ICT701

Relational Database Systems

Task 2

Assessment and Submission Details

Marks: 30% of the Total Assessment for the Course

Due Date: as per Course outline

Submit your assignment to the link under Assessment->Task 2 on Blackboard. The submission link will be open a week before the due date. Please follow the submission instructions provided.

The assignment will be marked out of a total of 100 marks and forms 30% of the total assessment for the course. **ALL** assignments will be checked for plagiarism by SafeAssign system provided by Blackboard automatically.

Refer to your Course Outline or the Course Web Site for a copy of the "Student Misconduct, Plagiarism and Collusion" guidelines.

Assignment submission extensions will only be made using the official Faculty of Arts & Business Guidelines.

Requests for an extension to an assignment **MUST** be made to the course coordinator prior to the date of submission and requests made on the day of submission or after the submission date will only be considered in exceptional circumstances.

Background

Australia Zoo Wildlife Hospital (AZWH) is a charity organization that exists to treat and or care for sick, injured or orphaned wildlife. They are brought animals from across South East Queensland, and beyond, and are re-knowned for their specialization in both Koalas and Sea Turtles.

As a charity that operates separately from the main Australia Zoo company, the Zoo runs with very little funds. As part of an ongoing agreement between University of the Sunshine Coast and Australia Zoo Wildlife Hospital, we are re-developing their database systems.

Stage one is the Accession (admissions) system which stores information on who brought in the wildlife, where it was found, suspected injuries, initial triage and/or vet notes and what wildlife career if any the animal is assigned to for re-habilitation or care. Animals are brought for a large variety of reasons and sometimes multiple reasons, and the database is to record these and be able to query them.

The Wildlife hospital can see up to 6000-8000 admissions per year, and there is a large database of information that is maintained both for their own record keeping and for regulatory requirements set down by the State and Federal Governments. One such regulatory requirement is that all Koalas treated in Queensland are given a unique QPWS (Queensland Parks and Wildlife Service) identifier that must be maintained. A monthly report is generated to give to QPWS on these koalas and their treatment. Other wildlife such as birds can be either transferred in or out of AZWL, and as such may have more than one ID that the database needs to be able to store, recall and query.

In appendices of this document you fill find an example of a blank Australia Zoo Wildlife Hospital Accession form, a list of conditions that the animals may suffer, a partially completed form. These will form the basis of your universe of discourse. Sample data will be made available in or before in week 11 of semester (this is to have you consider your design before implementation).

User Requirements

- Every patient admitted has a unique patient id. If the patient is a koala, it will have also have a koala tag. It may have a microchip. Animals including, but not limited to, wallabies, kangaroos, and possums may have ear tags in one or both ears that uniquely identify them (The tags should have the same number but should be able to tell if one is missing). Turtles may also have a tag. Not all tag number formats will be the same (more info to come in the sample data).
- In addition to formal tags, some animals will have one or more alternate identifiers, being either a Queensland Parks and Wildlife identifier, or transfer from or to another facility such as Currumbin Wildlife Hospital, RSPCA, or Australia Zoo, these must all be maintained and searchable.
- Wildlife are grouped into types which represent both their ‘taxon’ and a macro-level grouping within that type, these are different per type. E.g:

```
Amphibian - Feral/Exotic
Amphibian - Native Frog
Avian - Domestic/Feral/Exotic
Avian - Other
Avian - Raptor
Avian - Seabird/Pelican
Avian - Waterbird
Canid
Eutherian - Bat - Flying Fox
Eutherian - Bat - Microbat
Eutherian - Domestic/ Feral
Eutherian - Marine mammal
Eutherian - Rodent
Fish
Marsupial - Bandicoot
Marsupial - Dasyurid
Marsupial - Koala
Marsupial - Macropod
Marsupial - Possum/Glider
Marsupial - Wombat
Monotreme
Reptile - Crocodile
Reptile - Feral
Reptile - Lizard
Reptile - Snake - Marine
Reptile - Snake - Terrestrial
Reptile - Turtle - Freshwater
Reptile - Turtle - Freshwater-Exotic
Reptile - Turtle - Marine
```

