own, **but you should do all your examination work in your renamed** DataJUN2024_XXX folder.
4. YOU ARE REQUIRED TO ANSWER ALL FOUR QUESTIONS.
5. Two blank pages are included at the back of the paper for planning purposes.
6. During the control session you should check all your units, namely **Question1_U, Question2_U, clsQuestion3_U, Question3_U and Question4_U**.
 - Can the project open and run?
 - Is your exam number entered as a comment in the unit?
7. You may comment out a specific part of your code if that part doesn't compile. All commented code will be marked if there is no alternative code.
8. Notes on question 2:
 - Field names for the tables are included as comments, you may copy and paste these field names in your answers for question 2.
 - Question 2.2.3 is problem solving – you may consider to do this question later.



9. The files that you need to complete this question paper have been provided to you on the disk space allocated to you.

Once extracted, the following list of files will be available in the folder named **DATAJUN2024**:

Question1:

Fish[1..15].txt
Init_U.pas
Question1_P.dpr
Question1_P.dproj
Question1_P.res
Question1_U.dfm
Question1_U.pas

Question2:

Pets.mdb
PetsBK.mdb
Question2_P.dpr
Question2_P.dproj
Question2_P.res
Question2_U.dfm
Question2_U.pas
TDBConnection_U.pas

Question3:

clsQuestion3_U.pas
Question3_P.dpr
Question3_P.dproj
Question3_P.res
Question3_U.dfm
Question3_U.pas

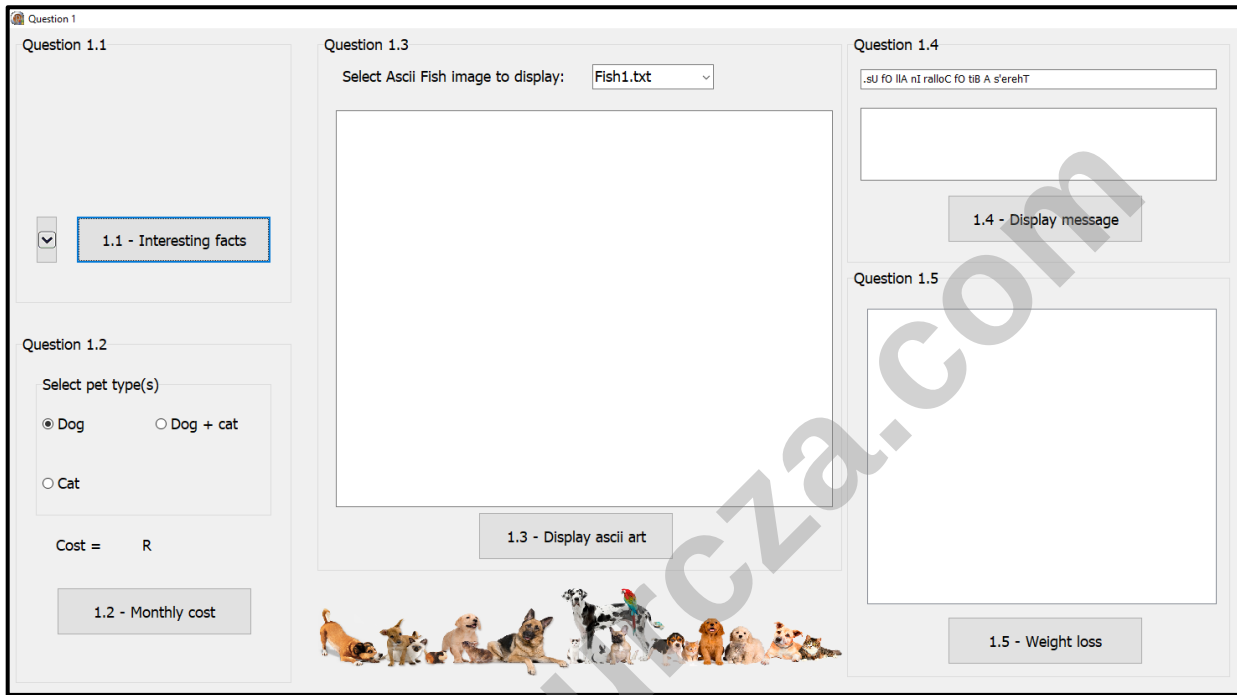
Question4:

Question4_P.dpr
Question4_P.dproj
Question4_P.res
Question4_U.dfm
Question4_U.pas

SECTION A

QUESTION 1: GENERAL PROGRAMMING

Open the incomplete **Question1_p.dpr** program in your **DATAJUN2024/Question 1** folder. The following screen shot shows the interface:



Question 1.1 btnQ1_1 [1.1 - Interesting facts]

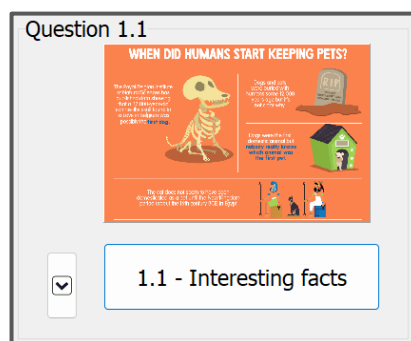
Interesting facts about humans and pets are displayed. The display of the information is very small.

Write code to do the following:

1.1.1 Display the **pnIQ1_1** panel when the **btnQ1_1** is clicked. (1)

1.1.2 Increase the height and width of the **pnIQ1_1** panel with 100 units each time the user clicks on the panel (i.e. the **imgQ1_1** click event handler). (2)

Example of output when the **btnQ1_1** button is clicked:



Example of output when the **imgQ1_1** image is clicked a few times:

Question 1.1

Question 1.4

WHEN DID HUMANS START KEEPING PETS?

The Royal Belgian Institute of Natural Sciences has published data showing that a 32,000-year-old canine-like skull found in a cave in Belgium was possibly the **first dog**.



Dogs and cats were buried with humans some 12,000 years ago but it's not clear why.



Dogs were the first domestic animal but **nobody really knows which animal was the first pet**.



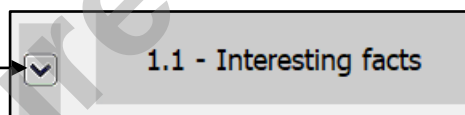
The cat does not seem to have been domesticated as a pet until the New Kingdom period (about the 16th century BCE) in Egypt.



