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Data Types:**User**

Attribute	Data Type	Nullable
UserName	String	Not Null
Email	String	Null
Password	String	Not Null
StartDt	Date	Not Null
Name.FirstName	String	Not Null
Name.LastName	String	Not Null

Volunteer

Attribute	Data Type	Nullable
VolPhoneNum	String	Not Null
WorkDt	Date	Not Null
HoursWorked	Integer	Not Null

Species

Attribute	Data Type	Nullable
SpeciesName	String	Not Null
Capacity	Integer	Not Null

Breed

Attribute	Data Type	Nullable
BreedName	String	Not Null

AddAnimal

Attribute	Data Type	Nullable
AddedBy	String	Not Null

Animal

Attribute	Data Type	Nullable
AnimalID.Name	String	Not Null
AnimalID.SurrenderDt	Date	Not Null
SurrenderReason	String	Not Null
SurrenderByAnimalControl	Boolean	Not Null
Sex	String	Not Null
AlterationStatus	String	Not Null
Age.Years	Integer	Not Null
Age.Months	Integer	Not Null
Description	String	Not Null
MicrochipID	String	Null

AddVaccination

Attribute	Data Type	Nullable
VaccAddedBy	String	Not Null

Vaccination

Attribute	Data Type	Nullable
VaccinationID.AdministerDt	Date	Not Null
VaccinationID.ExpDt	Date	Not Null
VaccinationNum	String	Null

VaccineType

Attribute	Data Type	Nullable
Required	Boolean	Not Null
VaccineName	String	Not Null

Application

Attribute	Data Type	Nullable
AppID.Email	String	Not Null
AppID.AppDt	Date	Not Null
Applicant.AppFirstName	String	Not Null
Applicant.AppLastName	String	Not Null
CoApplicant.CoFirstName	String	Null
CoApplicant.CoLastName	String	Null
Address.Street	String	Not Null
Address.City	String	Not Null
Address.State	String	Not Null
Address.ZipCode	String	Not Null
PhoneNumber	String	Not Null

ApproveApplication

Attribute	Data Type	Nullable
Status	String	Not Null

AddAdoption

Attribute	Data Type	Nullable
AdoptionDt	Date	Not Null
AdoptionFee	Float	Not Null

Business Logic Constraints:

1. The shelter has limits based on the species (30 cats and 15 dogs). The species and limits are maintained by a DBA.
2. A DBA maintains User information.
3. A DBA also maintains volunteers' hours and dates worked at the shelter.
4. Breed: "Unknown" or "Mixed" may be chosen as the only breed.
5. An animal assigned multiple breeds should be displayed concatenated into a single value delimited by a forward slash (/) with the breed names sorted in alphabetical order
6. Sex can be "Male", "Female", or "Unknown". The sex can only be updated if the value is "Unknown"
7. Alteration Status – an animal cannot be adopted until it has been spayed or neutered. Possible values are "Neutered", "Spayed" or "Not Fixed".
8. When adding an animal, all attributes must be editable.
9. Each animal must receive all required vaccinations before it can be placed for adoption.
10. Adoptability Status – An animal can be adopted if it's been spayed or neutered and it has all required vaccinations and the adoption date is null.
11. A current animal can only have the values changed for sex (if "unknown"), microchip, and breed (only if "Unknown" or "Mixed" are current breed).
12. The system should not allow you to enter a vaccine that is not yet due for an animal or that they have already been given.
13. Vaccination Types are maintained in a separate table maintained by a DBA.
14. All adoption applications have a default state of "pending approval". Possible values are "pending approval", "approved", or rejected.
15. The system can only allow adding a species for which there is space available.
16. Breeds are maintained by a DBA in a separate table.
17. AdminUsers (Inge/ Inge's husband in the future) is the only role that can access Reports.

Task Decomposition:

Login

Task Decomposition

Lock Types: Read-only on [User](#) table

Number of Locks: Single

Enabling Conditions: None

Frequency: Around 200 logins per day

Consistency (ACID): Not critical, order is not critical.

