

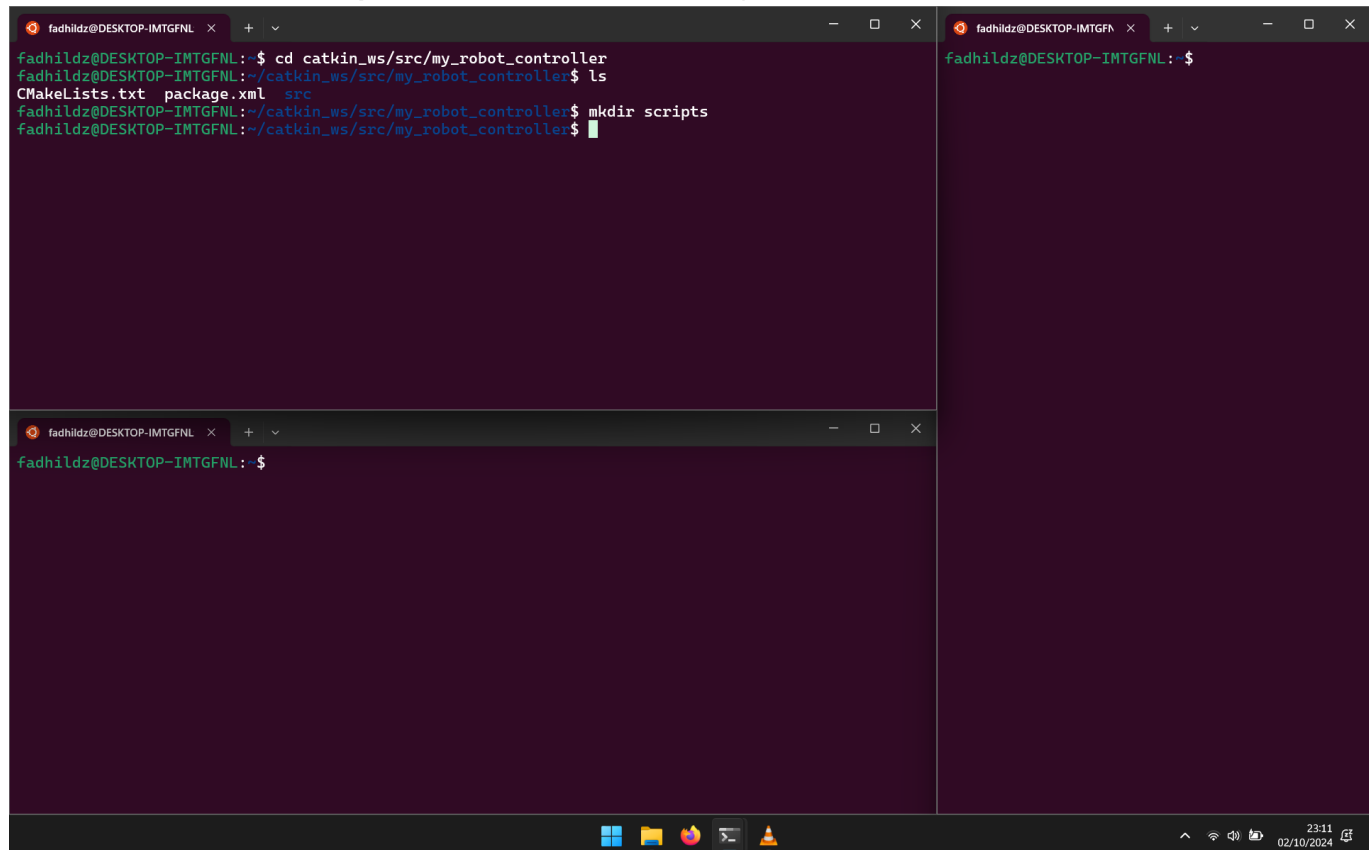
Nama : Fadhil Dzikri Aqila

NIM : 1103213136

Kelas : TK-45-G09

Langkah-langkah Ros Tutorial 5 (ROS1) [Write a ROS Node with Python](#)

