Lab3

Introduction to ROS - Summer 2022 - Innopolis University

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Homework discussion

Lidar demo

rqt + rviz

ROS Publisher & Subscriber (Exercise 1)

- Create any publisher and a subscriber for it
- Is it possible to create a publisher and a subscriber in the same source file? And why do we need that?
- Use rqt to visualize
- Use cli commands to debug what is happening

ROS Service & Client （Exercise 2）

- Let us create a client for std_srvs/Empty
  - Just print it is called!
- Let us create our own service and client (Start and stop → Factory)
  - Just print!
- Create simple custom service and see how to use it!

Extra exercise 1

- Write ROS nodes as publisher and subscriber to perform service-like behavior for doubling a number.
- https://answers.ros.org/question/298612/what-is-the-difference-between-publisher-subscriber-vs-server-client/

Source: https://github.com/hany606/ROS2-GSoD-OSRF-Task-2021 (Entry task for OSRF for GSoD)

Extra exercise 2

- Create a simple FSM
  - Create a custom message (4 numbers (float32): n1, n2, n3, res)
  - Input node (1st) take input (3 numbers) from the command line and publish them to one topic with the custom message (3 numbers and res=0)
  - Second node subscribes to that topic, then with each update, it needs to wait 1 second. Then adds these numbers together and publish the result to another topic.
  - Third node subscribes to that topic from the second node. It adds the result to the first number then multiply by the second number then divide by the third number.

Continue Extra exercise 2
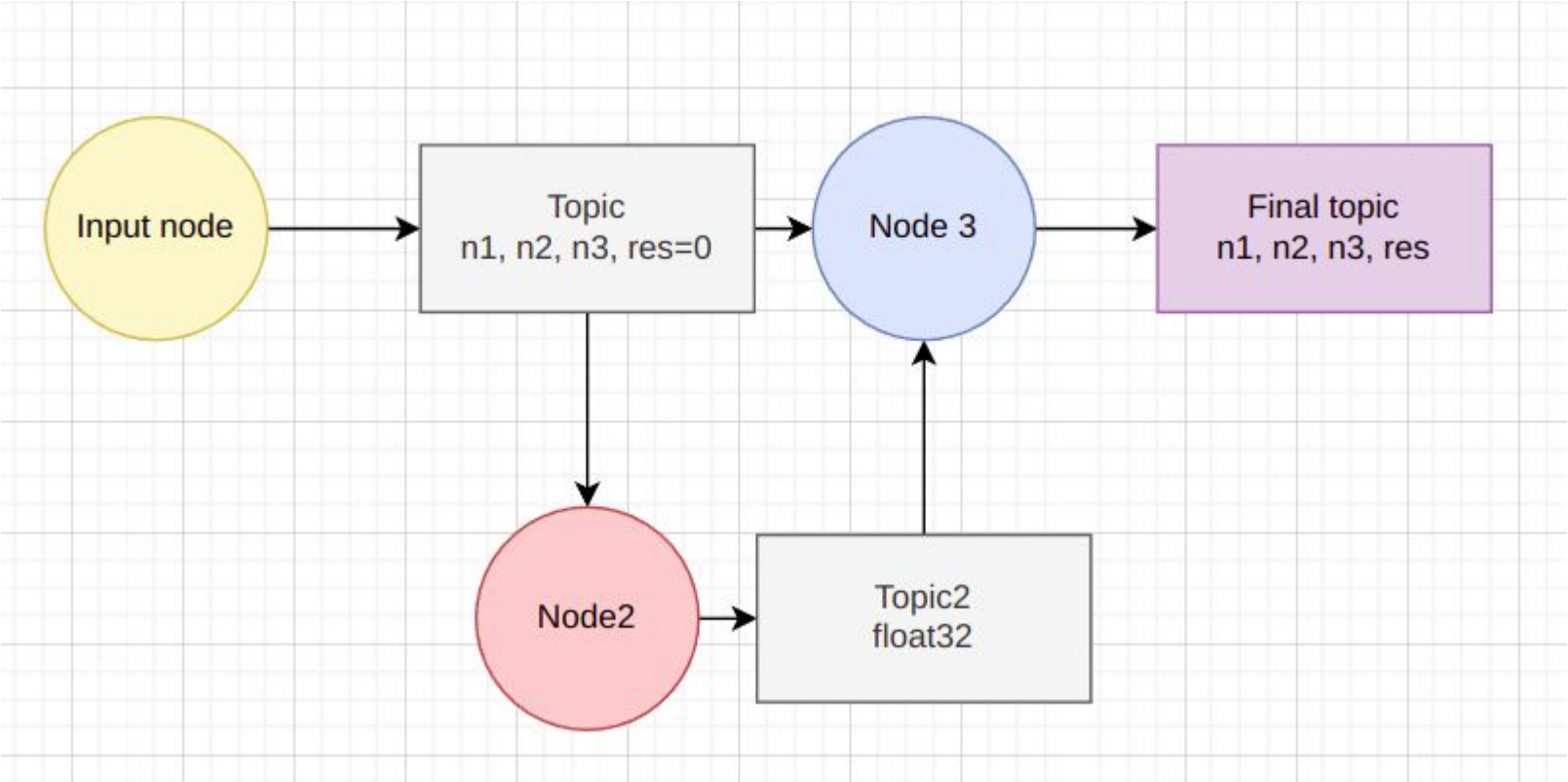
Extra exercise 3 (Extra 1 points)

- Create a publisher and a subscriber using classes
- https://roboticsbackend.com/oop-with-ros-in-cpp/

Extra exercise 4

- Google Summer of Code Challenge:
  https://github.com/hany606/JDE_Challenge-GSoC_2020/blob/master/C%2B%2B_Challenge/gsoc2020-c%2B%2B_test.pdf

Any Questions?