1.2 - Annual cost

NOTE: Code is provided in the **btnResize** event handler to reset the panel to its original size.

btnResize



(6)

```

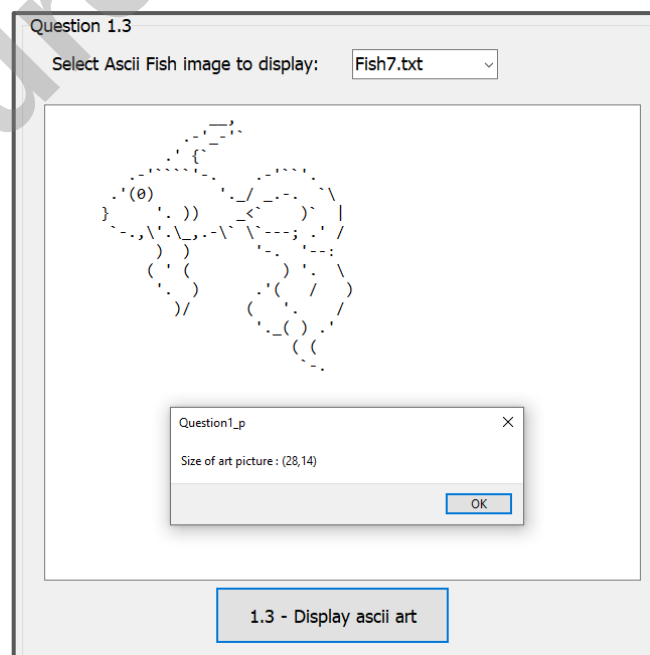
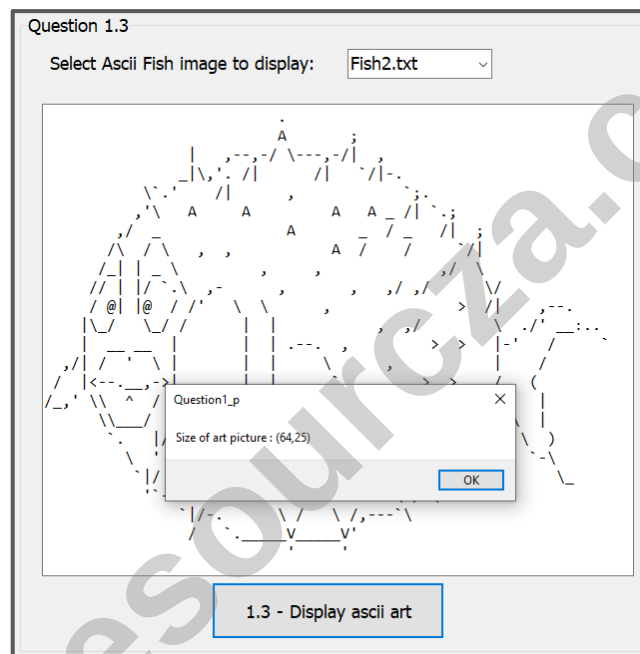
(37,8)
o
o  ____/~/~/~/__      /((
o  //  _=====  /_((
o  //  (@))      ))))  ===/_((
   ))      )))))))  _((
   \      \)      ))))  _==\_((
   \_____=====  \_((
                                   \((

```

Write code to do the following for **any** of the fifteen pictures:

- 1.3.1 Clear the rich edit.
- 1.3.2
- Retrieve the name of the selected file from the **cmbQ1_3** combo box and assign the file name to a variable **sFileName**.
 - **TAKE NOTE:** You may assume that the file exists.
 - Read and save the first line in the file in the provided variable **sSize**.
 - Read and display the rest of the lines in the file in the rich edit.
 - Display the saved size (sSize) of the picture using a message box.

Examples of some of the output:



(11)

Question 1.4 btnQ1_4 [1.4 – Display message]

An “encrypted” message is displayed in the **edtQ1_4** edit box.

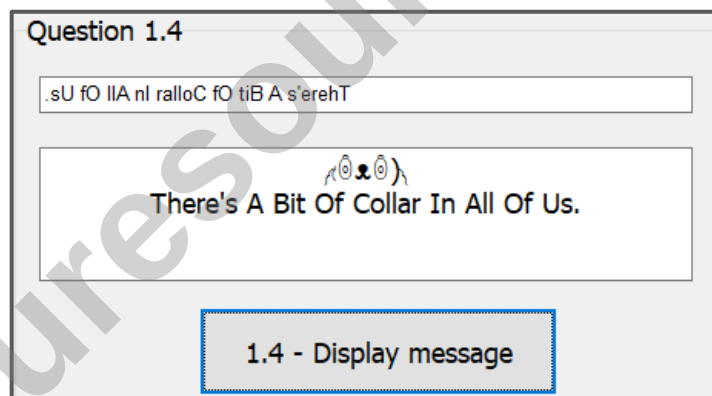
Study the given declarations and code supplied as part of the event.

```
#sPicture : string; // Given
begin
//Question 1.4
sPicture := 'ſ(0x0)ſ'; // Given
```

Write code to do the following:

- 1.4.1 Change the font of the edit box **edtQ1_4** to ‘Arial’. (1)
- 1.4.2 Retrieve the message from the edit box. (1)
- 1.4.3 Reverse the message to read from left to right. (5)
- 1.4.4 Set the alignment for the **memQ1_4** memo component to centre. (1)
- 1.4.5 Display the provided ‘picture’ ſ(0x0)ſ in the memo component. (1)
- 1.4.6 Display the message in the memo component. (1)

Example of output:



1.5 Question 1.5 btnQ1_5 [1.5 – Weight loss]

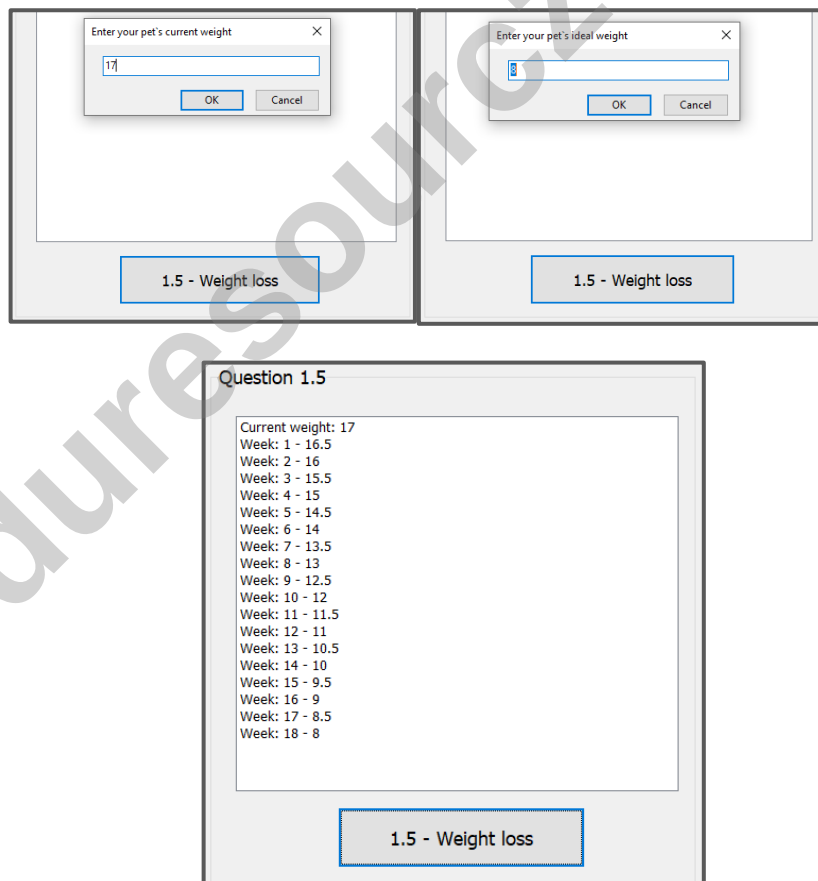
The user's pet is overweight, and the veterinarian said that the pet can lose 0.5 kg in a week if the pet's food intake changes.

