

A circular wreath of various botanical illustrations surrounds the central text. The plants include green ferns, red and orange flowers, purple cornflowers, and large green leaves.

# "Shelley" - a voice operated tortoise care assistant

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for LT2319 Dialogue Systems 2

# INTRODUCTION



- Taking care of someone's pet:
  - Cat and dog care is relatively well known, what about exotic animals?
- Written and illustrated instructions:
  - Might be difficult to find the right information fast.
  - Cannot perform the actions and read simultaneously.
- Solution: voice operated app?

# THE TORTOISE TABLE



- Information about plant edibility from [The Tortoise Table](#):
  - No existing API.
  - Website's search option and URL make it easy to generate new search results
  - [Beautiful Soup](#) Python library for parsing HTML.
  - A list of all the plants on TTT for RASA training.
  - Search limitations (plurals do not always work).

# DATA COLLECTION



- Scenario:
  - Instructing the other person on how to take care of our pet.
- Collected material:
  - 2 dialogues, 9:25 minutes recording duration.
  - One dialogue is about tortoises, one is about dogs.
- Distillation and analysis results:
  - Instructions mostly follow some series of actions that need to be performed by the addressee.
  - Questions about the details of the actions are included, otherwise not much input from the User.

# IMPLEMENTATION



- TDM:
  - Two instructional plans, one external query (using the homemade API).
  - A variety of separate questions that are not hinted at by the system but could be asked by the user.
  - Visual input for the start menu and output for some of the steps.
- Query-handling:
  - Inserting the plant name elicited from the user into the URL.
  - Using the Beautiful Soup library to parse the result and extract information.

# SAMPLE DIALOGUES: INTERACTION TESTS



--- dialogue 1, part 1

S> Hi, I am Shelley, your tortoise care assistant. What can I help you with today?

U>

S> Do you want to know the daily schedule, know the bathing schedule or know plant edibility?

U> What do I feed?

S> Tortoises mostly eat grass and weeds, plants that would not be very nutritious to humans, like dandelions or clover. if you are unsure if a tortoise can eat a certain plant, you can always ask me.

--- dialogue 1, part 2

S> Hi, I am Shelley, your tortoise care assistant. What can I help you with today?

U>

S> Do you want to know the daily schedule, know the bathing schedule or know plant edibility?

U> When do I feed him?

S> You should feed the tortoise in the morning.



# SAMPLE DIALOGUES: INTERACTION TESTS



--- dialogue 1, part 4

S> Hi, I am Shelley, your tortoise care assistant. What can I help you with today?

U>

S> Do you want to know the daily schedule, know the bathing schedule or know plant edibility?

U> How is he bathed?

S> Baths are usually given on Saturdays. First you will need to get a large container that the tortoise cannot get out of and fill it with a bit of lukewarmwater.

U> Okay done.

S> Next gently place the tortoise in the water and pour some of the water over its shell. Leave the tortoise for a few minutes, but keep an eye out on it.

U> How?

S> Always use both of your hands to carry the tortoise, and provide support for its tummy. It might not be happy in the water, but the bath is important. Make sure that the tortoise has no problems keeping its head up above the water. It's okay if it drinks some of it. It is also fine to leave it there for a few minutes.

U> Okay, done.

S> Righty-o!

U>

S> In the meantime, make sure that the soil is evenly spread in the terrarium and that the decorations are in their right place. You can also clean the glass using an aquarium cleaning spray.

U> Done.

S> Now you should take a towel, take the tortoise out of the bath, and gently dry it, checking if its healthy at the same time.

U> Done.

S> Finally, gently place the tortoise back in its terrarium. Then pour out the bath water and tidy everything else up.

U> Done.