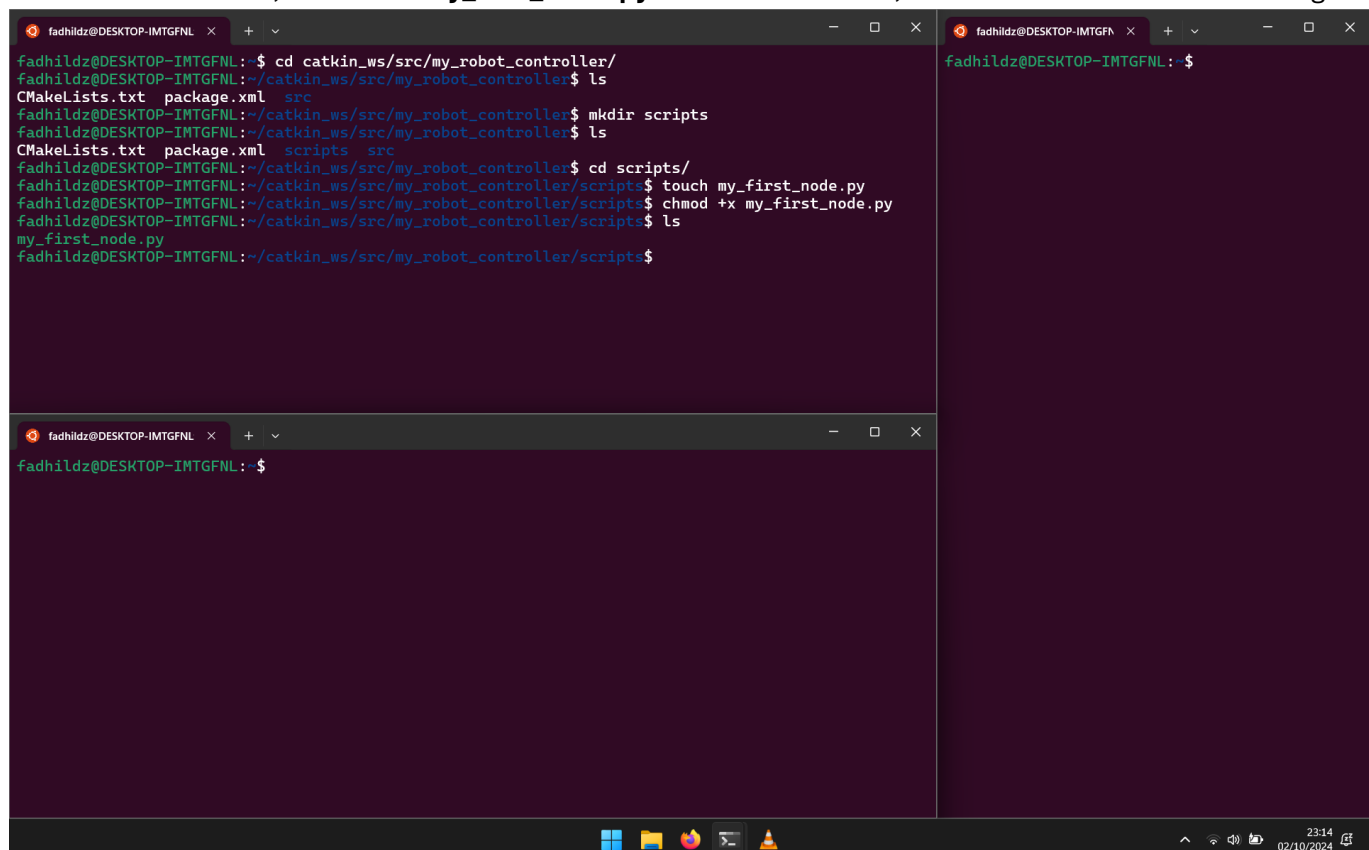
1. **cd catkin_ws/src/my_robot_controller** untuk masuk ke direktori package, lalu **ls** untuk melihat isi direktori, **mkdir scripts** untuk membuat folder scripts.