Code has been provided to obtain the value of the current weight of a pet stored in the variable sCurrWeight and the ideal weight stored in the variable sIdealWeight using input boxes.

Complete the code for the onClick event of the **btnQ1_5** button to do the following, based on the given pseudocode below:

Initialize a counter to count the number of weeks to get to the ideal weight.
 Display the current weight in the lstQ1_6 listbox.
 While current weight is greater than the ideal weight do:
 Increment the week counter by 1.
 Reduce the current weight by 0.5.
 Display the week and current weight in the list box.

Example of output if the current weight is 17 and the ideal weight is 8:



The screenshot shows the program's output. At the top, there are two input dialog boxes. The first is titled "Enter your pet's current weight" and has the value "17" entered. The second is titled "Enter your pet's ideal weight" and has the value "8" entered. Below these are two buttons labeled "1.5 - Weight loss". Below these is a list box titled "Question 1.5" containing the following text:

```

Current weight: 17
Week: 1 - 16.5
Week: 2 - 16
Week: 3 - 15.5
Week: 4 - 15
Week: 5 - 14.5
Week: 6 - 14
Week: 7 - 13.5
Week: 8 - 13
Week: 9 - 12.5
Week: 10 - 12
Week: 11 - 11.5
Week: 12 - 11
Week: 13 - 10.5
Week: 14 - 10
Week: 15 - 9.5
Week: 16 - 9
Week: 17 - 8.5
Week: 18 - 8
  
```

At the bottom of the list box is a button labeled "1.5 - Weight loss".

(10)

- Enter your examination number as a comment in the first line of the program file.
- Save your program.

TOTAL QUESTION 1: [40]

SECTION B

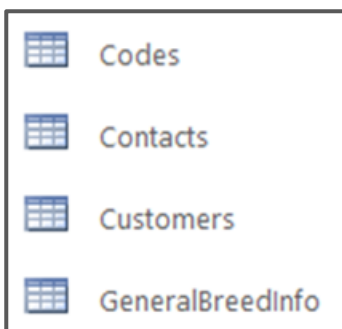
QUESTION 2: DELPHI PROGRAMMING AND DATABASE MANIPULATION

Information on different dog types, dog club contact details and customers, are saved in the Access database **Pets**. Screen shots of the layout and content of the database are shown in Appendix A.

Open the incomplete **Question2_p.dpr** program in your **DATAJUN2024/Question 2** folder.

TAKE NOTE: Field and table names are provided in the code to use in your answer.

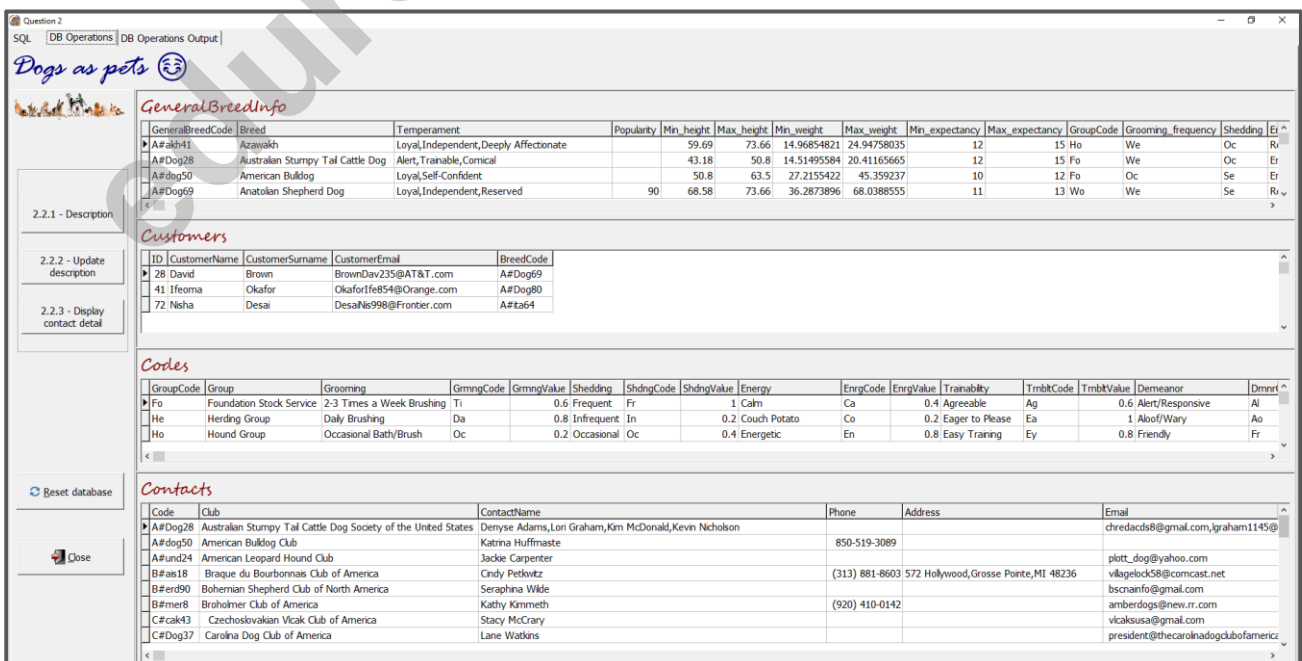
The tables in the DB Pets are listed below. The **same names are used** for reference for the corresponding ADO table component as part of Question 2.2.



E.g.

```
sGroup := Codes['Group'];
// Codes refer to the table and Group to the applicable field.
```

The following screen shot show the interface:



WORK ON THE *tbsQuestion2_1* TABSHEET

Complete the **SQL** statements for each button of QUESTION 2, as described in QUESTION 2.1.1 to QUESTION 2.1.4.

