openSAP

TOUCH IOT WITH SAP LEONARDO
PROTOTYPE CHALLENGE

PET SMART MONITOR PLATFORM
Platform to Collect and Analyze Your Pet's Vital Signs

Pet Smart Monitor Platform
This is an IoT Scenario for Prototype Challenge included as part of the openSAP course "Touch IoT with SAP Leonardo."

Story

Propose and Needs

- With this IoT prototype, we will establish a platform capable of receiving and analyzing the vital signs of great number of companion animals that have the same diseases. The aim is to apply a procedure similar to that exist in human medicine to the veterinary field.
- This prototype is of particular importance, because although there are already several tools in this area to collect this data, still does not exist a centralized platform with a significant number of clinical cases, so we can do studies about these diseases, according to the different species and breeds that present the respective symptoms and perform certain medical treatments.
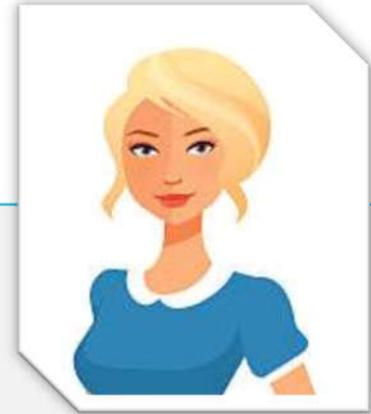
Context and Concepts

- Vital signs are measurements of the body's most basic functions like: body temperature, pulse rate, respiration rate and blood pressure;
- A pet or companion animal is an animal kept primarily for a person's company, protection, and entertainment like: dogs or cats (we are excluding the subcategory of exotic animals like: house rabbits, ferrets, rodents, avian pets, reptile pets, aquatic pets, arthropod pets, etc);
- Diseases are a particular abnormal condition, a disorder that affects the animal and in our case study are mainly related to cardiac and respiratory problems like: Hypertrophic Cardiomyopathy, Dilated Cardiomyopathy, Restrictive Cardiomyopathy, Myxomatous Mitral Valve Disease, Canine Infectious Rhinotracheitis, Congestive Heart Failure, Feline Respiratory Complex, Feline Asthma, Pneumonia, Bronchitis, etc.

Operating Mode

- The animals are identified by a veterinarian who considers them relevant for study. A device from the various existing manufacturers with proprietary software will be used to collect data. Through an API the data will be sent to our platform;
- The tutors of the identified animals can use the platform, directly in a browser or through an application that run on smartphones and tablets, optimized to appeal to its users with the principals of Fiori and UI5 experience. These data will be constantly monitored in order to prolong animal life time and allow adaptation and adjust of the medication if necessary;
- The veterinarians access exactly the same way, but instead of having access only to one animal's data, they will see data from various animals, from different clinics and veterinary hospitals. They will also have the social component where they can exchange ideas and studies of clinical cases with colleagues of profession. With this knowledge, they can write scientific articles and work directly with the pharmaceutical industry, laboratories and the rest of the ecosystem.

Anna - The Tutor

"The greatness of a nation can be judged by the way it treats its animals. Mahatma Gandhi"

About

- I´m 45 years old, married, and I've been a teacher for 22 years.
  - I have a dog called "Dog Marley", he is 9 years old and is a Dalmatian breed.
- My dog had heart disease for 1 year. The disease is Dilated Cardiomyopathy.

Responsibilities

- I am responsible for to provide adequate hygiene, food and health care to my dog.
- I am responsible for correct medication administration, if necessary.
- I am responsible for following all of my veterinarian's recommendations on the treatment prescribed for my dog.
- I commit to take my dog to the veterinary hospital whenever it is necessary.

Needs

- Establish normal ranges for all vital signs.
- Warning when vital signs are out of normal range.
- Sound an alarm in case of emergency.

Main Goals

- Understand if the treatment and medication is being performed correctly.
- Determine whether medication needs to be changed or adjusted.
- When a new visit to veterinary hospital is required.

Pain Points

- Normal variation of vital signs in different animals.
- Variation of vital signs if the animal is at rest, sleeping, or if it is more active, to play.
- Difficulty in interpreting the data obtained.

Elsa - The Veterinarian

"I like to work respecting the Code of Ethics of the profession and apply their knowledge to scientific and technological development for the benefit of health and animal welfare."

