Unit 18
Database Design
To date

- Designed a relational database:
  - ERD
  - Normalisation
  - Final choices
  - Data dictionaries
  - Calculations

- Implemented a database for a customer (veterinary surgery)
  - > 5 tables (matching dictionaries)
  - Relationships
  - Populated
And...

- Simplified database for user (forms)
- Protected integrity of data (forms)
- Protected database structure (forms)
- Produced useful output for user (queries and reports)

These will only work if the database has been designed and initially set-up correctly
Testing

- All computing projects require thorough testing
- Reasonable testing would
  - Check all major functions
  - Check extreme cases
    - Queries involving the maximum number of tables
    - Queries involving the most conditions
  - Check error conditions
    - Where the inputs are bad
Sample data

- What is a reasonable amount of data to populate the tables?
- What conditions are you going to set up?
  - How many appointments?
  - How many prescriptions?
  - Owners with >1 pet
  - Pets with >1 appointment
  - etc
- What does the data look like?
Test plan

Purpose - confidence that:
- database is working correctly
- the customer cannot ‘break’ it
- The data will be accurate and complete
- The customer will be able to gain the information they need from the system

Set-up a testing table with all the tests you will carry-out
Some of the tests were carried out as you created the database; record them!
## Test plan

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Function tested</th>
<th>Test</th>
<th>Expected result</th>
<th>Actual result</th>
<th>Pass/fail</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Bill</td>
<td>Print bill</td>
<td>Bill for Streeter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Drugs prescribed</td>
<td>Select dog</td>
<td>1 result</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Date</td>
<td>Function tested</td>
<td>Test</td>
<td>Expected result</td>
<td>Actual result</td>
<td>Pass/fail</td>
<td>Problem</td>
</tr>
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<td>-------</td>
<td>--------------------</td>
<td>----------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>1</td>
<td>22/11/17</td>
<td>Bill</td>
<td>Print bill</td>
<td>Bill for Streeter</td>
<td>Bill printed</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>22/11/17</td>
<td>Drugs prescribed</td>
<td>Select dog</td>
<td>1 result</td>
<td>10 results</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>25/11/17</td>
<td>Drugs prescribed</td>
<td>Select dog</td>
<td>1 result</td>
<td>1 results</td>
<td>Yes</td>
<td>1</td>
</tr>
</tbody>
</table>
Problem logs

- Provides information about the problems occurring during the execution of the tests

<table>
<thead>
<tr>
<th>No</th>
<th>Test</th>
<th>Problem Description</th>
<th>Solution</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Drug selection error</td>
<td>Lists all dogs</td>
<td>Add a parameter query to the dog name field</td>
</tr>
</tbody>
</table>
User opinion

- The developer tests functionality.
- Only the user can say whether it meets their requirements
- Prepare a questionnaire for the vets/receptionists to answer
  - How easy is the database to use?
  - Can they find relevant information easily?
  - Can they easily add data?
  - What do they like?
  - What do they dislike?
To what extent do you agree with the following statement?

The database is well-presented and easy to understand.

1 = disagree completely, 7 = agree completely

Why do you say that?
P7 Test a relational database

- Test plan (table, 8 columns), minimum 12 tests
- Problem log (table, 6 columns)
- Retests shown in testing table
- Questionnaire for users (at least 6 questions)
- At least 3 users should complete questionnaire – record names
- Analyse questionnaire responses
  - Issues raised, what would you do about them
  - How could these issues have been avoided?
Write an evaluation of how your database meets the needs of the users. You should consider two cases: the receptionist and the vet. Make sure you discuss:

- The features you have incorporated specifically to assist the users (refer to A2!)
- How they will complete common tasks in the surgery using the database
- The strengths and weaknesses of your solutions (refer to questionnaire)
- How you could improve the database (refer to questionnaire)

You should aim to write 2 sides of A4