2.1.1 btnQ2_1_1 [2.1.1 – Clubs]

Write a **SQL** statement to display the club, contact name and email for all the clubs in the Contacts table sorted by the club field in descending order.

An example of output for first five records:

Club	ContactName	Email
► United States Mountain Cur Club	Mandy Middleton	walnutridgemtncurs@yahoo.com
The United States Lancashire Heeler Club	Sheryl Bradbury	sherylbradbury@windstream.net
Taiwan Dog Club of America	Atticus Sterling	info@taiwandog.org
Pyrenean Mastiff USA	Valentina Hart	pmusa@pyreneanmastiffclubs.org
Lapponian Herder USA	Heidi Christenson	girln2pooches@yahoo.com

(4)

2.1.2 btnQ2_1_2 [2.1.2 - Popularity]

Write an SQL statement to display the breed and popularity of all the breeds that have a loyal temperament and a popularity index of more than 100.

An example of output for first five records:

Breed	Popularity
► Afghan Hound	113
Berger Picard	144
Bedlington Terrier	141
Borzoï	103
Entlebucher Mountain Dog	157

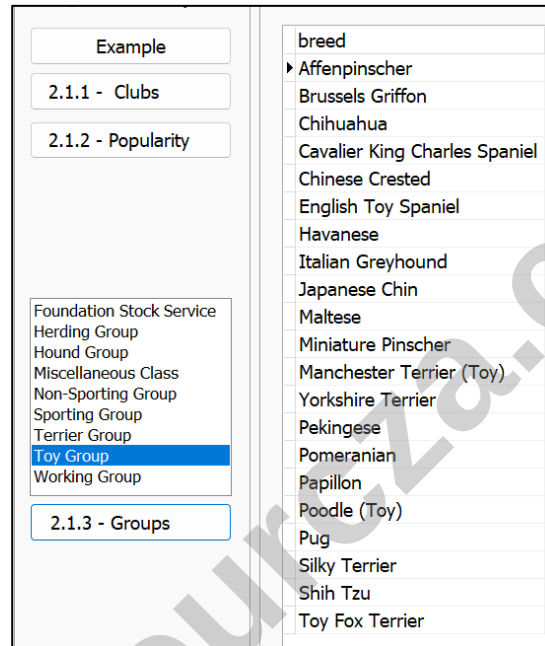
(5)

2.1.3 btnQ2_1_3 [Groups]

Write a SQL statement to display the different breeds for the specific characteristics selected in the list box named **lstQ2**.

TAKE NOTE: For this query you must use the GeneralBreedInfo and the Codes table as part of your SQL statement.

An example of the first 17 output records for the “Toy Group”:



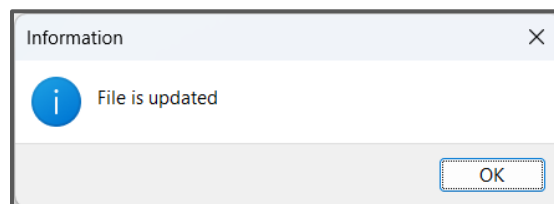
The screenshot shows a software interface with a sidebar on the left and a main content area on the right. The sidebar has several buttons: 'Example', '2.1.1 - Clubs', '2.1.2 - Popularity', and '2.1.3 - Groups'. Below these buttons is a list box containing various dog groups: 'Foundation Stock Service', 'Herding Group', 'Hound Group', 'Miscellaneous Class', 'Non-Sporting Group', 'Sporting Group', 'Terrier Group', 'Toy Group' (which is highlighted in blue), and 'Working Group'. The main content area displays a list of 17 dog breeds corresponding to the selected 'Toy Group' category. The breeds listed are: Affenpinscher, Brussels Griffon, Chihuahua, Cavalier King Charles Spaniel, Chinese Crested, English Toy Spaniel, Havanese, Italian Greyhound, Japanese Chin, Maltese, Miniature Pinscher, Manchester Terrier (Toy), Yorkshire Terrier, Pekingese, Pomeranian, Papillon, Poodle (Toy), Pug, Silky Terrier, Shih Tzu, and Toy Fox Terrier.

(5)

2.1.4 btnQ2_1_4 [2.1.4 – Update code]

Write an **SQL** statement to **update** all the American Bulldog’s popularity index to 121 where the code is “A#dog50”.

A message dialogue is provided to confirm the change in the database:



(3)

WORK ON THE *tbs*QUESTION2_2 TABSHEET

Use database table statements for each button of QUESTION 2, as described in QUESTION 2.2.1 and QUESTION 2.2.3.

2.2.1 btnQ2_2_1 [2.2.1 - Description]

A general description of each dog type is included in the database and stored in the 'Description' field.

Use a database statement to display the description for the dog breed record currently selected (or the current active record) in the GeneralBreedInfo table.

NOTE: Code is provided to display the **DB Operations Output** tabsheet.

Example of output if the American Bulldog is selected in the GeneralBreedInfo table:

SQL	DB Operations	DB Operations Output
		"The American Bulldog is a descendant of the English Bulldog. It is believed that the bulldog was in America as early as the 17th century. They came to the United States in the 1800s, with immigrants who brought their working bulldogs with them. Small farmers and ranchers used this all-around working dog for many tasks including farm guardians, stock dogs, and catch dogs. The breed largely survived, particularly in the southern states, due to its ability to bring down and catch feral pigs. The breed we know as the American Bulldog was originally known by many different names before the name American Bulldog became the standard. In different parts of the South he was known as the White English Southern Bulldog, but most commonly just "bulldog." The breed was not called a bulldog because of a certain look, but because they did real bulldog work. American Bulldogs are a well-balanced athletic dog that demonstrate great strength, endurance, agility, and a friendly attitude. Historically, they were bred to be a utility dog used for working the farm.

(1)

2.2.2 btnQ2_2_2 [2.2.2 – Update Customer Email]

The CustomerEmail field in the customers table stores the corresponding email for the customer.

All customers with VerizonFios as an email provider should change to Verizon only.

Use database statements to change the email addresses accordingly.

NOTE:

Code is provided to display:

- The **DB Operations Output** tabsheet.
- A conformation message that the applicable email addresses were updated.

(11)



2.2.3 btnQ2_2_3 [2.2.3 – Display contact detail]

Use database statements to display the contact persons and contact details for all the clubs in the database table Contacts. The club name must be bold.