About

- I´m 32 years old, single, 8 years of experience in hospital environment.
- I have a dog called "Pluto" and a cat called "Garfield".
- I am communicative, organized and a good teamwork.
- I work with the other veterinarians, veterinarian nurses and veterinarian assistants.

Responsibilities

- I am responsible for internal medicine and cardiology specialty.
- Areas of interest: Cardiology, Imaging and Scientific Research.
- I'm a guest speaker at cardiology conferences.
- Member of the Portuguese Society of Veterinary Cardiology (SPCAV).

Needs

- Collection of data processed statically in charts and tables.
- Organization of vital signs by species, race, age and disease.
- Incidence and prevalence of the mentioned diseases in the population.

Main Goals

- Organization of data for the realization of scientific articles and presentation at congresses of the veterinary community.
- Determine if the recommended treatment and medication are appropriate to the animal clinical condition and the evolution of the disease.

Pain Points

- Normal variation of vital signs in different animals.
- Variation of vital signs if the animal is at rest, sleeping, or if it is more active, to play.
- It is not possible to determine whether the tutor has changed the animal's medication without consulting his veterinarian.

Point of View

Anna - The Tutor

- As a tutor I need a way to have a normal range for all vital signs, so that I can control and interpret the evolution of the clinical status of my pet.

- As a tutor I need a way to warn when vital sign is out of normal range, so that I realize that something is not right with my dog.

- As a tutor I need a way to put a sound alarm in case of emergency, so that I prepare to go to the hospital.

Elsa - The Veterinarian

- As a veterinarian I need a way to collection of data processed statically in charts and tables so that, I do data analysis easier and more effective.

- As a veterinarian I need a way to organize of vital signs by species, breed, age and disease, so that I associate the data and determine which diseases are most frequent in dogs and cats, which are the most predisposed breeds and at what age.

- As a veterinarian I need a way to measure an incidence, so that I determine the number of new cases of animals with heart or respiratory disease in the population, during a certain time.

- As a veterinarian I need a way to measure prevalence, so that I determine the number of animals with heart or respiratory disease in a population, during a certain time.

