Sample Case Study Specification

Vanessa's Veterinary Clinic

Technical Specification

1. In a class exercise you created the tables for the following script:

Vanessa the Veterinary Surgeon is looking for a database to record visits by her various animal patients. She is wishing to record the animals name, description, type of animal, breed, the owners name, address and phone details, as well as the details of each visit.

(a) Vanessa realises that each patient may visit many times.
(b) After Vanessa had used the database for a time, she asks that the database record the various medications used during each visit, and prescribed after each visit. She wants to record the name of the medication, description, supplier, cost, the quantity administered/provided, and whether it was administered during the visit, or prescribed after the visit. (There is a finite list of medications that Vanessa uses in her surgery).

2. Further discussions with the client provides you with the following facts:

Vanessa also indicated that much of her account keeping was currently managed by an existing accounting program. This new system should manage the clinic's client and medication records. Specifically:

- manage records for the animals clients and their owners
- manage records for client visits
- manage records for medications and prescriptions
- print out a client's visit details, including a list of the medications prescribed
- print out a list of those animals who were prescribed a given medication. State the total of the quantities prescribed for all animals. (A filter form is required)
- print out a list of medications prescribed in each month for a given year. (A filter form is required)

When asked how she would like to enter data, Vanessa suggested:

- She would enter all her medications into the database as soon as she received it, and after that, only when new medications came onto the market.
- She would add details of an animal and its owner into the database before adding the details of their visit.
- She would search for or add an animal and then select an existing visit or start a new one.
- She would add one or more prescribed medications after recording each of the visit details
- The visit could be printed for her 'hard copy' records just after it was added to the database.
- Other reports could be printed via the main menu.

Assignment requirements

3. In relation to Physical Database design, you are required to:

- Use research methods to identify the various DBMS options applicable to the development of a database that fits with this specification. Offer and justify a recommended option.
- Prepare an E-R diagram, complete Normalisation, and prepare a set of tables in Microsoft Access.
- Estimate the size of the database
- Identify an extended list of reports that might be required by the client.
- Identify appropriate security for the database system
- Identify the performance issues relating to the database
- Identify a reasonable backup strategy for the database system once in use by the client
- Identify appropriate audit trail requirements to be implemented within the database
- Prepare a detailed report presenting the results of your deliberations for each of the above dot points

4. In relation to Interface Design, you are required to:

- Complete extensive planning documentation for the application.
- Create a prototype database for Vanessa's Veterinary Clinic, conforming to the details given above. Include the following items:
  - A main menu for the application
  - Data Entry forms that would allow for expedient entry of clinic data.
  - Filter forms that would allow for the search sorting and filtering of data, where required.
  - Reports that present the information as specified above.
- Add sufficient data to the prototype such that sample reports can be produced.

5. Hand in:

- Your Physical Database Design report,
- Your Interface Design planning documentation,
- Printed screen images of ALL forms,
- Printed copies of your reports, and . . .
- Your prototype.

Sample Case Study Specification
Kevin's Kitchen

Technical Specification

1. Initial discussion:

Kevin of Kevin's Kitchen asks you to create a database for storing collections of recipes. Kevin would like the recipes to be categorised by various types such as meat dishes, entrees, desserts etc. Kevin would also like to categorise the recipes by meal time - breakfast lunch, dinner etc. Kevin would also like to identify vegetarian meals. Each recipe would have a title, a brief description, a photo, a procedure for creation, and a list of ingredients with quantities.

2. Further discussions with Kevin provides you with the following facts:

Kevin also indicated that:

- A system already existed within the business to manage customer orders and the business accounting.
- He would like to survey the customers after their meals to identify the acceptance of the various recipes. The surveys would require a couple of rating type questions and space for a customer's comment. The questions would need to be customised for individual recipes.

When asked how he would like to enter data, Kevin suggested that:

- Most of the recipes would be entered in once the system was operational. Additional menus and updates would be made as required.
- He would like to enter the steps for creating the recipe (the method) on individual lines so that he might be able to cut and paste them.
- He would like to be able to add, edit, change or delete questions for the various questionnaires. In this way he could customise the questionnaires as required.
- He would like to add the questionnaire questions on individual lines so that he might be able to cut and paste them also.
- He would like to be able to edit the standard questionnaire description, the standard instructions message, and the standard thank you message. The individual questionnaires would be titled with the name of the associated recipe.
- He would like the customers to enter their questionnaire responses on a PC located near counter (near the exit) so that they do not need to be retyped. The customer would select their meal from a list and then enter their responses.

When asked about other operational considerations, Kevin indicated that:

- He would like to have the database to work over a network. The main computer would be located in his office. Two or three PCs would need to go in the kitchen, so that the recipes could be viewed by the chefs while preparing meals. One PC could be placed near the exit to capture the customer feedback. The PC on the front counter, used to manage the business orders, is NOT to be linked to this network.
- In relation to security, the customers should not be able to view the recipes, not be able to access them from the computer. The whole system is to be password protected.

3. Significant Database reports:

Kevin indicated that he required:

- A print out of the individual recipes
- A print out of an individual questionnaire
- A summary report of the customer responses sorted by recipe and by the individual questions. The comments are to be included at the bottom of each recipe.

