


## Problem 1: Defining MyMessage.msg

```
msg >  MyMessage.msg
1    bool isOnOrNot
2    int64 temperatureOfCPU
3    string nameOfRobot
```

## Problem 2: Publisher and Subscriber Code

```
#!/usr/bin/env python

import rospy
from aa274_s2.msg import MyMessage

def callback(data):
    rospy.loginfo(rospy.get_caller_id() + "I heard %s %s %s", data.isOnOrNot, data.temperatureOfCPU, data.nameOfRobot)

def subscriber():
    rospy.init_node('my_subscriber', anonymous=True)
    rospy.Subscriber("my_topic", MyMessage, callback)
    rospy.spin()

if __name__ == '__main__':
    subscriber()
```

```
#!/usr/bin/env python

import rospy
from aa274_s2.msg import MyMessage

def publisher():
    pub = rospy.Publisher('my_topic', MyMessage, queue_size=10)
    rospy.init_node('my_node', anonymous=True)
    rate = rospy.Rate(1)
    while not rospy.is_shutdown():
        my_message = MyMessage(True, 64, "Freddie")
        pub.publish(my_message)
        rate.sleep()

if __name__ == '__main__':
    try:
        publisher()
    except rospy.ROSInterruptException:
        pass
```

### Problem 3: Publisher and Subscribers are working

```
^Ctankevin@486e9319e115:~$ rosrn aa274_s2 publisher.py
^C
tankevin@3c8f6be96ef1:~/catkin_ws/src/aa274_s2/src/scripts$ rosrn aa274_s2 subscriber.py
[INFO] [1570579426.427056]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
[INFO] [1570579427.391427]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
[INFO] [1570579428.394438]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
[INFO] [1570579429.393371]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
[INFO] [1570579430.394272]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
[INFO] [1570579431.393550]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
[INFO] [1570579432.395038]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
[INFO] [1570579433.394083]: /my_subscriber_1633_1570579425162I heard True 64 Freddie
```

### Problem 4: ROS Commands

```
tankevin@40ee9fe8afbc:~/catkin_ws$ rostopic list /my_topic
/my_topic
tankevin@40ee9fe8afbc:~/catkin_ws$ rostopic echo /my_topic
isOnOrNot: True
temperatureOfCPU: 64
nameOfRobot: "Freddie"
---
isOnOrNot: True
temperatureOfCPU: 64
nameOfRobot: "Freddie"
---
isOnOrNot: True
temperatureOfCPU: 64
nameOfRobot: "Freddie"
---
^Ctankevin@40ee9fe8afbc:~/catkin_ws$ rostopic hz /my_topic
subscribed to [/my_topic]
no new messages
average rate: 1.002
    min: 0.998s max: 0.998s std dev: 0.00000s window: 2
average rate: 1.001
    min: 0.998s max: 1.001s std dev: 0.00134s window: 3
^Caverage rate: 1.001
    min: 0.998s max: 1.001s std dev: 0.00112s window: 4
```

Problem 5: Inside the SSH'd machine

- (a) There are 6 GPUs
- (b) The machine has 257589 MB of RAM (257.589 GB) of RAM
- (c) There are 64 CPU cores
- (d) It runs Python 2.7.12