UX Journey

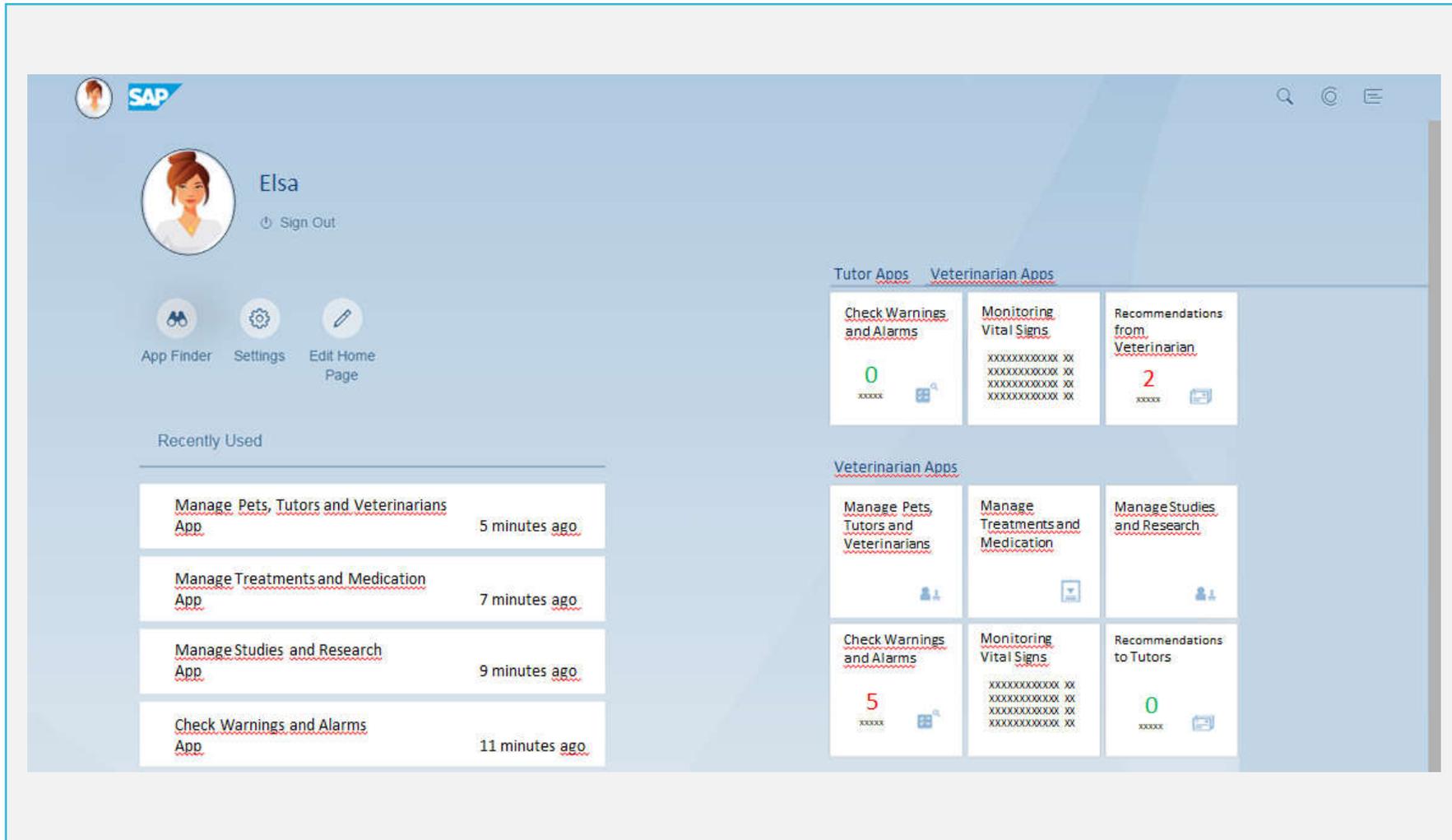|					
Tutor Actions	▪ Choose between PC, smartphone or tablet, and activate internet access.	▪ Login with username and password.	▪ Check if there exist any alarms or warnings.	▪ Compare daily data with the historic data.	▪ Check received recommendations from veterinarian.
Tutor Mindset	▪ I need to check the vital signs of my pet!	▪ Great I logged into this delightful app.	▪ Let me see if everything's ok. ▪ The values should be within what was expected.	▪ The veterinarian will be very glad to know that everything is fine with my pet.	▪ Oh, everything is Ok! I hope there are no changes in the current treatment!
Tutor Feeling	☺ 😐 😐 ☹	☺ 😐 😐 ☹	☺ 😐 😐 ☹	☺ 😐 😐 ☹	☺ 😐 😐 ☹
Tutor Touch Points	▪ Hold the device, and interact with the application startup.	▪ Hold the device, and interact with login menu.	▪ Hold the device, and interact with alarms and warnings menu.	▪ Hold the device, and interact with monitoring vital signs menu.	▪ Hold the device, and interact with recommendations from veterinarian menu.

UX Journey

Veterinarian Actions	▪ Choose between PC, smartphone or tablet, and activate internet access.	▪ Login with username and password.	▪ Check if there exist any alarms or warnings for all pets.	▪ Send new recommendations to tutors.	▪ Compare most recent data with the historic data, taking into consideration ongoing studies.
Veterinarian Mindset	▪ Finally the urgencies and the consultations ended. ▪ I can already dedicate some time to my researches.	▪ Great I logged into this delightful app.	▪ Before starting my research, let me validate if there is any alarm regarding the animals that I am following.	▪ Oh, one alarm! I have to change the current treatment for this pet and send a new recommendation to his tutor!	▪ Let's see if the new data collected confirm the trends and the studies that I am doing.
Veterinarian Feeling	☺ 😐 😐 ☹	☺ 😐 😐 ☹	☺ 😐 😐 ☹	☺ 😐 😐 ☹	☺ 😐 😐 ☹
Veterinarian Touch Points	▪ Hold the device, and interact with the application startup.	▪ Hold the device, and interact with login menu.	▪ Hold the device, and interact with alarms and warnings menu.	▪ Hold the device, and interact with treatments and medication menu. ▪ Hold the device, and interact with recommendations to tutors menu.	▪ Hold the device, and interact with monitoring vital signs menu. ▪ Hold the device, and interact with studies and research menu.

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Prototype

Prototype