

Exercise - 2

21_AIE_213

Robotics operating System– SEM-IV
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a) The number_count topic output to the terminal using ros2 topic echo/number_count without reset.

The screenshot shows three terminal windows. The leftmost window displays the output of `ros2 topic echo /number_count`, showing a sequence of values from 988 to 1824. The middle window shows the output of `rt SetBool`, displaying a list of values for the `number_count` topic, ranging from 1520 to 3192. The rightmost window shows the output of `colcon build`, indicating that two packages were built successfully.

```
leagueflyer@leagueflyer: ~  
leagueflyer@leagueflyer:~$ ros2 topic echo /number_count  
data: 988  
---  
data: 1064  
---  
data: 1140  
---  
data: 1216  
---  
data: 1292  
---  
data: 1368  
---  
data: 1444  
---  
data: 1520  
---  
data: 1596  
---  
data: 1672  
---  
data: 1748  
---  
data: 1824  
---  
> resource  
> test  
package.xml  
setup.cfg  
setup.py  
my_robot_interfaces  
18 def call[INFO] [1681758132.629722695] [number_count]: 1520  
19 res[INFO] [1681758133.629914186] [number_count]: 1596  
20 sel[INFO] [1681758134.628938498] [number_count]: 1672  
21 [INFO] [1681758135.629104062] [number_count]: 1748  
22 def main(ar[INFO] [1681758136.629087202] [number_count]: 1824  
23 rclpy.i[INFO] [1681758137.640455805] [number_count]: 1900  
24 #Code [INFO] [1681758138.632422953] [number_count]: 1976  
25 node = ResetCounterClient()  
26 rclpy.spin(node)  
27 rclpy.shutdown()  
28  
29 if __name__ == "__main__":  
30 main()  
17038 [number_count]: 2052  
15586 [number_count]: 2128  
15521 [number_count]: 2204  
17170 [number_count]: 2280  
18585 [number_count]: 2356  
18443 [number_count]: 2432  
18602 [number_count]: 2508  
11123 [number_count]: 2584  
18644 [number_count]: 2660  
18979 [number_count]: 2736  
16680 [number_count]: 2812  
12977 [number_count]: 2888  
18237 [number_count]: 2964  
15541 [number_count]: 3040  
18517 [number_count]: 3116  
18517 [number_count]: 3192  
leagueflyer@leagueflyer:~$ colcon build  
Starting >>> my_py_pkg  
Starting >>> my_robot_interfaces  
Finished <<< my_py_pkg [3.83s]  
Finished <<< my_robot_interfaces [7.78s]  
Summary: 2 packages finished [8.79s]  
leagueflyer@leagueflyer:~$ ros2 run my_py_pkg number_publisher  
[INFO] [1681758087.638890850] [number_publisher]: Number started transmission
```

b) The number_count topic output to the terminal using ros2 topic echo/number count with reset.