Example of output for first five clubs is shown below:

NOTE: There can be more than one contact person for a specific club.
All contact details are stored as a single record per club.

```
Contact details for clubs:
=====
Australian Stumpy Tail Cattle Dog
Denyse Adams                chredacds8@gmail.com
Lori Graham                 lgraham1145@gmail.com OR lgraham1145@yahoo.com
Kim McDonald               breezyacresstumpies@gmail.com
Kevin Nicholson            nicholson.klnicholson@gmail.com
American Bulldog
Katrina Huffmaste
American Leopard Hound
Jackie Carpenter           plott_dog@yahoo.com
Braque du Bourbonnais
Cindy Petkowitz            villagelock58@comcast.net
Bohemian Shepherd
Seraphina Wilde            bscnainfo@gmail.com
```

(20)

- Enter your examination number as a comment in the first line of the program file.
- Save your program.

TOTAL QUESTION 2: [49]

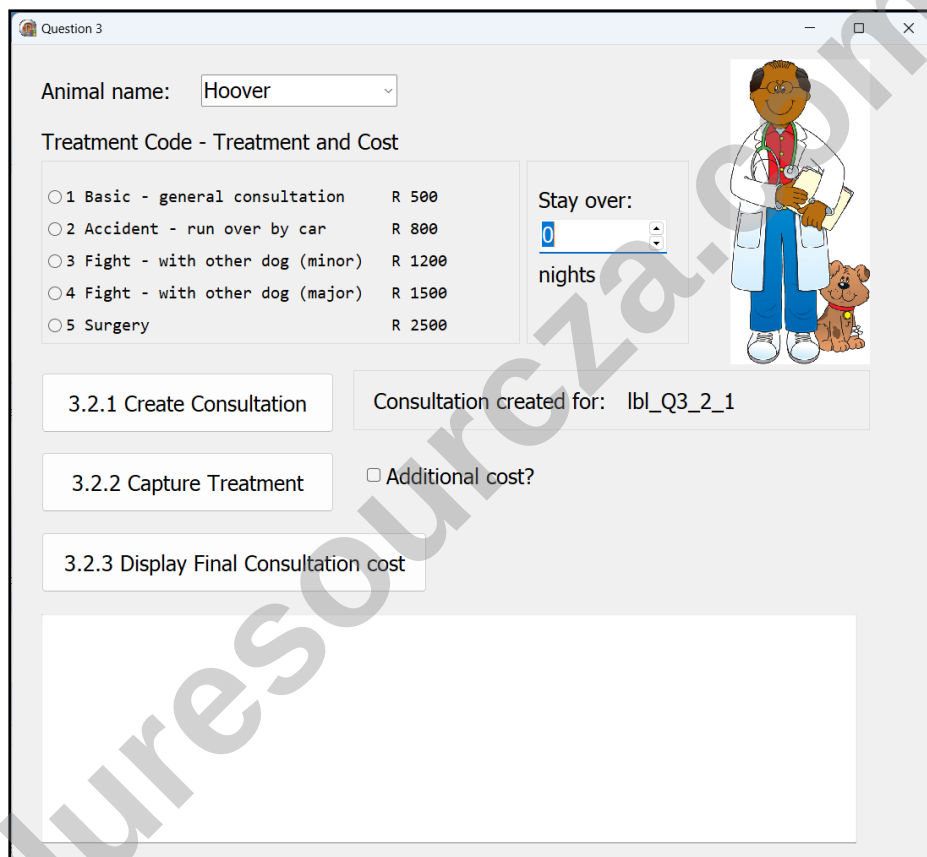
SECTION C

QUESTION 3 (Object orientated programming)

Open the incomplete **Question3_p.dpr** program in your **DATAJUN2024/Question 3** folder.

Visits to the veterinarian is recorded and the costs for an animal patient is calculated based on the treatment, additional costs (if any) and the number of nights of stay.

The following screen shot show the user interface (GUI):



- 3.1 An incomplete object class is saved in the **clsQuestion3_u** unit.
The following UML class diagram represents the incomplete **TAnimalConsultation** class:

TAnimalConsultation
- fAnimalName: string - fTreatmentDate: string - fTreatmentCode : Integer - fAmountDue: Real
+ create() + getAnimalName: string + setTreatmentCode(Integer) + CalculateBalance(Integer Boolean) + getAmountDue: Real + toString: string



Some notes on the attributes:

The **fAnimalName** field stores the name of the animal.

The **fTreatmentDate** field stores the system date as date of appointment.

The **fTreatmentCode** field stores the choice for the type of treatment as an integer.

1 Basic - general consultation	R 500
2 Accident - run over by car	R 800
3 Fight - with other dog (minor)	R 1200
4 Fight - with other dog (major)	R 1500
5 Surgery	R 2500

The given array:

arrTreatmentCost: array [1..5] of
Real=(500,800,1200,1500,2500);
stores the cost for a type of a treatment.

The **fAmountDue** field stores the amount due after the consultation and treatment have been completed.

Complete the code in the given class (**TAnimalConsultation**) as part of the **clsQuestion3_u** unit as described in QUESTION 3.1.1 to QUESTION 3.1.5.

3.1.1 Change and complete the code for the constructor named **Create** that will receive the animal's name as a parameter and:

- (a) Assign the passed name value to the corresponding name field.
- (b) Set the **fTreatmentDate** field to the current date.
- (c) Set the **fAmountDue** field to 0.

(4)

3.1.2 Write the code to create an accessor method named **getAnimalName** that will return the **fAnimalName** field.

(2)

3.1.3 Write the code for a mutator method named **setTreatmentCode** that receives an integer value as a parameter to be assigned to the **fTreatmentCode** field.

(3)



- 3.1.4 Write the code to create a method named **CalculateBalance**, to calculate and assign the amount due to the **fAmountDue** field.

This method receives:

- The number of nights, @ R350 per night, that the animal was kept at the clinic. (NumberOfNights)
- A Boolean parameter to indicate that additional costs must be charged.

Use an input box to enter any additional costs as a single amount.

Use the following formula to calculate the amount due:

(TreatmentCost (from array) + additional cost + overnight cost)
+ VAT

NOTE: The percentage for VAT is provided as a constant variable
(rVat = 15).

(7)

- 3.1.5 Write the code to complete the method named **ToString** to return a string in the following format:

Animal name: <animal name >
Appointment date: <appointment date>
Amount due: R<amount due>
=====

TAKE NOTE: The amount due should be formatted as a currency value.

(4)

- 3.2 Complete and code the following for the **Question3_u** main unit:

3.2.1 btnQ3_2_1 [3.2.1 – Create Consultation]

Write code to:

- Create an instance of the object **objConsultation** with the animal's name selected in the **cmbQ3_2** combo box.
- Call the appropriate method to return and display the name of the animal on the **lbl_Q3_2_1** label.

