

Laporan Pengerjaan Tugas 2 ROS2 Bayucaraka 2024

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Tugas 2 saya mulai dengan mengedit CMakeLists terlebih dahulu karena sudah saya buat package. Seperti biasa menambahkan dependency rclcpp dan std_msgs. Karena sesuai tugas dibutuhkan 2 subscriber maka membuat 3 executable (2 pub, 1 sub).

```
# find dependencies
find_package(ament_cmake REQUIRED)
find_package(rclcpp REQUIRED)
find_package(std_msgs REQUIRED)

add_executable(talker1 src/pub1.cpp)
ament_target_dependencies(talker1 rclcpp std_msgs)

add_executable(talker2 src/pub2.cpp)
ament_target_dependencies(talker2 rclcpp std_msgs)

add_executable(listener src/sub.cpp)
ament_target_dependencies(listener rclcpp std_msgs)

install(TARGETS
  talker1
  talker2
  listener
  DESTINATION lib/${PROJECT_NAME}
)
```

Setelah CMakeLists kelar maka lanjut ke package.xml. disini sama seperti tugas1 yakni menambahkan rclcpp dan std_msgs.

Untuk publisher pertama melakukan publish setiap 2 sekon dan publisher kedua setiap 3 sekon maka pada timer diganti sesuai interval masing-masing

```
timer_ = this->create_wall_timer(
    std::chrono::seconds(2),
    std::bind(&RandomPublisher1::publishRandomBool, this));
```

Sesuai tugas diminta membuat publisher yang mencetak timer dan bool (true/false) pada terminal. Sayangnya saya tidak bisa mengimplementasikan timer pada node publisher, tapi kedua node publisher masih tetap dapat mencetak bool.

```
private:
void publishRandomBool()
{
    std_msgs::msg::Bool bool_msg;
    bool_msg.data = (std::rand() % 2) == 0;
    publisher_->publish(bool_msg);

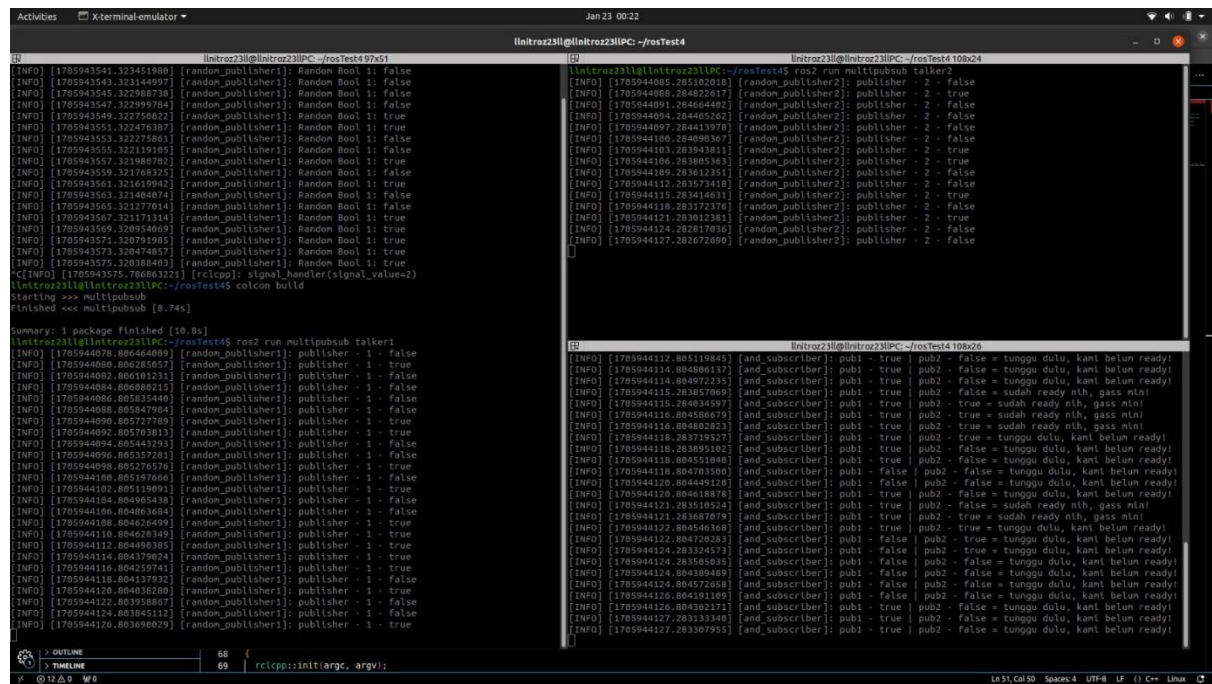
    std_msgs::msg::String string_msg;
    string_msg.data = bool_msg.data ? "true" : "false";
    string_publisher_->publish(string_msg);
    RCLCPP_INFO(this->get_logger(), "publisher - 1 - %s", string_msg.data.c_str());
}

rclcpp::Publisher<std_msgs::msg::Bool>::SharedPtr publisher_;
rclcpp::Publisher<std_msgs::msg::String>::SharedPtr string_publisher_;
rclcpp::TimerBase::SharedPtr timer_;
};
```