- In addition to type, animals are sorted into ‘breeds’, of which there are nearly 1000 in the current system. Each breed must be associated with exactly one ‘type’.
- All animal wildlife may be admitted more than once, if they are re-admitted their previous patient number should be re-used, along with the date they were re-admitted – all historical admissions should be maintained (and not over written).
- All animals may have a name, and a picture associated.(Hint: look at ‘MEDUIMBLOB’ type for the image! - also user TEXT for the notes on the accession form)
- DNA samples may be taken from the animals and results recorded in the database. This should be stored with the date/time the sample was taken, the date/time it was entered into the system, and the results of the sample analysis (for the results use the TEXT datatype).
- The database needs to record who brought in the animal, where it was found, including the regional or local council area it was found it – reports are generated for particular councils upon request. There should be a link between the postcode that the animal was found in and the local council it belongs to.
- A set of wildlife carers are maintained by the system. These are persons who have animals released into their care after acute treatment, but before they are able to be released back into the wild.
- **The system should be loss-less, no data should be over written.**
- Aetiology is the term used to describe the diagnosis categories for the wildlife. Animals can and will present with more than one aetiology. In addition, animals may be diagnosed with multiple diagnoses within a category – e.g. an animal may have multiple broken bones/anatomical issues.
- During treatment, the vets will put notes on the forms, this information should be

maintained where possible using searchable text fields (Use the TEXT datatype).

- A wildlife patient can be assigned a treatment, this could be multiple medicines, or particular surgery or other actions. For medicine, the system should allow the start and stop date of each medicine/treatment. A treatment will be uniquely identified for patient, accession, and date it was prescribed.
- Once the patient is improving it may be sent to a wildlife carer. Wildlife carers are part of carer groups. These groups must have a current permit, which has a permit number and an expiry date. The groups have particular specialisations. Within the groups, are a number of individual people that can be contacted.
- AZWH maintains a contact list – they have other hospitals, other zoos/wildlife parks, government departments, other organisations, wildlife carers, vets, researchers, volunteers and general public that have brought in a patient. For all contacts, AZWH maintains, their first name, last name, title/salutation, email, phone number(s), street address, suburb, state, country, postcode, and what sort of contact they are.

User Reports (Queries & Procedures)

For the purposes of your assignment you are to create queries or procedures (as specified below) for the following user reports. The `SELECT/CREATE PROCEDURE` statements should be in the main `.sql` file but separated by a comment showing which query it is. Eg. `# Query 2.a.i`

You should include the query used on your database design to get that data.

1. **`SELECT`**: List the patient id, accession number, animal name, and breed for all animals, sorted by animal type, that are currently being treated (where they have not been released, or sent to a carer or other facility).
2. **`PROCEDURE`**: Monthly report (this is multiple queries):
    a. list the total for all in-coming accessions in the previous calendar month grouped by
        i. Local government area
        ii. Taxon group
    b. List the total number of accessions for this month in the previous years.
3. **`SELECT`**: List all details for Carer Groups with an expired permit.

Specific Instructions

You are not to contact the hospital directly as this takes valuable resources away from treating the wildlife. All client communication is to be directed through the Course Coordinator.

You must use MySQL to develop the database. MS Access is not appropriate for any section of this assignment.

You must use the ER notation that was taught in ICT701. Penalties will apply to incorrect notations.

The database schema for your assignment should be submitted under an open-source royalty free license, this allows you to use the database in your portfolio when you are seeking work as well as allowing for further development of the database for AZWH. The license we have selected is CC-BY 4.0. Please include the comment text in Appendix E at the start of your `.sql` file. Please note that all data is copyright and owned by Australia Zoo Wildlife Hospital and is used with their permission for the purposes of this assignment. Further distribution of this data is not permitted.

