Exercise

Create a ROS node in C++ that makes turtlesim move to a goal ([x, y] point). Goals will be published into a topic with the standard message format of 2D poses. Periodic feedback of turtle's pose must be provided using the same message type as the goals (see the last extra point). In addition, the motion of the turtle may be paused, resumed or reset by using a service.

Create an RQT Python UI to read a JSON file with a list of points that the robot must follow. This UI must provide the option of pausing, resuming and resetting the turtle's motion too.

Deliverable

- The code must be delivered in the provided Github repository, with clear instructions on how to build and execute the application.
- ROS Melodic with Ubuntu 18.04 must be used.

Extra points

- Show the pose of the robot in the browser using roslibjs.
- Add tests to the code that you created.
- Display the turtle's speed and pose in the Web interface.
- Modify the interface to be able to teleoperate the turtle (i.e. move the robot around arbitrarily).
- You can implement ROS actions to provide feedback from the turtle's pose.

General considerations

- You can ask as many questions as you need and make any suggestions as you wish both at the beginning and throughout the challenge.
- As a way to communicate throughout the process and deliver the final results, we request you please use the Github repository that we will provide.
- After you receive all the information we will ask you to propose a delivery date within approximately one week of the time the task is presented to you. That time and date can be negotiated to accommodate your needs.
- The prototype does not have to function completely, although it will add to the evaluation. It is extremely important that you present your work in a professional manner as you would do with a paying customer.
- We will schedule a final interview to coincide with your delivery date. During the technical interview you will have an opportunity to tell us how you approached the challenge and any details that you feel are relevant to share with us.