```
fadhildz@DESKTOP-INTGFNL: ~$ cd catkin_ws/src/my_robot_controller
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  src
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ mkdir scripts
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$
```

```
fadhildz@DESKTOP-INTGFNL: ~$
```

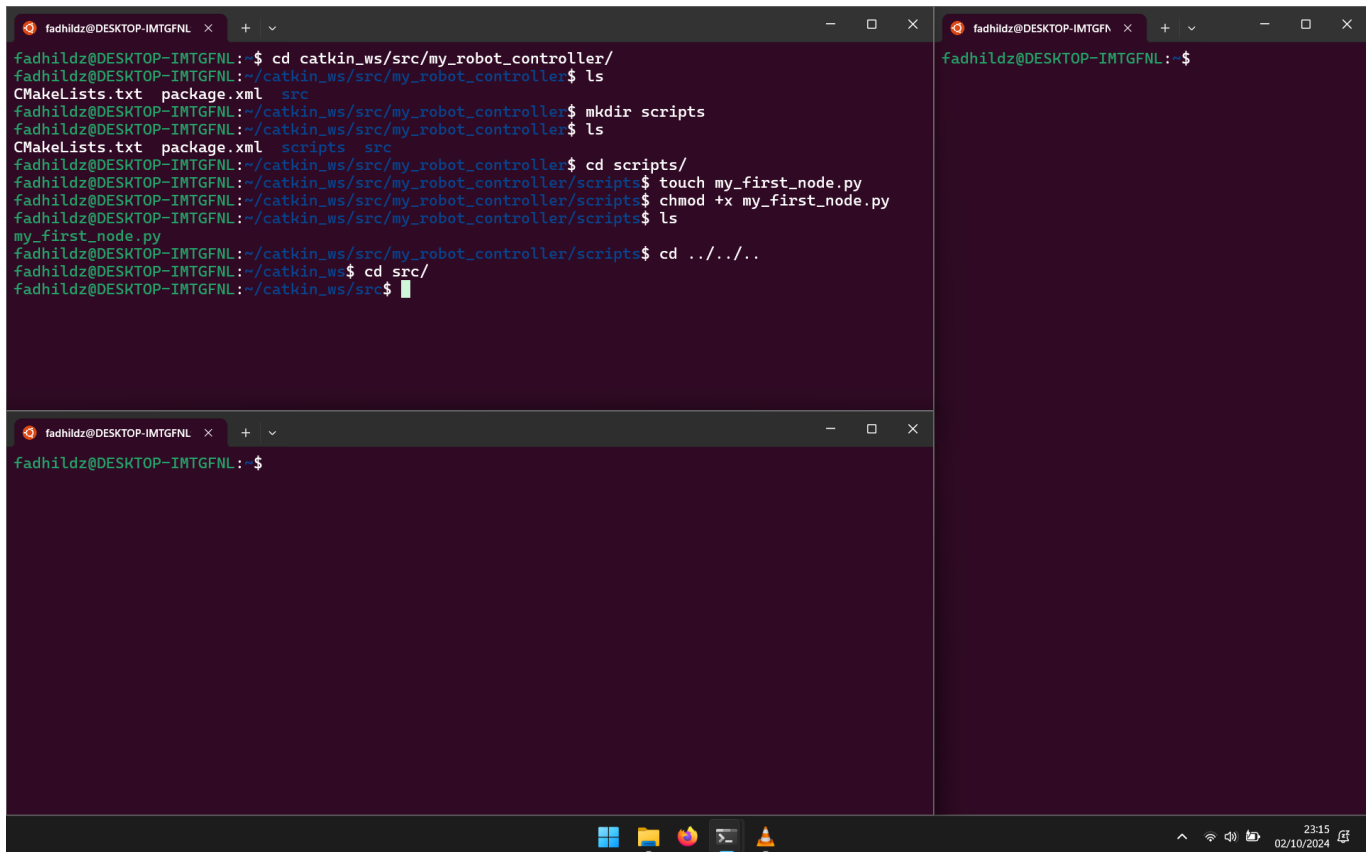
2. **ls** untuk cek folder, **cd scripts/** untuk masuk ke folder scripts, **touch my_first_node.py** untuk membuat file, **chmod +x my_first_node.py** untuk izin eksekusi, dan **ls** untuk melihat isi folder lagi.