Example of output:

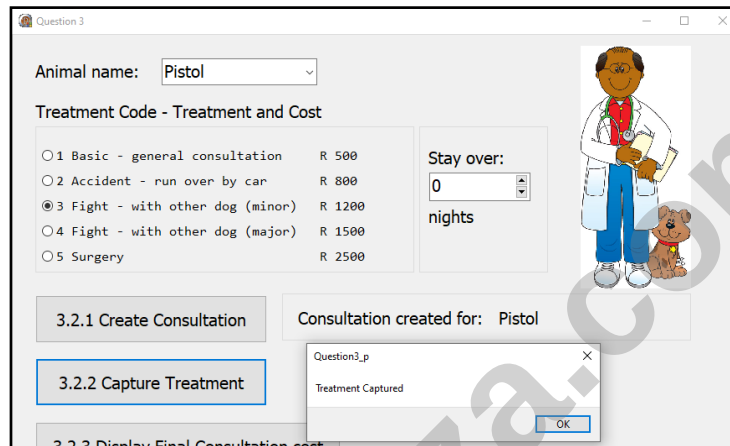
(3)

3.2.2 btnQ3_2_2 [3.2.2 – Capture Treatment]

Write code to:

- Call the applicable method to receive and assign the selected treatment code (1 – 5) from the radio group box.
- Show a message that the treatment has been captured.

Example of output:



(3)

3.2.3 btnQ3_2_3 [3.2.3 – Display Final Consultation cost]

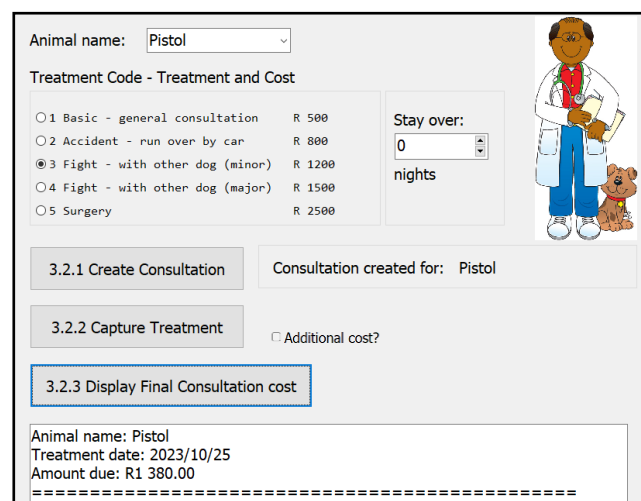
Write code to do the following:

- Call the CalculateBalance method with the status of the check box (checked or not) as argument.
- Populate the redQ3 rich edit with output by calling the appropriate methods.

Study the examples with input and corresponding output.

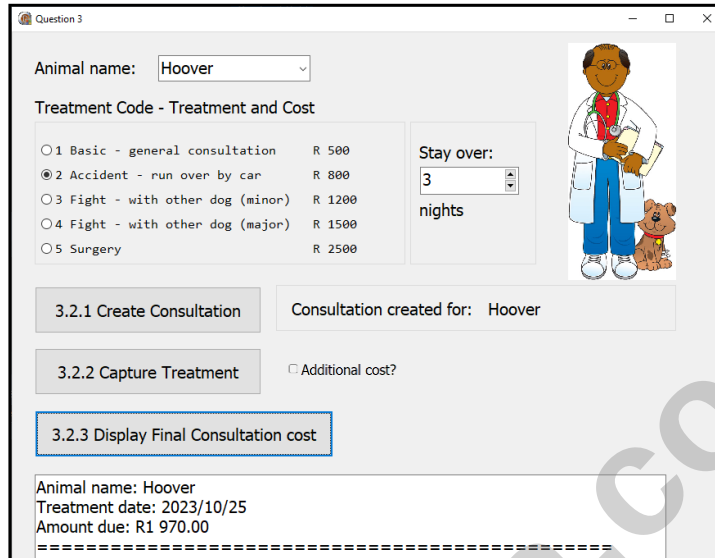
Example 1 - INPUT and OUTPUT:

In this example there was no extra cost, and the animal did not have to stay over.



Example 2 - INPUT and OUTPUT:

In this example there was no extra cost, but the animal had to stay over for three nights.



Question 3

Animal name: Hoover

Treatment Code - Treatment and Cost

☐ 1 Basic - general consultation	R 500
☒ 2 Accident - run over by car	R 800
☐ 3 Fight - with other dog (minor)	R 1200
☐ 4 Fight - with other dog (major)	R 1500
☐ 5 Surgery	R 2500

Stay over: 3 nights

3.2.1 Create Consultation Consultation created for: Hoover

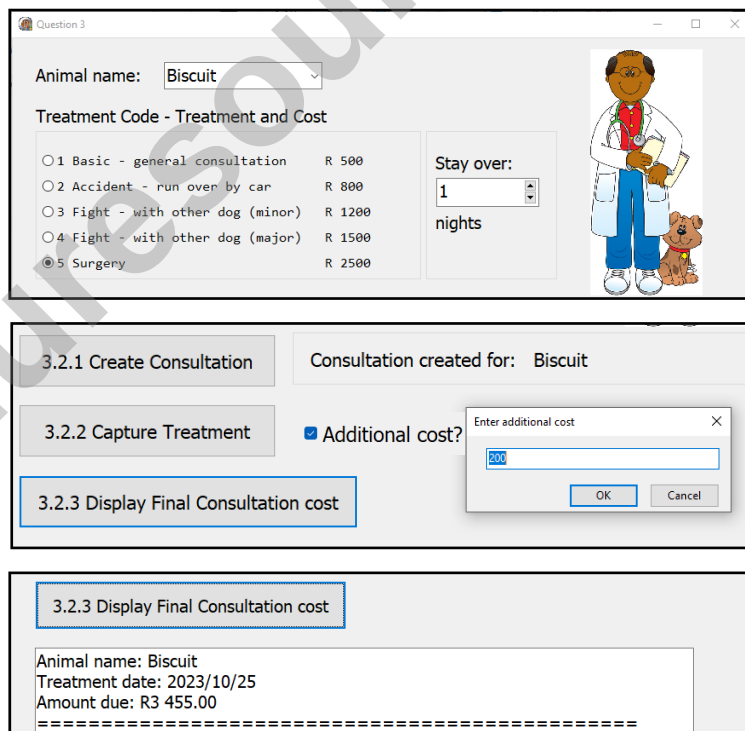
3.2.2 Capture Treatment ☐ Additional cost?

3.2.3 Display Final Consultation cost

Animal name: Hoover
Treatment date: 2023/10/25
Amount due: R1 970.00

Example 3 - INPUT and OUTPUT:

In this example there was R200 in extra cost, and the animal had to stay over for one night.



