0. creo e sistemo il workspace dal tutorial

1. dopo aver eseguito source /path, eseguo "ros2 bag info

rosbag2\_2024\_11\_22-00\_32\_31\_0.mcap" e ho ricevuto questo output:

closing.

Files:

rosbag2\_2024\_11\_22-00\_32\_31\_0.mcap

Bag size:

68.7 MiB

Storage id:

mcap

Duration:

10.626805833s

Start:

Nov 22 2024 00:32:31.698013076 (1732231951.698013076)

End:

Nov 22 2024 00:32:42.324818909 (1732231962.324818909)

Messages:

1246

Topic information: Topic: /imu/acceleration | Type:

geometry\_msgs/msg/Vector3Stamped | Count: 0 | Serialization Format: cdr

Topic: /imu/angular\_velocity | Type:

geometry\_msgs/msg/Vector3Stamped | Count: 0 | Serialization Format: cdr

Topic: /imu/data | Type: sensor\_msgs/msg/Imu | Count:

916 | Serialization Format: cdr

Topic: /zed2i/zed\_node/left\_gray/image\_rect\_gray |

Type: sensor\_msgs/msg/Image | Count: 311 | Serialization Format: cdr

Topic: /system\_info | Type:

sysmonitor\_interfaces/msg/Sysmon | Count: 19 | Serialization Format: cdr

2. apro due terminal differenti per lanciare la bag con il commando "ros2

bag play -s mcap rosbag2\_2024\_11\_22-00\_32\_31\_0.mcap -l" e nell'altro

terminal lancio il comando "ros2 topic hz

/zed2i/zed\_node/left\_gray/image\_rect\_gray" per vedere la frequenza e la

pubblicazione dei dati del topic /image. Il output Ã¨:

average rate: 29.487

min: 0.029s max: 0.038s std dev: 0.00211s window: 31

average rate: 29.388

min: 0.029s max: 0.040s std dev: 0.00199s window: 61

average rate: 29.410

min: 0.028s max: 0.042s std dev: 0.00245s window: 91

average rate: 29.364

min: 0.028s max: 0.042s std dev: 0.00250s window: 121

average rate: 29.257

min: 0.028s max: 0.044s std dev: 0.00267s window: 151

average rate: 29.305

min: 0.017s max: 0.052s std dev: 0.00334s window: 181

3.apro due terminal differenti per lanciare la bag con il commando "ros2

bag play -s mcap rosbag2\_2024\_11\_22-00\_32\_31\_0.mcap -l" e nell'altro

terminal lancio il comando "ros2 topic hz /system\_info" per vedere la

frequenza e la pubblicazione dei dati del topic /system. Output Ã©average rate: 2.000

min: 0.499s max: 0.501s std dev: 0.00048s window: 4

average rate: 1.999

min: 0.499s max: 0.501s std dev: 0.00046s window: 6

average rate: 1.482

min: 0.499s max: 1.897s std dev: 0.46186s window: 8

average rate: 1.659

min: 0.233s max: 1.897s std dev: 0.41623s window: 11

average rate: 1.722

min: 0.233s max: 1.897s std dev: 0.37136s window: 14

average rate: 1.753

min: 0.233s max: 1.897s std dev: 0.34839s window: 16

average rate: 1.788

min: 0.233s max: 1.897s std dev: 0.32075s window: 19

average rate: 1.806

min: 0.233s max: 1.897s std dev: 0.30559s window: 21

4. apro due terminal differenti per lanciare la bag con il commando "ros2

bag play -s mcap rosbag2\_2024\_11\_22-00\_32\_31\_0.mcap -l" e nell'altro

terminal lancio il comando "ros2 topic echo /system\_info" per vedere cosa

mi ritorna. L'output Ã¨:

cpu\_usage: 15.4

cpu\_temp: 56.16

ram\_usage: 9.7

gpu\_usage: 62.5

gpu\_temp: 51.53

gpuram\_usage: 1181.0

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cpu\_usage: 19.0

cpu\_temp: 55.88

ram\_usage: 9.7

gpu\_usage: 58.9

gpu\_temp: 51.12

gpuram\_usage: 1181.0

---

cpu\_usage: 15.4

cpu\_temp: 56.06

ram\_usage: 9.7

gpu\_usage: 65.5

gpu\_temp: 51.41

gpuram\_usage: 1181.0

---

cpu\_usage: 19.0

cpu\_temp: 56.12

ram\_usage: 9.7

gpu\_usage: 18.7

gpu\_temp: 51.06

gpuram\_usage: 1181.0

---

cpu\_usage: 15.4

cpu\_temp: 56.53

ram\_usage: 9.7gpu\_usage: 31.0

gpu\_temp: 51.25

gpuram\_usage: 1181.0

---

cpu\_usage: 19.0

cpu\_temp: 56.44

ram\_usage: 9.7

gpu\_usage: 68.1

gpu\_temp: 51.22

gpuram\_usage: 1181.0

---

cpu\_usage: 15.4

cpu\_temp: 56.03

ram\_usage: 9.7

gpu\_usage: 74.3

gpu\_temp: 51.66

gpuram\_usage: 1181.0

---

cpu\_usage: 19.0

cpu\_temp: 56.56

ram\_usage: 9.7

gpu\_usage: 48.8

gpu\_temp: 51.62

gpuram\_usage: 1181.0

---

cpu\_usage: 15.4

cpu\_temp: 56.25

ram\_usage: 9.7

gpu\_usage: 59.8

gpu\_temp: 51.22

gpuram\_usage: 1181.0

---

cpu\_usage: 19.0

cpu\_temp: 56.31

ram\_usage: 9.7

gpu\_usage: 42.0

gpu\_temp: 51.56

gpuram\_usage: 1181.0

---

cpu\_usage: 15.4

cpu\_temp: 56.88

ram\_usage: 9.7

gpu\_usage: 37.5

gpu\_temp: 51.38

gpuram\_usage: 1181.0

---

cpu\_usage: 19.0

cpu\_temp: 56.25

ram\_usage: 9.7

gpu\_usage: 60.4

gpu\_temp: 51.62

gpuram\_usage: 1181.0

---

cpu\_usage: 15.4cpu\_temp: 56.75

ram\_usage: 9.7

gpu\_usage: 59.6

gpu\_temp: 51.62

gpuram\_usage: 1181.0

5. ho creato il nuovo package "my\_package" per scrivere il codice. una

volta scritto il comando, eseguo build del package(ovviamente nel

workspace) poi creo il file esercizio.cpp e scrivo: " #include <chrono>

#include <functional>

#include <memory>

#include <string>

#include "rclcpp/rclcpp.hpp"

#include "std\_msgs/msg/float64.hpp"

#include "sysmonitor\_interfaces/msg/sysmon.hpp"

class TestPublisherNode : public rclcpp::Node {

public:

TestPublisherNode() : Node("esercizio\_node") {

// Crea il publisher per il topic /test

publisher\_ = this->create\_publisher<std\_msgs::msg::Float64>("/test", 10);

// Crea la subscription per il topic /system\_info

subscription\_ = this->create\_subscription<sysmonitor\_interfaces::msg::Sysmon>(

"/system\_info",

10,

std::bind(&TestPublisherNode::systemDataCallback, this, std::placeholders::\_1)

);

RCLCPP\_INFO(this->get\_logger(), "TestPublisherNode avviato.");

}

private:

void systemDataCallback(const sysmonitor\_interfaces::msg::Sysmon::SharedPtr msg) {

// Creazione del messaggio Float64

auto out\_msg = std\_msgs::msg::Float64();

out\_msg.data = msg->cpu\_usage \* 2.0;

// Pubblica il messaggio sul topic /test

publisher\_->publish(out\_msg);

RCLCPP\_INFO(this->get\_logger(), "Ricevuto: %f | Pubblicato: %f", msg->cpu\_usage, out\_msg.data);

}

rclcpp::Publisher<std\_msgs::msg::Float64>::SharedPtr publisher\_;

rclcpp::Subscription<sysmonitor\_interfaces::msg::Sysmon>::SharedPtr subscription\_;

};

int main(int argc, char\*\* argv) {

// Inizializzazione di ROS 2

rclcpp::init(argc, argv);

rclcpp::spin(std::make\_shared<TestPublisherNode>());

rclcpp::shutdown();

return 0;

} ”

una volta completato, faccio la build del package e apro tre terminal

differenti. Nel primo lancio la rosbag, nel secondo lancio il comando

"ros2 run my\_package esercizio\_node

" per eseguire il codice e nel terzo lancio il comando "ros2 topic echo

/test\_response" per vedere i numeri reali

6. Ho utilizzato foxglove online dato che ho ricevuto alcuni problemi. In

questo caso non ha compromesso e questa parte dell'esercizio Ã¨ stato

completato.