```
fadhildz@DESKTOP-INTGFNL: ~$ cd catkin_ws/src/my_robot_controller/
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  src
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ mkdir scripts
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  scripts  src
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ cd scripts/
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ touch my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ chmod +x my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$
```

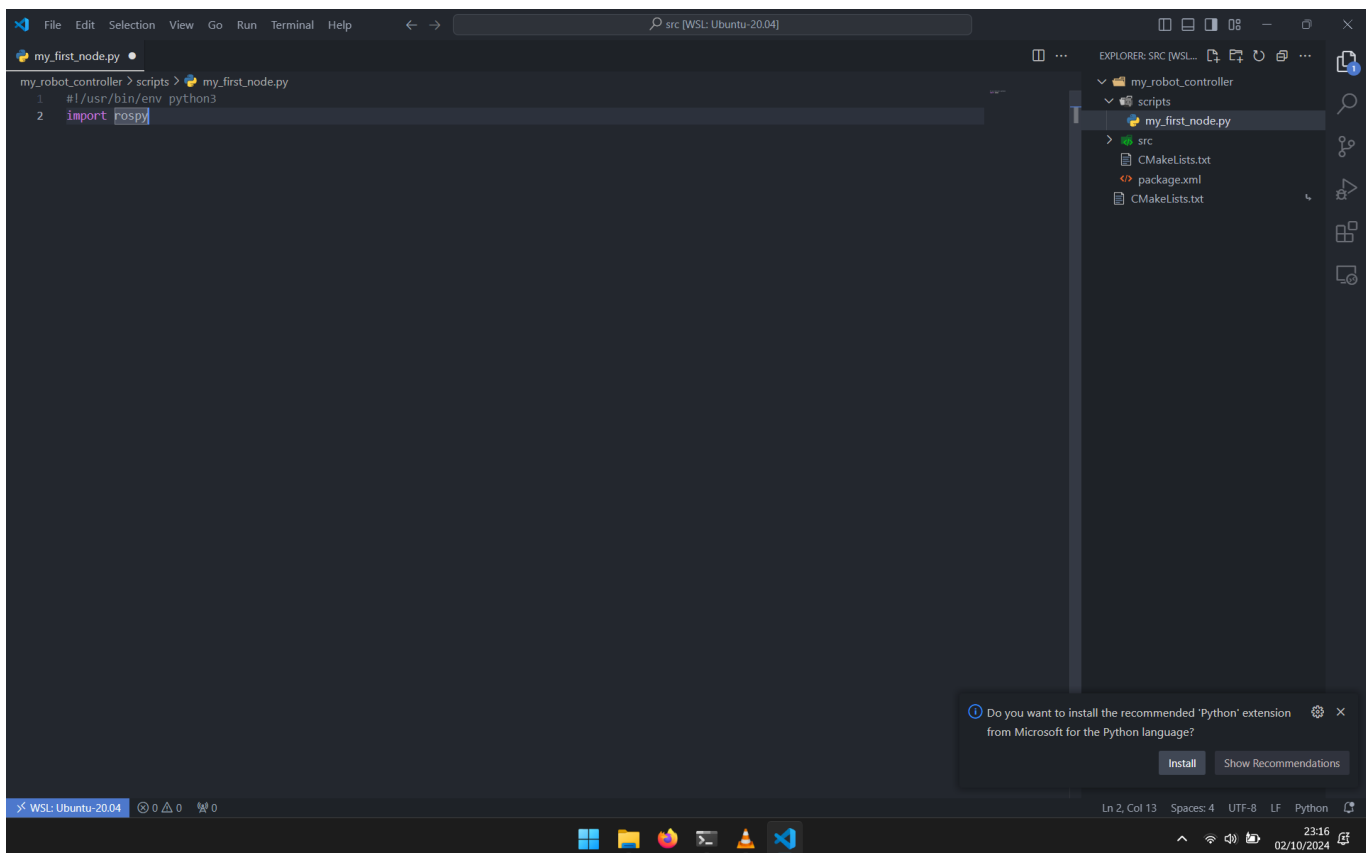
```
fadhildz@DESKTOP-INTGFNL: ~$
```

3. **cd ../../..** untuk kembali ke folder **catkin_ws**, **cd src/** untuk masuk ke folder **src**, lalu jalankan **code .** untuk membuka Visual Studio Code.