Submission Format

For **Part A** you are to include a word document or PDF that contains:

- ER Diagram
- Relational Schema (including primary & foreign keys)
- Supplementary design requirements (e.g. any information on length of identifiers, postcodes, names, what data attributes are compulsory, structure and or format of any columns etc.)
- Assumptions that explain important design choices you made: for example: can a carer care for more than one animal at a time?

For **Part B** you are to submit

- A single plain text file, name `<studentNumber>_azwh.sql`. In this file you are to include all the SQL for your implementation. This includes:
  - The License agreement as seen in Appendix E.
  - `CREATE TABLE` statements including all integrity constraints, and actions on update and delete
  - `INSERT INTO` statements for populating the database (if this must happen in a particular order then make sure you order it appropriately!)
  - `SELECT` statements for the required demonstration queries.
  - `CREATE PROCEDURE` statements for the required procedures.
  - `CREATE INDEX` statements for the Accession and Patient tables.

Submission

The completed assignment is to be submitted to Blackboard by the due date.

The assignment will be assessed according to the marking sheet. Late submission will be penalised according to the policy in the course outline. Please note Saturday and Sunday are included in the count of days late.

Appendix A

Marking Sheet for ICT701 Task 2

Student name:

Student ID:

Items	Maximum Marks	Marks Obtained

PART A: DESIGN (40 marks made up of)
- ER Diagram (15 marks)
  o Completeness (participation & cardinality constraints & all relevant data represented)
  o Accuracy
- Relational Schema & normalisation (20 marks)
- Assumptions/Additional Information (5 marks)
	40	

PART B: IMPLEMENTATION (60 marks made up of)
- SQL STATEMENTS:
  o CREATE TABLE (10 marks)
  ▪ Consider data duplication & appropriateness of table design
  o Integrity Constraints (5 marks)
  o INSERT Statements (10 Marks)
  o QUERIES – (10 marks total)
  o PROCEDURES - (15 marks total)
  o INDEXs - (10 marks)
	60	

Total =	**100**	
		/30%

OVERALL COMMENTS:

Appendix B – Blank Accession form

WILDLIFE ACCESSION FORM

ACCESSION NUMBER 65209

AUSTRALIA ZOO WILDLIFE HOSPITAL

RESCUER DETAILS

Date Time admitted Name

Address

Home phone Mobile Email

ANIMAL DETAILS

Species Animal name How long in captivity?

Exact location of animal rescue (or as above)

Suburb Local govt area/shire

What situation did you find this animal in? ☐ In gutter ☐ On road ☐ Pets mouth ☐ Base of tree ☐ In tree

☐ In pool ☐ On fence ☐ In house ☐ On ground ☐ Other

What do you feel has happened to this animal?

Has animal been fed/medicated? ☐ No ☐ Yes, what? How long ago?

- I am releasing this animal for evaluation and proper care to Australia Zoo Wildlife Hospital, (who will endeavor to treat and care for the animal to the best of their ability).
- During treatment the patient may be transferred to a registered and qualified wildlife carer.
- I am aware that this animal may be humanely euthanised if deemed necessary.

Name Signature Date

Are we able to call you to release this animal? ☐ Yes ☐ No

Are you a registered wildlife carer? ☐ Yes ☐ No ☐ Group?

Would you like to become a wildlife carer? ☐ Yes ☐ No ☐ N/A

TRIAGE NOTES Triage nurses

VETERINARY DETAILS ONLY Veterinarian who treated animal

Species Sex Weight Age

SEND TO CARER: ☐ Yes ☐ No Date Carer

Vet Recheck date: Carer preference: Estimated time in care: ☐ <1wk ☐ >1wk ☐ <1mth ☐ >1mth

☐ Oral Meds ☐ Injectable Meds ☐ Topical Meds

☐ Place with a group of same species ☐ Cage rest ☐ Isolate ☐ Large Aviary ☐ Small Aviary ☐ Dry Dock ☐ In Pool ☐ Other

FINAL OUTCOME FOR THIS CASE Date

Appendix C – Accession Aetiology Categories

UPDATED CONDITIONS LIST

Date ..... ACC # ..... Animal name ..... Species.....

