Lab 1 Part 1b

What is a ROS_DOMAIN_ID?

ROS2 uses Data Distribution Service (DDS) as a communication protocol. ROS_DOMAIN_ID is a kind of logical network in DDS that allows devices on the same domain to freely communicate with each other without disturbing or being disturbed by other devices.

What is a node?

Nodes are blocks of program that communicate with each other. Each node usually has a single purpose. Nodes communicate with each other by sending and receiving data from each other via topics or services.

What is a topic?

According to lecture, "Topics are named buses over which nodes exchange messages." Normally, once a node publishes data to a topic and this piece of data will be received by all subscribers of this topic. Topic is how the data is moved and distributed among nodes.

What is a message?

Messages are chunks of information exchanged in between nodes through topics.

What is a subscriber? Write the syntax to create a subscriber that subscribes to the topic amazing_int, which takes message of type UInt64, and uses the callback function magic_fun, in C++ or Python.

A subscriber is a node that receives messages via a topic.

Python Syntax:

```
self.subscription = self.create_subscription(Uint64, "amazing_int",
self.magic_fun, 10)
```

Code for the whole subscriber node: see file "subscriber&publisher.txt"

What is a publisher? Write the syntax to create a publisher that publishes to the topic amazing_bool, which takes message of type Bool, in Python.

A publisher is a node that sends messages via a topic.

Python Syntax:

```
self.publisher_=self.create_publisher(Bool, 'amazing_bool', 10)
```

Code for the whole publisher node: see file "subscriber&publisher.txt"

Can a node have multiple subscribers? Can a node have multiple publishers?

Yes, a node can have multiple subscribers and publishers. What's more, a node can be both a publisher and a subscriber at the same time. A node can publish and subscribe to many different topics.