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.