Vet ..... Updated outcome..... ☐Under vet care ☐With carer ☐Released ☐Other

Updated Diagnosis (anatomical)

1. Reproductive
2. Urinary tract/kidney
3. CNS/neurological
4. GIT
5. Respiratory
6. Musculoskeletal
7. Trauma - multi-organ
8. Skin/feathers/scales
9. Metabolic/nutritional
10. Sensory organ
11. Ocular
12. Haematopoietic
13. Endocrine
14. NAD

Updated Diagnosis (aetiology/specific)

☐Abscess
☐AIDS(?)
☐Alopecia
☐Amputation
☐Anaemia - babesiosis
☐Anaemia - chronic disease
☐Anaemia – other.....
☐Anaemia – trypanosomiasis
☐Arthritis - osteoarthritis
☐Arthritis - septic
☐Bacterial - Botulism
☐Bacterial - other.....
☐Bloat - ringtail possum
☐Burn.....
☐Cardiac disorder
☐Cataracts
☐Chlamydiosis - conjunctivitis
☐Chlamydiosis - cystitis
☐Chlamydiosis - other.....
☐Chlamydiosis - reprod. disease
☐Chlamydiosis - respiratory
☐Clearview test +ve
☐Clearview test -ve
☐Deformity
☐Degloving injury
☐Dental/periodontal disease/injury
☐Dermatitis .....
☐Diabetes
☐Diarrhoea - bacterial
☐Diarrhoea - nutritional
☐Diarrhoea - other/undiagnosed .....
.....
☐Diarrhoea - yeast
☐Eye injury
☐Eye - other .....
☐Fibropapilloma (turtle)
☐Foreign body (excl. internal tackle)
☐Foreign body ingestion (excl. tackle)
☐Fracture - beak
☐Fracture - clavicle
☐Fracture - coracoid
☐Fracture - jaw
☐Fracture - leg
☐Fracture - other.....
☐Fracture - pelvis
☐Fracture - ribs
☐Fracture - scapula
☐Fracture – shell
☐Fracture - skull
☐Fracture - spine
☐Fracture - wing
☐Fungal - Aspergillus
☐Fungal - Candida
☐Fungal - Chytrid
☐Fungal - Cryptococcus
☐Fungal – other.....
☐ Gastro-intestinal dysbiosis
☐Gastro-intestinal – other.....
.....
☐Gastro-intestinal obstruction
☐Gastro-intestinal trauma
☐Internal tackle
☐Joint injury
☐Koala flu
☐Leukaemia
☐Lorikeet paralysis syndrome
☐Lymphoma
☐Mesothelioma
☐Metabolic bone disease
☐Multi-organ/system failure
☐Myelodysplasia
☐Myopathy
☐NAD
☐Neoplasia - other.....
☐Neurological - other.....
☐Non-viable young
☐Nutritional disorder – milk intolerance
☐Nutritional disorder – other .....
.....
☐Osteochondroma
☐Other.....
.....
.....
☐Papilloma
☐Paralysis.....
☐Parasites - Toxoplasma
☐Parasitic - Angiostrongylus
☐Parasitic - blood
☐Parasitic - Coccidia
☐Parasitic - internal/intestinal
☐Parasitic - Other.....
☐Pneumonia - aspiration
☐Pneumonia - bacterial
☐Pneumonia - cryptococcus
☐Pneumonia - fungal
☐Pneumonia - other/unknown
☐Poisoning .....
☐Possum dermatitis
☐Pox
☐Reprod. Disease (not/unknown chlamydiosis related)
☐Renal disease .....
☐Renal disease - oxalate nephrosis
☐Sarcoma/carcinoma
☐Septicaemia
☐Soft tissue injury
☐Spinal disease (excl. fracture)
☐Trauma - membrane injury
☐Trauma – other.....
☐Typhlocolitis (koala)
☐Viral - KoRV(?)
☐Viral - lyssavirus
☐Viral - PBFD
☐Virus.....
other.....

