ROS Topics

- ROS Topics allow **unidirectional** communication between ROS Nodes.
- When using ROS Topics a ROS Node can be a **publisher**, **subscriber** or both.
- A ROS Node acting as a publisher can publish data on a ROS Topic and a subscriber ROS Node can subscribe to a ROS Topic.
- Publisher and Subscriber Nodes will exchange ROS Messages over a ROS Topic.
- A ROS Message is a simple data structure, comprising typed fields (integer, floating point, boolean, etc.). So a ROS Message can hold data of various data-types.
- Consider this analogy,
    - Let's say you are subscribed to a newspaper called *The Melodic* published by a publishing house called *OSRF*.
    - Every morning your paperboy *Jon Doe* will deliver this newspaper to you.
    - You like *The Melodic* because it has dedicated section on *sports* and *robotics* news.
    - In this analogy you can think,
        - `OSRF <--> ROS Publisher Node`

          OSRF which is publishing the newspaper as a Publisher Node.
        - `You <--> ROS Subscriber Node`

          You along with your neighbours who are subscribed to this newspaper as Subscriber Nodes.
        - `Jon Doe <--> ROS Topic`

          Your paperboy who is taking the newspaper from the publisher and delivering it to its subscribers as a ROS Topic.
        - `The Melodic Newspaper <--> ROS Message`

          The physical newspaper is your ROS Message.
        - `Sports and Robotics Sections of The Melodic <--> Data Fields defined in ROS Message`

          The sections of the newspaper is the Data Fields defined in the ROS Message.

Reading Assignment

1. ROS Wiki - Topic
2. ROS Wiki - Messages