Subtasks: Mother task is not needed. No decomposition

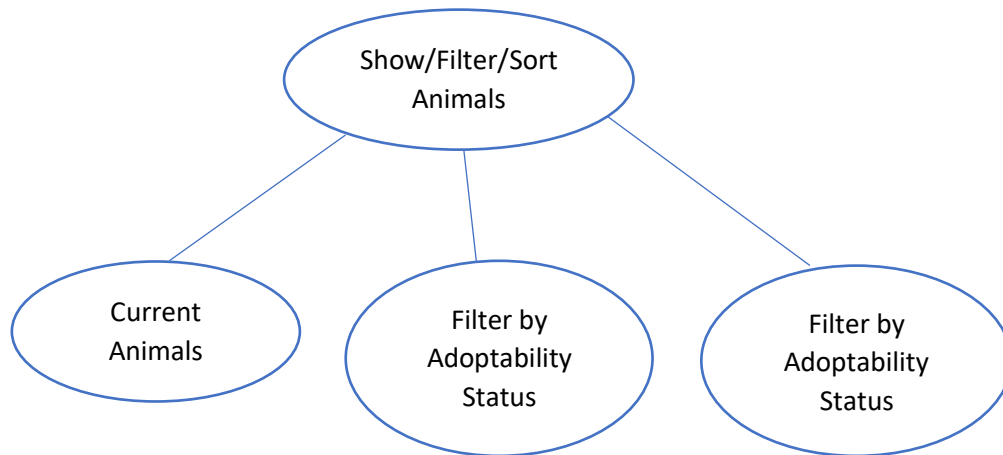


Abstract Code

- User enters *UserName* ('\$UserName') and *Password* ('\$Password') input fields
- If data validation is successful for both *UserName* and *Password* input fields, then:
 - When **Enter** button is clicked:
 - If User record is found but `User.Password != '$Password'`:
 - Display Login Form along with error message
 - Else
 - Store login information as session variable '\$UserName'
 - User is taken to the Animal Dashboard
- Else *UserName* and *Password* input fields are invalid. Display the Login Form along with error message

Animal Dashboard

Task Decomposition



Lock Types: Read Only on Animal table

Number of Locks: Several different schema constructs are needed

Enabling Conditions: Triggered by a user's successful login

Frequency: At least the number of logins and most likely more

Consistency (ACID): Available spaces and Adoptability status

Subtasks: Calculation of Adoptability Status and Available Spaces

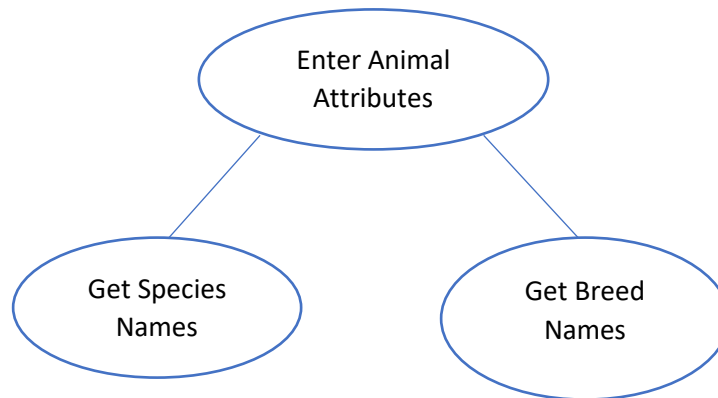
Abstract Code

- Run the **Animal Dashboard** task: query for information about all animals and their information stored in the database.
- **Animal Dashboard** initially displays all animals currently in the shelter.
 - Current Animals is derived.
 - If there has not been an adoption
 - [AddAdoption](#).AdoptionDt is missing for the animal
 - Show the following
 - [Animal](#).Name
 - [Species](#).SpeciesName
 - [Breed](#).BreedName
 - [Animal](#).Sex
 - [Animal](#).AlterationStatus
 - Adoptability Status
 - Adoptability status is derived.
 - If there is no [AddAdoption](#).AdoptionDt and the [Animal](#).AlterationStatus is "altered" and the required vaccinations have been performed, the adoptability status is "Adoptable"
 - Else the animal is "Not adoptable"

- Number of Available Spaces
 - Number of Available spaces is derived.
 - Subtract the [Species](#).Capacity from the number of animals without an adoption date for each species
 - If Number of Available spaces is greater than 0 and the role of the user is Employee/AdminUser then display Number of Available Spaces and the **Add Animal** link
 - If User clicks on **Add Animal** link, the **Add Animal Form** is displayed
- **Add Adoption Application** link will take any user to the **Add Adoption Application** form
- To perform the Filter task, the User will make their selections and click on the **Filter** link:
 - Select Adoptability Status from a drop down where the options are: Adoptable / Not Adoptable / View All (View All is Default Selection)
 - If Adoptable is selected, the **Animal Dashboard** will show animals with an Adoptability Status of Adoptable
 - If Not Adoptable is selected, the **Animal Dashboard** will show animals with and Adoptability Status of Not Adoptable
 - If View All is selected, there is no constraint on Adoptability Status
 - Select Species from a drop down where the options are: [Species](#).SpeciesName from a drop down populated by [Species](#) / View All (View all is Default Selection)
 - If a Species is selected, the **Animal Dashboard** will show animals where the Species is equal to that of the selection
 - If View All is selected, there is no constraint on Species

