

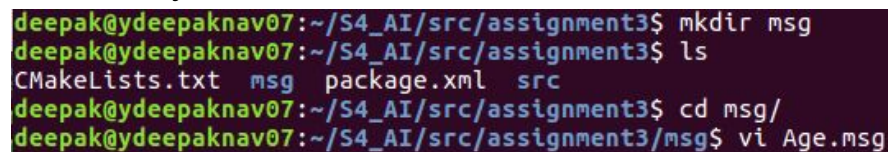
19AIE213 Robotic Operating Systems & Robot Simulation

Assignment - 3

Deepak Yadav
AM.EN.U4AIE19024

- 1) Create a new custom message "Age.msg". The Age.msg file must contain this:
float32 years
float32 months
float32 days
ans)

```
#Age.msg  
float32 years  
float32 months  
float32 days
```



```
deepak@ydeepaknav07:~/S4_AI/src/assignment3$ mkdir msg  
deepak@ydeepaknav07:~/S4_AI/src/assignment3$ ls  
CMakeLists.txt  msg  package.xml  src  
deepak@ydeepaknav07:~/S4_AI/src/assignment3$ cd msg/  
deepak@ydeepaknav07:~/S4_AI/src/assignment3/msg$ vi Age.msg
```

```
#subscriber_n.py  
#!/usr/bin/env python
```

```
import rospy  
import time  
from assignment3.msg import Age
```

```
def callback(msg):  
    print 'Year : ',msg.years  
    print 'Month : ',msg.months  
    print 'Day : ',msg.days  
    print
```

```
rospy.init_node('listener', anonymous=True)
```

```
Sub=rospy.Subscriber('counter', Age, callback)
```

```
rospy.spin()
```

```
#publisher_n1.py
```

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

```
import rospy
```

```
from assignment3.msg import Age
```

```
from random import random
```

```
rospy.init_node('message_publisher1',anonymous = True)
```

```
pub=rospy.Publisher('/counter', Age,queue_size=10)
```

```
rate = rospy.Rate(2)
```

```
while not rospy.is_shutdown():
```

```
    msg = Age()
```

```
    msg.years = random()
```

```
    msg.months = random()
```

```
    msg.days = random()
```

```
    pub.publish(msg)
```

```
    rate.sleep()
```

```

^Cdeepak@ydeepaknav07:~/S4_AI/src/assignment3/src$ rosrn assignment3 subscriber
.py
Year : 0.762960493565
Month : 0.0848058611155
Day : 0.14324118197

Year : 0.889137625694
Month : 0.945751368999
Day : 0.693825006485

Year : 0.309391260147
Month : 0.526871681213
Day : 0.45539611578

Year : 0.0667999461293
Month : 0.165329918265
Day : 0.0076934909448

Year : 2.41359521169e-05
Month : 0.655633091927
Day : 0.328779399395

```

#publisher_n2.py

#!/usr/bin/env python

import rospy

from assignment3.msg import Age

from random import random

rospy.init_node('message_publisher2',anonymous = True)

pub=rospy.Publisher('/counter', Age,queue_size=10)

rate = rospy.Rate(2)

while not rospy.is_shutdown():

 msg = Age()

 msg.years = random()

 msg.months = 20

 msg.days = random()

 pub.publish(msg)

 rate.sleep()

```
^Cdeepak@ydeepaknav07:~/S4_AI/src/assignment3/src$ rosrn assignment3 subscriber
.py
Year : 0.0644756779075
Month : 20.0
Day : 0.387118637562

Year : 0.904603779316
Month : 20.0
Day : 0.771981060505

Year : 0.505510032177
Month : 20.0
Day : 0.561426103115

Year : 0.139324247837
Month : 20.0
Day : 0.552336335182

Year : 0.304402470589
Month : 20.0
Day : 0.018725829199
```

2) Create a launch file that launches the above three nodes
ans)

#launcher.xml

```
<launch>
<node name='message_publisher1' pkg='assignment3'
type='publisher_n1.py' />
<node name='message_publisher2' pkg='assignment3'
type='publisher_n2.py' />
<node name='listener' pkg='assignment3' type='subscriber_n.py'
output='screen' />
</launch>
```

```
process[message_publisher1-1]: started with pid [10308]
process[message_publisher2-2]: started with pid [10309]
process[listener-3]: started with pid [10310]
Year : 0.376771390438
Month : 0.37295410037
Day : 0.64294975996

Year : 0.396209508181
Month : 20.0
Day : 0.199241608381

Year : 0.846898972988
Month : 0.355615824461
Day : 0.489595711231

Year : 0.859057664871
Month : 20.0
Day : 0.133777230978

Year : 0.328739523888
Month : 0.0467116720974
Day : 0.05225931108
```