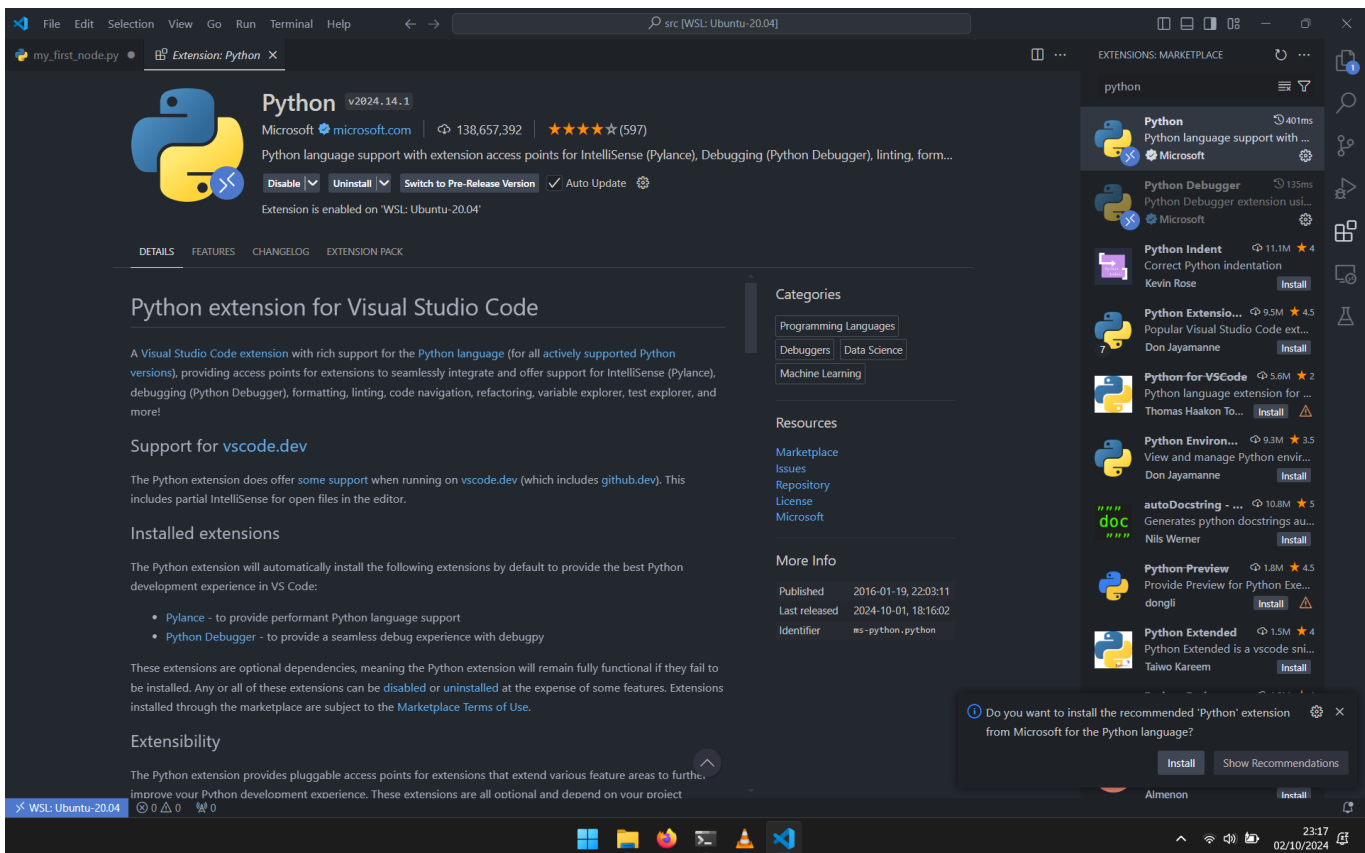
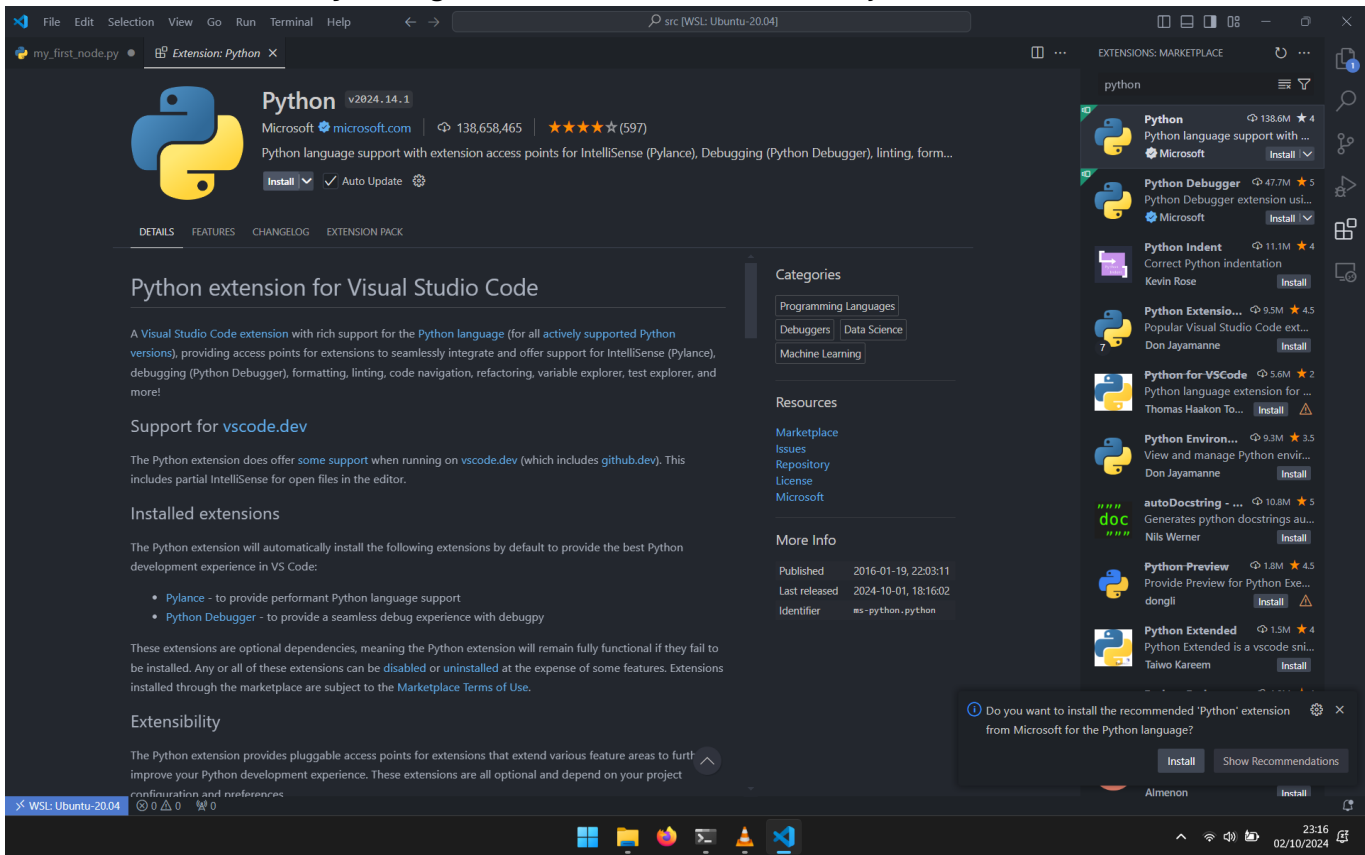


```
fadhildz@DESKTOP-INTGFNL:~$ cd catkin_ws/src/my_robot_controller/
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  src
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ mkdir scripts