Pada node subscriber tinggal menambahkan kedua node publisher pada public class serta membuat if statement jika kedua publisher return True pada node masing masing dengan mencetak “sudah ready nih. gass min!” atau “tunggu dulu, kami belum ready!” jika salah satu dari mereka return False.

```
if (!status1_.empty() && !status2_.empty()) {
    std::string result = bool1_ && bool2_ ? "sudah ready nih, gass min!" : "tunggu dulu, kami belum ready!";
    RCLCPP_INFO(this->get_logger(), "pub1 - %s | pub2 - %s = %s", status1_.c_str(), status2_.c_str(), result.c_str());
}
```

Seperti biasa, saya build dan jalankan ketiga node publisher dan subscriber di tiga terminal berbeda.



```
lintraz23l@lintraz23lIPC:~/rosTest4 10x51
[INFO] [1785943541.323451988] [random_publisher]: Random Bool 1: false
[INFO] [1785943543.32344997] [random_publisher]: Random Bool 1: false
[INFO] [1785943545.32298738] [random_publisher]: Random Bool 1: false
[INFO] [1785943547.322995784] [random_publisher]: Random Bool 1: false
[INFO] [1785943549.322758622] [random_publisher]: Random Bool 1: true
[INFO] [1785943551.322476387] [random_publisher]: Random Bool 1: true
[INFO] [1785943553.322275861] [random_publisher]: Random Bool 1: false
[INFO] [1785943555.322119105] [random_publisher]: Random Bool 1: false
[INFO] [1785943557.321988782] [random_publisher]: Random Bool 1: true
[INFO] [1785943559.321768325] [random_publisher]: Random Bool 1: false
[INFO] [1785943561.321619942] [random_publisher]: Random Bool 1: true
[INFO] [1785943563.321404074] [random_publisher]: Random Bool 1: false
[INFO] [1785943565.321277814] [random_publisher]: Random Bool 1: false
[INFO] [1785943567.321171314] [random_publisher]: Random Bool 1: true
[INFO] [1785943569.320954069] [random_publisher]: Random Bool 1: true
[INFO] [1785943571.320791985] [random_publisher]: Random Bool 1: true
[INFO] [1785943573.320647457] [random_publisher]: Random Bool 1: true
[INFO] [1785943575.320388403] [random_publisher]: Random Bool 1: true
[INFO] [1785943575.786863221] [rclcpp]: signal_handler(signal_value=2)
lintraz23l@lintraz23lIPC:~/rosTest4 10x51
Starting >>> multipubsub
Finished <<< multipubsub [0.74s]
summary: 1 package Finished [0.8s]
lintraz23l@lintraz23lIPC:~/rosTest4 10x51
[INFO] [1785944078.886464089] [random_publisher]: publisher - 1 - false
[INFO] [1785944080.886285057] [random_publisher]: publisher - 1 - true
[INFO] [1785944082.886101231] [random_publisher]: publisher - 1 - false
[INFO] [1785944084.886080215] [random_publisher]: publisher - 1 - false
[INFO] [1785944086.885935440] [random_publisher]: publisher - 1 - false
[INFO] [1785944088.885847994] [random_publisher]: publisher - 1 - false
[INFO] [1785944090.885727789] [random_publisher]: publisher - 1 - true
[INFO] [1785944092.885703813] [random_publisher]: publisher - 1 - true
[INFO] [1785944094.885643293] [random_publisher]: publisher - 1 - false
[INFO] [1785944096.885537281] [random_publisher]: publisher - 1 - false
[INFO] [1785944098.885425767] [random_publisher]: publisher - 1 - true
[INFO] [1785944100.885319666] [random_publisher]: publisher - 1 - false
[INFO] [1785944102.885119091] [random_publisher]: publisher - 1 - true
[INFO] [1785944104.884905438] [random_publisher]: publisher - 1 - false
[INFO] [1785944106.884803684] [random_publisher]: publisher - 1 - false
[INFO] [1785944108.884626499] [random_publisher]: publisher - 1 - true
[INFO] [1785944110.884428349] [random_publisher]: publisher - 1 - true
[INFO] [1785944112.884498385] [random_publisher]: publisher - 1 - true
[INFO] [1785944114.884379024] [random_publisher]: publisher - 1 - true
[INFO] [1785944116.884259741] [random_publisher]: publisher - 1 - true
[INFO] [1785944118.884137932] [random_publisher]: publisher - 1 - false