Add Animal Form

Task Decomposition



Lock Types: Read/Write to the Database

Number of Locks: Several different schemas are needed

Enabling Conditions: User's role is Employee/Admin and there is available space in shelter

Frequency: Low

Consistency (ACID): Checks must be made to ensure adequate space is available before committing animal to database

Subtasks: Dropdowns for Species and Breed need to populate.

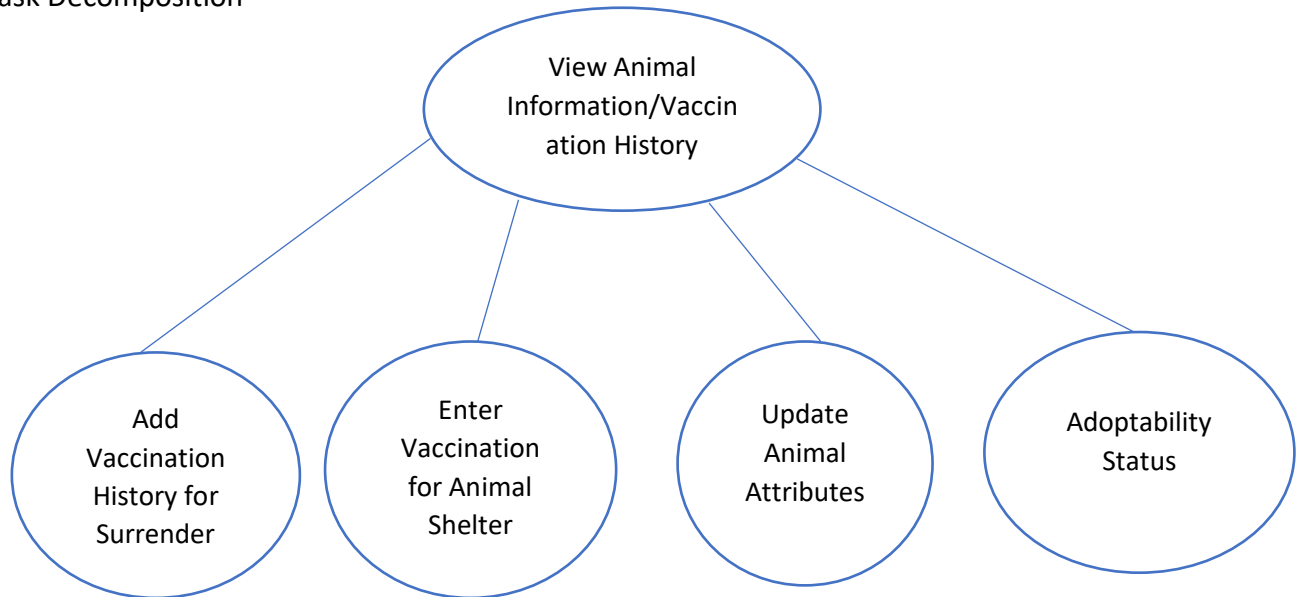
Abstract Code

- **Add Animal Form** is displayed after Employee/AdminUser clicks on the **Add Animal** link
- Data Entry – where user either enters the information or selects a value from a drop down
 - **Animal.Name**
 - **Species.SpeciesName**
 - Run the Get Species Name task to query the database to return a list of **Species.SpeciesName** (s) where the number of available spaces is greater than zero to a drop down
 - **Breed.BreedName**
 - Run the Get Breed Names task to query the database to return a list of **Breed.BreedName** (s) based on the selected Species
 - If user selects "Unknown" or "Mixed" the user is prevented from selecting multiple breeds
 - Else user can select multiple breeds
 - If multiple breeds are selected, they will be ordered alphabetically and separated by a "/" forward slash before being stored in the database
 - **Animal.Sex**
 - User can select one of three choices: "Male", "Female", "Unknown"