Assignment requirements

4. In relation to Physical Database design, you are required to:

- Use research methods to identify the various DBMS options applicable to the development of a database that fits with this specification. Offer and justify a recommended option.
- Prepare an E-R diagram, complete Normalisation, and prepare a set of tables in Microsoft Access.
- Estimate the size of the database
- Identify an extended list of reports that might be required by the client.
- Identify appropriate security for the database system
- Identify the performance issues relating to the database
- Identify a reasonable backup strategy for the database system once in use by the client
- Identify appropriate audit trail requirements to be implemented within the database
- Prepare a detailed report presenting the results of your deliberations for each of the above dot points

5. In relation to Interface Design, you are required to:

- Complete extensive planning documentation for the database application.
- Create a prototype database that fulfils Kevin's Requirements (as detailed in sections 1 and 2). Include the following items:
  - A main menu for the application
  - Data entry forms that would allow for expedient entry of data.
  - Filter forms that would allow for the search sorting and filtering of data, where required.
  - Reports that present the information as specified above.
- Add sufficient data to the prototype such that sample reports can be produced.

6. In relation to Create Code for Applications, you are required to:

- Create an IPO chart for the database
- Create a TOE chart for each of the screens
- Pseudo code for the non-trivial button or screen automation, including error and exception handling.
- An application map of the screens and reports
- A test plan for the application focusing on black and white box testing

7. Hand in:

- Your Physical Database Design report,
- Your Interface Design planning documentation,
- Your program code design (as specified in 6 above)
- Printed screen images of ALL forms,
- Printed copies of your reports, and . . .
- Your prototype.

Case Study Specification
Dave the DJ

Technical Specification

1. In a class exercise you created the tables for the following script:

Dave the D.J. asks you to create a database that stores the details of his records, tapes and CDs. In relation to the various music items he needs the database to store:

- the name of the album
- the artist
- the cost
- the type of media (record/tape/CD)
- the recording company
- the individual tracks - name and order on album
- the length of each track
- the songwriter of each track

2. Further discussions with the client provides you with the following facts:

Dave wishes to record the details of standard sets that he plays at particular types of events, such as weddings, 50's nights, theme parties, etc.

Specifically, Dave would like to store:

- The types of events (weddings, 50's nights, etc)
- The name of each set, identifying when it is likely to be played (eg: Before the Meal, After the Meal, Dance Set 1, Dance Set 2)
- A sequenced list of standard tracks played during each set
- An additional list of possible tracks that could be used during each set.

In terms of specialised automation, Dave has requested:

- That with all tracks in the two lists discussed above, quick access is required to the name and media type of the music item on which individual tracks are located.
- A utility to quickly find a track requested by a person at an event. This utility should allow searching by either track name or artist, and should provide the name and media type of the music item.
- Ability to quickly lock the database should he need to leave his post during an event.

3. Significant Database reports:

Dave indicated that he required:

- A print out of the details from an individual music item
- A print out of the suggested tracks grouped by 'set' for a specific event type

Assignment requirements

4. In relation to Physical Database design, you are required to:

- Use research methods to identify the various DBMS options applicable to the development of a database that fits with this specification. Offer and justify a recommended option.
- Prepare an E-R diagram, complete Normalisation, and prepare a set of tables in Microsoft Access.
- Estimate the size of the database and provide details of your calculations
- Create sample designs for four (4) reports that might be required by the client. (Two have been suggested on the previous page)
- Identify appropriate security for the database system
- Identify the performance issues relating to the database
- Identify a reasonable backup strategy for the database system once in use by the client
- Identify appropriate audit trail requirements to be implemented within the database

Prepare a detailed report presenting the results of your deliberations for each of the above dot points

5. In relation to Interface Design, you are required to:

- Complete extensive planning documentation for the application.
- Create a prototype database, conforming to the details given above. Include the following items:
  - A main menu for the application
  - Data Entry forms that would allow for expedient entry and review of data.
  - Filter forms that would allow for the searching, sorting and filtering of data, where required.
  - Reports that present the information as specified above.
- Add sufficient data to the prototype such that sample reports can be produced.

6. In relation to Create Code for Applications:

Complete the development (automation) of the database so that it performs all tasks requested by the client.

Add the necessary interface components, database tables, queries and/or code module(s) to allow the database to do **one** of the following:

- Manage a set of user names and passwords; and manage users logging into the database (ie: checking for valid user names and passwords in the list).
- Receive a registration code from the licensee and check that it is a valid code.

This additional component must be fully planned and documented with an interface design, IPO and TOE charts, pseudo code and internal documentation for all relevant components.

7. In relation to the Monitoring of the Physical Database Implementation:

With respect to sample data:

- Document a plan to add sample data to the database. Specifically document the order that the data must be added to the database.
- Develop or use a sample data generator to generate substantial sample data for the database.
- Populate the database with the sample data.

With respect to the database implementation and performance:

- Use the Microsoft Access analysing tool to review the design of your database. Document your findings, and outline suggested improvements with your design and/or implementation.
- Add the necessary interface components, database tables, queries and/or code module(s) to allow the database to monitor the number of search requests made during any given 'event'. Provide summary output that presents the number of search requests for a given event.
- Document the planning of this component - interface design, IPO/TOE charts, pseudo code etc.

8. Hand in:

- Your Physical Database Design report,
- Your Interface Design planning documentation,
- Printed copies of your reports,
- Your program design documentation,
- Your documentation for the monitoring of the physical database implementation, and…
- Your working database with a relatively **small** quantity of sample data.

9. Show your teacher:

- The database on a local hard drive with the substantial sample data loaded into it. You do **NOT** have to hand in a copy of the database with this data entered.