Question 3

Animal name: Biscuit

Treatment Code - Treatment and Cost

☐ 1 Basic - general consultation	R 500
☐ 2 Accident - run over by car	R 800
☐ 3 Fight - with other dog (minor)	R 1200
☐ 4 Fight - with other dog (major)	R 1500
☒ 5 Surgery	R 2500

Stay over: 1 nights

3.2.1 Create Consultation Consultation created for: Biscuit

3.2.2 Capture Treatment ☒ Additional cost?

Enter additional cost: 200

3.2.3 Display Final Consultation cost

3.2.3 Display Final Consultation cost

Animal name: Biscuit
Treatment date: 2023/10/25
Amount due: R3 455.00

(5)

- Enter your examination number as a comment in the first line of the object class and the form class.
- Save your program.

TOTAL QUESTION 3: [31]

SECTION D

QUESTION 4 (Problem solving and arrays)

The *Vigenère* cipher is a polyalphabetic encryption algorithm based on a shift cipher with a keyword.

The *Vigenère* cipher uses a 26×26 table with A to Z as the row heading and column heading. The column and row headings are used as part of the encryption and decryption process.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
C	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
D	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
E	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
F	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E
G	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F
H	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G
I	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H
J	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I
K	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
L	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K
M	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
N	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
O	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N
P	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Q	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
R	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
S	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
T	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
U	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
V	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
W	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
X	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Y	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Z	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y

The following declarations are provided:

```
arrVigenere: array [1 .. 26, 1 .. 26] of char;
```

```
arrLetters: array [1 .. 26] of char =
    ('A','B','C','D','E','F','G','H','I','J','K','L','M',
     'N','O','P','Q','R','S','T','U','V','W','X','Y','Z');
```

A keyword is used to decipher text.

Open the incomplete **Question4_p.dpr** program in your **DATAJUN2024/Question 4** folder.

Decrypted message:

I NAMED MY DOG FIVE MILES SO I C

Message to decrypt

J NRNMH NY UPO JJVV NQPFS JP Q G

KEY:

BARBIE

Repeating key

B ARBIE BA RBI EBAR BIEBA RB I EB

4.3 - Decrypt Message (Decypher)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
C	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
D	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z			
E	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z				
F	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z					
G	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z						
H	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z							
I	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z								
J	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z									
K	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z										
L	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z											
M	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z												
N	N	O	P	Q	R	S	T	U	V	W	X	Y	Z													
O	O	P	Q	R	S	T	U	V	W	X	Y	Z														
P	P	Q	R	S	T	U	V	W	X	Y	Z															
Q	Q	R	S	T	U	V	W	X	Y	Z																
R	R	S	T	U	V	W	X	Y	Z																	
S	S	T	U	V	W	X	Y	Z																		
T	T	U	V	W	X	Y	Z																			
U	U	V	W	X	Y	Z																				
V	V	W	X	Y	Z																					
W	W	X	Y	Z																						
X	X	Y	Z																							
Y	Y	Z																								
Z	Z																									

Example of output:

Message to decrypt

J NRNMH NY UPO JJVV NQPFS JP Q GBN KFTP QEFQTI J WRMS JJVV NQPFS VWMVZ DRZ

KEY:

BARBIE

4.2 - Generate Repeating Key

Repeating key

B ARBIE BA RBI EBAR BIEBA RB I EBA RBIE BARBIE B ARBI EBAR BIEBA RBIEB ARB

4.3 - Decrypt Message (Decypher)

Decrypted message:

I NAMED MY DOG FIVE MILES SO I CAN TELL PEOPLE I WALK FIVE MILES EVERY DAY

NOTE: The ASCII value for 'A' is 65, but you may use any solution.

For the second and third messages in the **IstQ4** listbox the key, CHARMANDER and ROOKIE must be used as keywords respectively.

- Enter your examination number as a comment in the first line of the program file.
- Save your program.

TOTAL QUESTION 4: [30]

GRAND TOTAL: [150]

INFORMATION TECHNOLOGY P1

DATABASE INFORMATION OF PETS.MDB FOR QUESTION 2:

The design of the database tables is as follows:

The Pets database consists of four tables i.e. Codes, Contacts, Customers and GeneralBreedInfo.

Design view of the Codes table:

Field Name	Data Type
GroupCode	Short Text
Group	Short Text
Grooming	Short Text
GrmgCode	Short Text
GrmgValue	Number
Shedding	Short Text
ShdngCode	Short Text
ShdngValue	Number
Energy	Short Text
EnrgCode	Short Text
EnrgValue	Number
Trainability	Short Text
TrnbltCode	Short Text
TrnbltValue	Number
Demeanor	Short Text
DmnrCode	Short Text
DmnrValue	Number

Partial content of the Codes table:

Codes															
GroupCode	Group	Grooming	GrmgCode	GrmgValue	Shedding	ShdngCode	ShdngValue	Energy	EnrgCode	EnrgValue	Trainability	TrnbltCode	TrnbltValue	Demeanor	
Fo	Foundation Stock Service	2-3 Times a We	Ti	0.60	Frequent	Fr		1.0	Calm	Ca	0.4	Agreeable	Ag	0.60	Alert/Respons
He	Herding Group	Daily Brushing	Da	0.80	Infrequent	In		0.2	Couch Potato	Co	0.2	Eager to Please	Ea	1.00	Alloof/Wary
Ho	Hound Group	Occasional Bat	Oc	0.20	Occasional	Oc		0.4	Energetic	En	0.8	Easy Training	Ey	0.80	Friendly
Mi	Miscellaneous Class	Specialty/Prof	Sp	1.00	Regularly	Re		0.8	Needs Lots of A	Ne	1	Independent	In	0.40	Outgoing
No	Non-Sporting Group	Weekly Brushin	We	0.40	Seasonal	Se		0.6	Regular Exercis	Re	0.6	May be Stubbor	Ma	0.20	Reserved with S
Sp	Sporting Group														
Te	Terrier Group														
To	Toy Group														

Design view of the Contacts table:

Field Name	Data Type
Code	Short Text
Club	Short Text
ContactName	Short Text
Phone	Short Text
Address	Short Text
Email	Short Text

Partial content of the Contacts table:

Code	Club	ContactName	Phone	Address	Email
A#Dog28	Australian Stum	Denyse Adams, Lori Graham, Kim McDonald, Kevin Nicholson			chredacds8@gmail.com, lgraham1145@gmail.com OR lgraham1145@yahoo.com, breezyacresst
A#dog50	American Bulld	Katrina Huffmaste	850-519-3089		
A#und24	American Leopi	Jackie Carpenter			plott_dog@yahoo.com
B#ais18	Braque du Bou	Cindy Petkowitz	(313) 881-8603	572 Hollywood,	villagelock58@comcast.net
B#erd90	Bohemian Shep	Seraphina Wilde			bscnainfo@gmail.com
B#mer8	Broholmer Club	Kathy Kimmeth	(920) 410-0142		ambersdogs@new.rr.com
C#cak43	Czechoslovak	Stacy McCrary			vlcaksusa@gmail.com
C#Dog37	Carolina Dog	C Lane Watkins			president@thecarolindogclubofamerica.com
D#dog2	Danish/Swedisl	Dorothy Herman			InfoFarmdogs.org
D#ond35	Drentsche Patr	Brian O'Connor	208-590-0027		dpcna.gundogs@gmail.com