- [Animal.AlteratonStatus](#)
 - User can select one of three choices: “Neutered”, “Spayed”, or “Not Fixed”
- [Animal.Age](#)
 - Age.Years – the User must enter an Integer
 - Age.Months – the User must enter an Integer
 - Users are prevented from entering anything but an integer
- [Animal.Description](#)
- [Animal.MicroChipID](#)
- [Animal.SurrenderDt](#) (User must enter value in a date format. Default to current date)
- [Animal.SurrenderReason](#)
- [Animal.SurrenderedByAnimalControl](#) – True or False
- Upon Submission:
 - Verify the number of available spaces is greater than zero for the selected species.
 - If number of Available Spaces is equal to zero, then display message “At Capacity, there is no more room.” Cancel submission and close **Add Animal Form** Return to the **Animal Dashboard**
 - If a duplicate [Animal.MicrochipID](#) is entered into the system, display an error message, “Error: Microchip ID already exists in the system.” Cancel submission and return to the **Add Animal Form**.
 - All fields except [Animal.MicrochipID](#) must contain a value. If any fields contain null values, display an error message “Error: Field must contain a value.” Cancel submission and return to the **Add Animal Form**.
 - [User.UserName](#) will be sent to the [AddSurrender.AddedBy](#) field in the database
- Upon Successful submission of the **Add Animal Form**, the user will be taken to the **Add Detail Form** pass variable ‘[\\$Add_Animal](#)’ to the **Add_Detail_Form** page

Animal Detail Form

Task Decomposition



Lock Types: Lookup Animal and Vaccination History with ability up Add/Update information

Number of Locks: Several

Enabling Conditions: For animals not yet adopted, a volunteer can Update certain animal attributes. A volunteer can enter vaccinations for animals already in the shelter. Only those with the Employee/AdminUser role can add new surrenders(animals) and vaccination history

Frequency: low frequency – at least as much as new animals are entered into system

Consistency (ACID): An animal must exist in order to add vaccination history.

Subtasks: Mother task of viewing animal must be done prior to editing or updating subtasks. Order is not important.

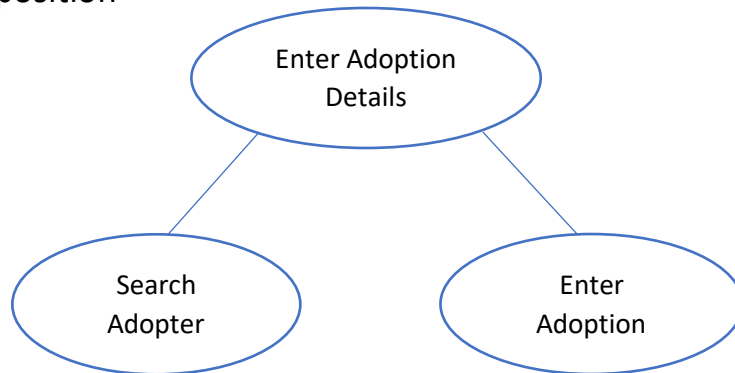
Abstract Code

- Employee/Admin is brought to the **Animal Detail Form** after successfully adding an animal via the **Add Animal Form**
- A user can also be brought to the **Animal Detail Form** after clicking on the animal's name, [Animal.Name](#) from the **Animal Dashboard**
- **View Animal Information/Vaccination History** task is run to display the specific information for the animal just entered or the animal that was clicked on
 - [Animal.Name](#)
 - [Species.SpeciesName](#)
 - [Breed.BreedName](#) (Formatted as described in **Enter Animal Attributes** task)
 - [Animal.Sex](#)
 - [Animal.AlterationStatus](#)

- [Animal.Age.Years](#)
- [Animal.Age.Months](#)
- [Animal.Description](#)
- [Animal.MicrochipID](#)
- [Animal.SurrenderDt](#)
- [Animal.SurrenderReason](#)
- [Animal.SurrenderByAnimalControl](#)
 - Find and display each Vaccination record for the selected animal
 - [VaccineType.VaccineName](#)
 - [VaccineType.Required](#)
 - [Vaccination.AdministerDt](#)
 - [Vaccination.ExpDt](#)
 - [Vaccination.VaccinationNum](#)
- Run Adoptability Status subtask to determine if the Animal is “Adoptable”. If Adoptability Status is Adoptable and the user is an Employee/AdminUser then display **Add Adoption** link
 - Run the Adoptability Status subtask when vaccination information is added or the alteration status changes. If status changes to “Adoptable”, display **Add Adoption** link for Employee/AdminUser
- Add Vaccination History task - If animal is a new surrender, ie. User is Employee/AdminUser and the variable exists, ‘\$Add_Animal’
 - Display **Add Vaccination** link
 - If user clicks on **Add Vaccination** link, the following input fields are displayed
 - Dropdown containing a list of eligible vaccines
 - Query for VaccineType.VaccineName by Species
 - Once selected, User enters
 - Vaccination.AdministerDt in valid date format
 - Vaccination.ExpDt in valid date format.
(Vaccination.ExpDt must be after the Vaccination.AdministerDt. If not, display error message: “Error: The Expiration Date or Next Dosage Date must fall after the date Administered”).
 - Vaccination.VaccinationNum