Appendix D - Sample Partially Complete Accession Form

WILDLIFE ACCESSION FORM

ACCESSION NUMBER 65105

AUSTRALIA ZOO WILDLIFE HOSPITAL

DETAILS

02/APR/16

Address L N C

TO H

ANIMAL DETAILS

How ong in captivity?

Local govt area/shire

d a ☐ In gutter ☐ On road ☐ Pets mouth ☐ Base of tree ☐ In tree

☑ On ground ☐ Other

What do you feel has happened to this animal? Mum

Has animal been fed/medicated? ☒ No ☐ Yes, what? How long ago? N/A

- I am releasing this animal for evaluation and proper care to Australia Zoo Wildlife Hospital, (who will endeavor to treat and care for the animal to the best of their ability).
- During treatment the patient may be transferred to a registered and qualified wildlife car
- I am aware that this animal may be humanely euthanised if deemed necessary.

Name Signature Date 02/APR/16

Are we able to call you to release this animal? ☒ Yes ☐ No

Are you a registered wildlife carer? ☐ Yes ☐ No ☐ Group?

Would you like to become a wildlife carer? ☒ Yes ☐ No ☐ N/A

TRIAGE NOTES Triage nurses SO

Mother HBC yesterday - lady went back today & walked area. Heard mewing noise & found joey outside of pouch near mother - Couldn't give id other than wallaby - suspect red neck. Had since 5.30pm.

VETERINARY DETAILS ONLY Veterinarian who treated animal

Species Red Neck Wallaby Sex Male. Weight 880gr Age Juv

DAR 7-10% Dehydrated Able to withdraw all limbs.

2A iso 5% - 1.5% No injuries to head / fore limbs / abdo. Ⓡ Hind middle toe has # others & Ⓡ leg seem ok. RJ Bandage toe.

V Catheter placed Ⓡ lat tail vein 22g & 40ml bolus hartmanns given.

Started Plasmalyte 56 @ 2ml/pKg = 1.8mls per hour

nelbadone given @ 0.2mg/kg = 0.17mls @ 6.30pm To give 6hrly.

12.30am ☑ 6.30am ☑ as per SG.

Lactade feed 11pm ☑ Divet 1:40 @ 4hrly int 22mls ☑ 2am ☑ 6am

BG = 5.5mmol/L PCV/TP = 28/42.

END TO CARER: ☑ Yes ☐ No Date 7/4/16 Carer Lorna Mitchell

Vet Recheck date: Carer preference: Estimated time in care: ☐ <1wk ☐ >1wk ☐ <1mth ☐ >1mth

☑ Oral Meds Mirtz, clavulox, panshor ☐ Injectable Med s ☐ Topical Meds

☐ Place with a group of same species ☐ Cage rest ☐ Isolate ☐ Large Aviary ☐ Small Aviary ☐ Dry Dock ☐ In Pool ☐ Other

Date

Appendix E – Open Source License

To allow the further development of the Australia Zoo Wildlife Hospital, we're asking you to submit your assignment code under the Creative Commons Attribution 4.0 International License (CC-BY-4.0). Information on this license is available at: http://creativecommons.org/licenses/by/4.0/.

Please include the following comment at the start of your `<studentNumber>_azwh.sql` file.

```
/* Australia Zoo Wildlife Hospital Accession Database (c) by
<AUTHOR(S)>

Australia Zoo Wildlife Hospital Accession Database is licensed
under a
Creative Commons Attribution 4.0 International License.

You should have received a copy of the license along with this
work. If not, see <http://creativecommons.org/licenses/by/4.0/>.
*/
```

The CC-BY-4.0 license covers the code and design portion of the database. The sample data is owned and copyrighted by Australia Zoo Wildlife Hospital in conjunction with The University of the Sunshine Coast, and the use of the CC-BY-4.0 license and it s use in this assignment specification does not in any way diminish or reduce these ownership rights.

If making your SQL system available online through such systems as GitHub or BitBucket please remove the sample data and include the text file from http://creativecommons.org/licenses/by/4.0/legalcode.txt