The screenshot shows three terminal windows. The leftmost window displays the output of `ros2 topic echo /number_count`, showing a sequence of values from 27748 to 532. The middle window shows the output of `ros2 run my_py_pkg number_counter_reset`, indicating that the reset counter service is available and the count was reset successfully. The rightmost window shows the output of `colcon build`, indicating that two packages were built successfully.

```
leagueflyer@leagueflyer: ~  
leagueflyer@leagueflyer:~$ ros2 topic echo /number_count  
data: 27748  
---  
data: 27816  
---  
data: 27892  
---  
data: 27968  
---  
data: 28044  
---  
data: 76  
---  
data: 152  
---  
data: 228  
---  
data: 304  
---  
data: 380  
---  
data: 456  
---  
data: 532  
---  
> resource  
> test  
package.xml  
setup.cfg  
setup.py  
my_robot_interfaces  
18 def call[INFO] [1681758466.086135061] [reset_counter_client]: Reset Counter service is a  
19 res[INFO] [1681758466.095421390] [reset_counter_client]: Response: count reset succe  
20 sel[INFO] [1681758466.095421390] [reset_counter_client]: Response: count reset succe  
21 [INFO] [1681758466.095421390] [reset_counter_client]: Response: count reset succe  
22 def main(ar[INFO] [1681758466.095421390] [reset_counter_client]: Response: count reset succe  
23 rclpy.i[INFO] [1681758466.095421390] [reset_counter_client]: Response: count reset succe  
24 #Code [INFO] [1681758466.095421390] [reset_counter_client]: Response: count reset succe  
25 node = ResetCounterClient()  
26 rclpy.spin(node)  
27 rclpy.shutdown()  
28  
29 if __name__ == "__main__":  
30 main()  
17038 [number_count]: 2052  
15586 [number_count]: 2128  
15521 [number_count]: 2204  
17170 [number_count]: 2280  
18585 [number_count]: 2356  
18443 [number_count]: 2432  
18602 [number_count]: 2508  
11123 [number_count]: 2584  
18644 [number_count]: 2660  
18979 [number_count]: 2736  
16680 [number_count]: 2812  
12977 [number_count]: 2888  
18237 [number_count]: 2964  
15541 [number_count]: 3040  
18517 [number_count]: 3116  
18517 [number_count]: 3192  
leagueflyer@leagueflyer:~$ colcon build  
Starting >>> my_py_pkg  
Starting >>> my_robot_interfaces  
Finished <<< my_py_pkg [3.83s]  
Finished <<< my_robot_interfaces [7.78s]  
Summary: 2 packages finished [8.79s]  
leagueflyer@leagueflyer:~$ ros2 run my_py_pkg number_publisher  
[INFO] [1681758087.638890850] [number_publisher]: Number started transmission
```

```
leagueflyer@leagueflyer:~$ ros2 run my_py_pkg number_counter_reset
1681761227.419923109 [reset_counter_client]: Waiting for reset_counter
1681761227.671084638 [reset_counter_client]: Waiting for reset_counter
1681761227.923121148 [reset_counter_client]: Waiting for reset_counter
1681761228.174420017 [reset_counter_client]: Reset Counter service is available
1681761228.195909024 [reset_counter_client]: Response: count reset successful

1681761215.628084151 [number_counter]: 18468
1681761216.628093622 [number_counter]: 18544
1681761217.631021135 [number_counter]: 18620
1681761218.628356963 [number_counter]: 18696
1681761219.633189755 [number_counter]: 18772
1681761220.629941380 [number_counter]: 18848
1681761221.632717971 [number_counter]: 18924
1681761222.630366950 [number_counter]: 19000
1681761223.628051799 [number_counter]: 19076
1681761224.631166116 [number_counter]: 19152
1681761225.628847080 [number_counter]: 19228
1681761226.629396301 [number_counter]: 19304
1681761227.630410634 [number_counter]: 19380
1681761228.177301823 [number_counter]: count reset
1681761228.632958612 [number_counter]: 76
1681761229.629035021 [number_counter]: 152
1681761230.629566133 [number_counter]: 228
1681761231.628099430 [number_counter]: 304
1681761232.628761840 [number_counter]: 380
1681761233.634410590 [number_counter]: 456
1681761234.629455757 [number_counter]: 532
1681761235.628040758 [number_counter]: 608
1681761236.632187238 [number_counter]: 684
```

c) Request and response for counter value reset through rqt plugin.

False Condition:

```
File Plugins Running Perspectives Help
Service Caller (2)
Service: /reset_count
Request
Topic Type Expression
-/reset_count example_interfaces/srv/SetBool
data boolean False
Response
Field Type Value
-/ success boolean False
message string 'count reset unsuccessfully'
```

True Condition:

Default - rqt

FilePluginsRunningPerspectivesHelp

Service Caller

Service /reset_count

Request

Topic	Type	Expression
/reset_count	example_interfaces/srv/SetBool	
data	boolean	True

Response

Field	Type	Value
/	example_interfaces/srv/SetBool.Response	
success	boolean	True
message	string	'count reset sucessfully'