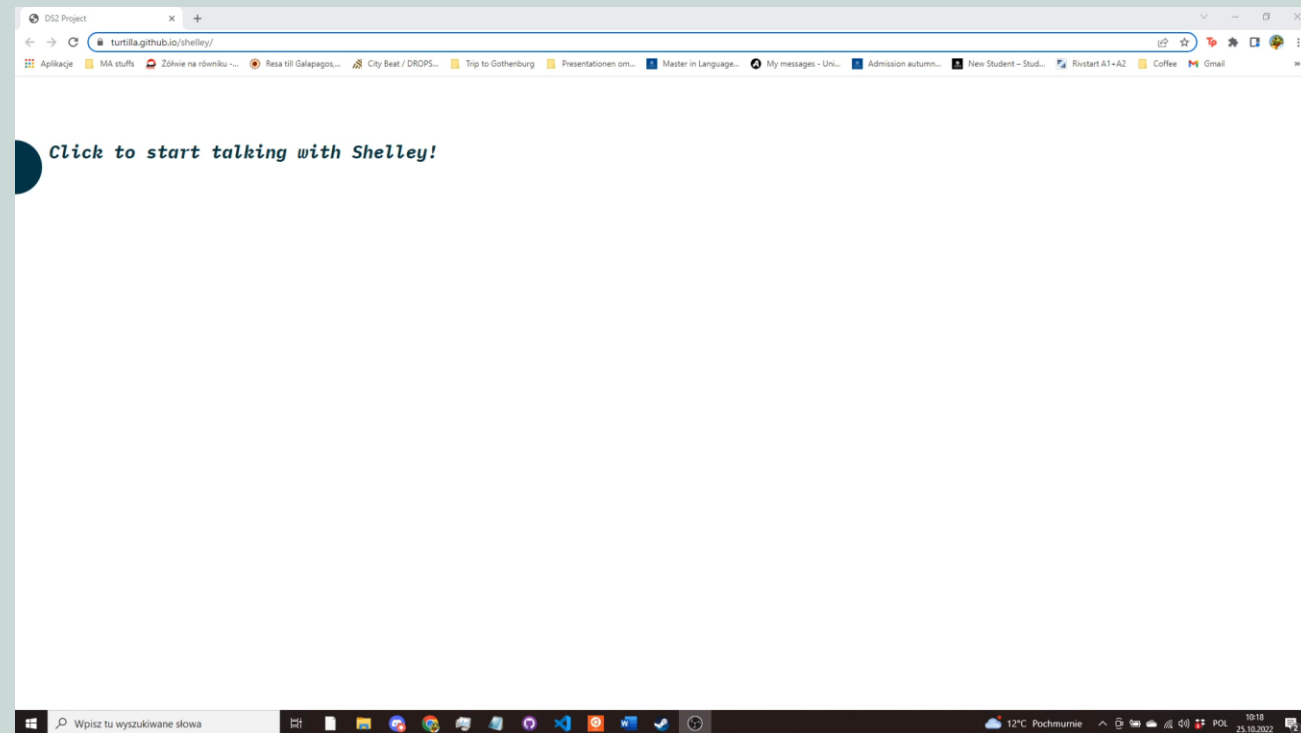
# SAMPLE DIALOGUES: FREE INTERACTION



```
turtilla@LAPTOP-R5DMFSM2:~$ kubectl exec -n gusszawma -it deploy/tdm -- tala interact http://pipeline/interact
Defaulted container "tdm" out of: tdm, ddds (init), tdm-build (init), okteto-bin (init), okteto-init-volume (init)
S> Hi, I am Shelley, your tortoise care assistant. What can I help you with today?
U>
S> Do you want to know the daily schedule, know the bathing schedule or know plant edibility?
U> Can I walk my tortoise
S> Where do you want to walk your tortoise, outside or inside?
U> I want to walk it inside
S> I'm sorry, but it's not a good idea to let your tortoise out in the apartment. the floors are not good for its legs,
and it can catch a cold.
U>
S> Returning to main menu. Do you want to know the daily schedule, know the bathing schedule or know plant edibility?
U> Can I pet the tortoise?
S> You can pet the tortoise gently on the shell or on the head, if you want. do not try to touch its legs, as that will
scare it. please be very gentle when petting the tortoise and don't do it too much.
U>
S> Returning to main menu. Do you want to know the daily schedule, know the bathing schedule or know plant edibility?
U> What does a tortoise eat?
S> Tortoises mostly eat grass and weeds, plants that would not be very nutritious to humans, like dandelions or clover.
if you are unsure if a tortoise can eat a certain plant, you can always ask me.
U>
S> Returning to main menu. Do you want to know the daily schedule, know the bathing schedule or know plant edibility?
```



# DEMO



# EVALUATION



- Evaluation scheme:
  - 3 people freely interacting with the system after receiving instructions.
  - SASSI-inspired questionnaire.
  - Technically challenging due to how the app is hosted/launched.
- Detailed results will follow in the report:
  - The system was deemed accurate, useful, pleasant, enjoyable, easy to learn.
  - The interaction with the system received mixed reviews: it was considered repetitive and sometimes frustrating or irritating.
  - In additional comments:
    - One person really liked the plant edibility functionality but missed captions for system utterances.
    - Another person wished there came a manual together with the system or the system could explain how it is used.

# DISCUSSION



- Ability to handle not only instructional dialogue but also a relatively large set of queries, including an external database, and topic switching.
- Freezing upon returning to the main menu after a long interaction.
- Relatively common issues with the plant edibility queries timing out (TDM limitation) or the system not being able to understand when a plant name outside of the list is mentioned (RASA limitation?).
- No greeting/introduction nor visual output such as captioned system utterances or images retrieved from an external database (frontend limitation).

# FUTURE WORK



- Introducing more variety to system utterances (alternatives for certain utterances like the initial question).
- Figuring out a way for including more visual interaction.
- Making the plant request function more robust, including plant images (dependent on other systems).
- Improving the visual side of the frontend to fit the theme better.



Thank you for your attention!