[INFO] [1785944120.884038280] [random_publisher]: publisher - 1 - true
[INFO] [1785944122.883958867] [random_publisher]: publisher - 1 - false
[INFO] [1785944124.883845112] [random_publisher]: publisher - 1 - false
[INFO] [1785944126.883696029] [random_publisher]: publisher - 1 - true
lintraz23l@lintraz23lIPC:~/rosTest4 10x51
[INFO] [1785944085.285102018] [random_publisher2]: publisher - 2 - false
[INFO] [1785944088.284822617] [random_publisher2]: publisher - 2 - true
[INFO] [1785944091.284664402] [random_publisher2]: publisher - 2 - false
[INFO] [1785944094.284465262] [random_publisher2]: publisher - 2 - false
[INFO] [1785944097.284413972] [random_publisher2]: publisher - 2 - false
[INFO] [1785944100.284290367] [random_publisher2]: publisher - 2 - false
[INFO] [1785944103.283943811] [random_publisher2]: publisher - 2 - true
[INFO] [1785944106.283805363] [random_publisher2]: publisher - 2 - true
[INFO] [1785944109.283612351] [random_publisher2]: publisher - 2 - false
[INFO] [1785944112.283573418] [random_publisher2]: publisher - 2 - false
[INFO] [1785944115.283414631] [random_publisher2]: publisher - 2 - true
[INFO] [1785944118.283372378] [random_publisher2]: publisher - 2 - false
[INFO] [1785944121.283012381] [random_publisher2]: publisher - 2 - true
[INFO] [1785944124.282817038] [random_publisher2]: publisher - 2 - true
[INFO] [1785944127.282672690] [random_publisher2]: publisher - 2 - false
lintraz23l@lintraz23lIPC:~/rosTest4 10x51
[INFO] [1785944112.805119845] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944114.804886137] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944116.804972335] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944118.283578689] [and_subscriber]: pub1 - true | pub2 - true = sudah ready nih, gass min!
[INFO] [1785944119.284034597] [and_subscriber]: pub1 - true | pub2 - true = sudah ready nih, gass min!
[INFO] [1785944120.804586678] [and_subscriber]: pub1 - true | pub2 - true = sudah ready nih, gass min!
[INFO] [1785944121.804802823] [and_subscriber]: pub1 - true | pub2 - true = sudah ready nih, gass min!
[INFO] [1785944118.283719527] [and_subscriber]: pub1 - true | pub2 - true = tunggu dulu, kami belum ready!
[INFO] [1785944118.283895102] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944118.804551040] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944118.804703508] [and_subscriber]: pub1 - false | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944120.804449120] [and_subscriber]: pub1 - false | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944120.804618878] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944121.283510524] [and_subscriber]: pub1 - true | pub2 - false = sudah ready nih, gass min!
[INFO] [1785944121.283687879] [and_subscriber]: pub1 - true | pub2 - true = sudah ready nih, gass min!
[INFO] [1785944122.804546365] [and_subscriber]: pub1 - true | pub2 - true = tunggu dulu, kami belum ready!
[INFO] [1785944122.804720283] [and_subscriber]: pub1 - false | pub2 - true = tunggu dulu, kami belum ready!
[INFO] [1785944124.28324573] [and_subscriber]: pub1 - false | pub2 - true = tunggu dulu, kami belum ready!
[INFO] [1785944124.283585835] [and_subscriber]: pub1 - false | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944124.804389488] [and_subscriber]: pub1 - false | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944124.804572658] [and_subscriber]: pub1 - false | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944126.804191109] [and_subscriber]: pub1 - false | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944126.804362173] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944127.283133440] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
[INFO] [1785944127.283307953] [and_subscriber]: pub1 - true | pub2 - false = tunggu dulu, kami belum ready!
```