Design view of the GeneralBreedInfo table:

Field Name	Data Type
GeneralBreedCode	Short Text
Breed	Short Text
Temperament	Short Text
Popularity	Number
Min_height	Number
Max_height	Number
Min_weight	Number
Max_weight	Number
Min_expectancy	Number
Max_expectancy	Number
GroupCode	Short Text
Grooming_frequency	Short Text
Shedding	Short Text
Energy_level	Short Text
Trainability	Short Text
Demeanor	Short Text
Description	Long Text

Partial content of the GeneralBreedInfo table:

GeneralBreed	Breed	Temperam	Popularity	Min_height	Max_height	Min_weight	Max_weight	Min_expecta	Max_expect	GroupCode	Grooming_fr	Shedding	Energy_level	Trainability	Demeanor
A#ak41	Azawakh	Loyal, Independ		59.69	73.66	14.97	24.95	12	15 Ho	We	Oc	Re	In	Fr	
A#Dog28	Australian Stumpy Tail Catti	Alert, Trainable,		43.18	50.80	14.51	20.41	12	15 Fo	We	Oc	En	Ey	Al	
A#dog50	American Bulldog	Loyal, Self-Conf		50.80	63.50	27.22	45.36	10	12 Fo	Oc	Se	En	Ag	Al	
A#dog69	Anatolian Shepherd Dog	Loyal, Independent	90	68.58	73.66	36.29	68.04	11	13 Wo	We	Se	Re	In	Re	
A#Dog70	American Eskimo Dog	Playful, Perky, Sn	122	22.86	48.26	2.72	15.88	13	15 No	We	Se	En	Ea	Ou	
A#Dog80	Australian Cattle Dog	Alert, Curious, Pl	55	43.18	50.80	15.88	22.68	12	16 He	Oc	Re	Ne	Ma	Re	
A#erd54	Australian Shepherd	Smart, Work, Or	17	45.72	58.42	18.14	29.48	12	15 He	We	Se	En	Ea	Al	
A#her27	Affenpinscher	Confident, Fanc	148	22.86	29.21	3.18	4.54	12	15 To	Ti	Se	Re	Ey	Ou	
A#iel20	American Water Spaniel	Eager, Happy, Ch	166	38.10	45.72	11.34	20.41	10	14 Sp	Ti	In	Re	Ea	Fr	
A#ier1	Australian Terrier	Affectionate, Co	140	25.40	27.94	6.80	9.07	11	15 Te	We	In	En	Ag	Fr	

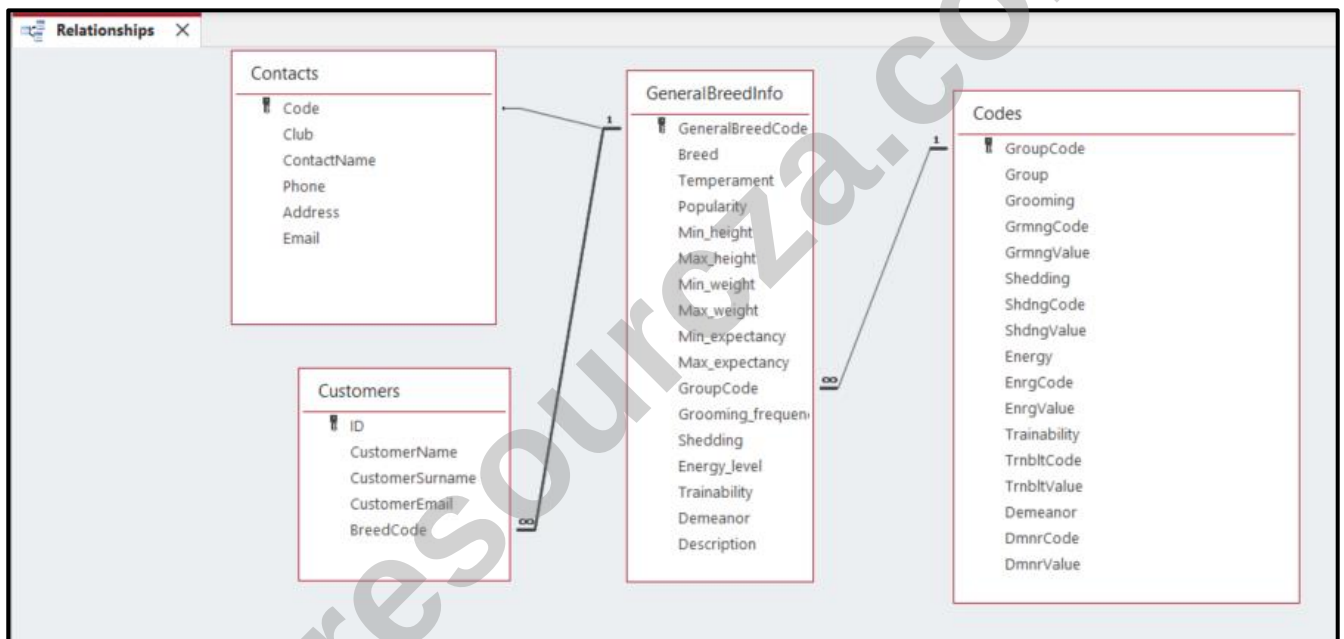
Design view of the Customers table:

Field Name	Data Type
ID	AutoNumber
CustomerName	Short Text
CustomerSurname	Short Text
CustomerEmail	Short Text
BreedCode	Short Text

Partial content of the Customers table:

ID	CustomerNa	CustomerSur	CustomerEmail	BreedCode
1	Aarav	Patel	PatelAar951@Gmail.com	S#iel6
2	Abigail	Bell	BellAbi702@Verizon.com	W#sla91
3	Abigail	Hall	HallAbi66@VerizonFios.com	K#Ken28
4	Aditya	Sharma	SharmaAdi99@Optimum.com	M#Cur43
5	Ahmed	Khalid	KhalidAhm907@CenturyLink.com	T#osa71
6	Aisha	Keita	KeitaAis208@Vodafone.com	Y#ika91
7	Aisha	Mansour	MansourAis614@Spectrum.com	I#und68
8	Aisha	Verma	VermaAis885@Rogers.com	E#Dog42
9	Alexander	Clark	ClarkAle841@Shaw.com	T#ier99
10	Ali	Farouk	FaroukAli505@TPG_Tel.com	E#und87

Relationship between tables:





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