Add Adoption

Task Decomposition



Lock Types: Read/Write to the Database

Number of Locks: Several different schemas are needed

Enabling Conditions: User's role is Employee/Admin and there is available space in shelter

Frequency: Low

Consistency (ACID): Checks must be made to ensure adequate space is available before committing animal to database

Subtasks: Search for approved adopter in search dialog; Choose the right adopter and enter adoption

Abstract Code

- Employee/AdminUser clicks on **Add Adoption** from "Animal Detail" screen
- Run the **Enter Adoption Details** task: query for information about the adopter and their profile where \$AppLastName or \$CoAppLastName or both are one of the applicants' last name and the co-applicants' last name using the system from the HTTP Session/Cookie.
 - Find the right adopter using \$AppLastName or \$CoAppLastName or both. Display the right adopter's information with:
 - \$AppID.Email
 - \$AppID.AppDt
 - \$Applicant.AppFirstName
 - \$Applicant.AppLastName
 - \$CoApplicant.CoFirstName
 - \$CoApplicant.CoLastName
 - \$Address.Street
 - \$Address.City

\$Address.State

\$Address.ZipCode

\$PhoneNumber

- Employee/AdminUser confirm the right adopter then click adopter from the search result
- **Enter Adoption Details** with \$AdoptionDt, \$AdoptionFee
- Upon Successful submission of the **Enter Adoption Details**, \$AdoptionDt, \$AdoptionFee will be sent to the database

Add Adoption Application

Task Decomposition

Lock Types: None


Number of Locks: None

Enabling Conditions: None

Frequency: Low

Consistency (ACID): not critical, order is not critical.

Subtasks: Mother Task is not needed. No decomposition needed.



Add Adoption
Application

Abstract Code

- Users clicks on **Add Adoption Application** from “**Animal Dashboard**” screen
- Enter below into input fields:

\$AppID.Email

\$AppID.AppDt

\$Applicant.AppFirstName

\$Applicant.AppLastName

\$CoApplicant.CoFirstName

\$CoApplicant.CoLastName

\$Address.Street

\$Address.City

\$Address.State

\$Address.ZipCode

\$PhoneNumber

- Upon Successful submission of the **Enter Adoption Application**, the above information will be sent to the database.
- Display user application ID \$AppID assigned by the system.

Adoption Application Review

Task Decomposition

Lock Types: Read-only on [Application](#) table


Number of Locks: Several different schemas are needed

Enabling Conditions: None

Frequency: Low

Consistency (ACID): not critical, order is not critical.

Subtasks: Mother Task is not needed. No decomposition needed.



Add Adoption
Application

Abstract Code

- AdminUser clicks on **Adoption Application Review** link from “**Animal Dashboard**” screen
- Query for information where \$ApplicationStatus is “pending”. Click ***pending*** button to show all the results.
- Display a list of pending applications.
- AdminUser can click “***approved***” button or “***rejected***” button where \$Approve or \$Reject are request buttons using the system from the HTTP Session/Cookie.
- Upon Successful submission of the \$Approve or \$Reject, \$ApplicationStatus will be changed to “approved” or “rejected” in the database.

Reports

Task Decomposition

Lock Types: Read-only on to the database

Number of Locks: Several different schemas are needed

Enabling Conditions: None

Frequency: Low

Consistency (ACID): not critical, order is not critical.

Subtasks: Mother Task is not needed. No decomposition needed.



Abstract Code

- AdminUser clicks on **Reports** link from “**Animal Dashboard**” screen
- Display 4 links: ***Animal Control Report, Volunteer of the Month, Monthly Adoption Report, Volunteer Lookup, Vaccine Reminder Report***
- AdminUser can click ***Animal Control Report, Volunteer of the Month, Monthly Adoption Report, Volunteer Lookup, Vaccine Reminder Report***
- Upon successfully click of the above links, the system will run query and generate a report based on the format of the report.