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  scripts  src
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ cd scripts/
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ touch my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ chmod +x my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ cd ../../../../
fadhildz@DESKTOP-INTGFNL:~/catkin_ws$ cd src/
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src$
```

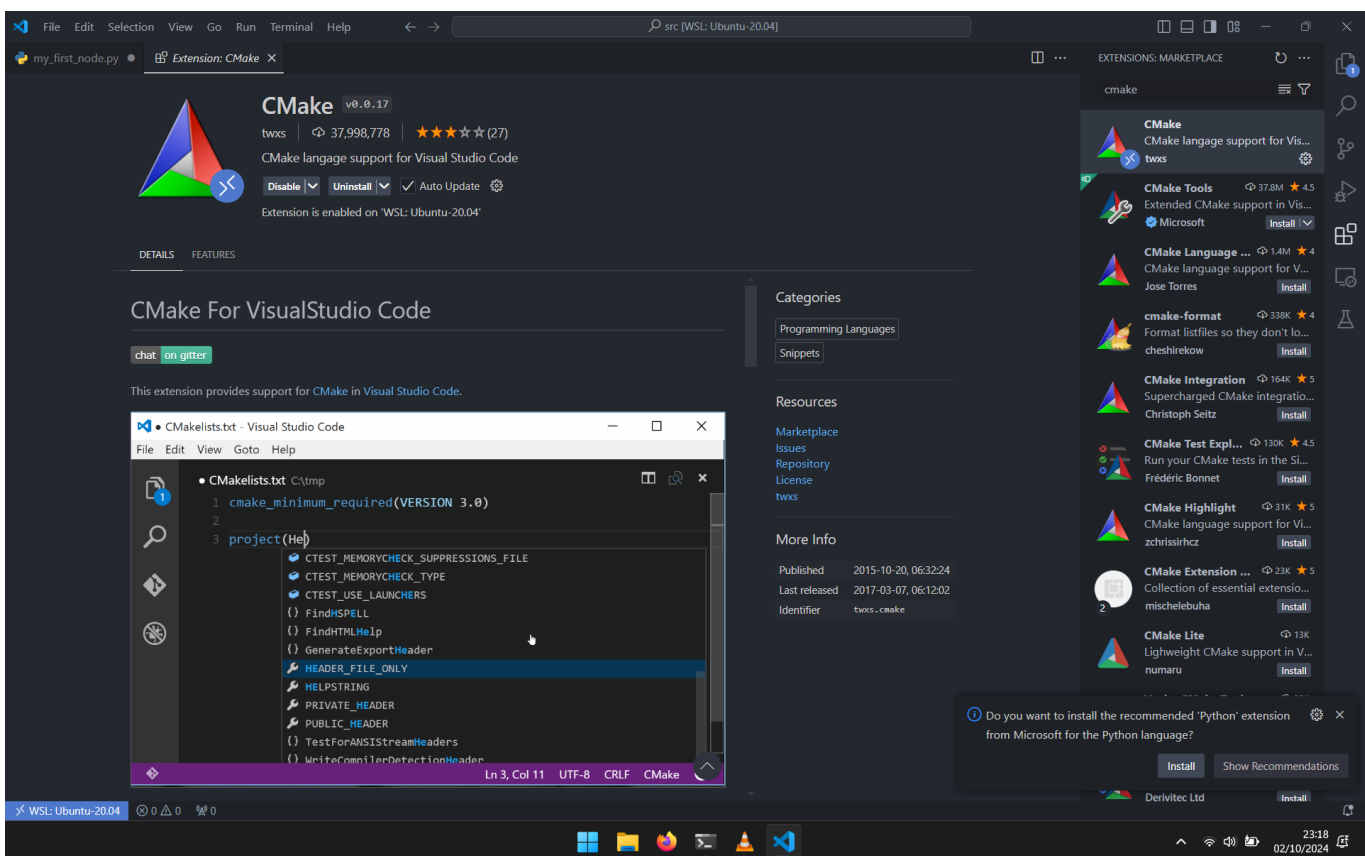
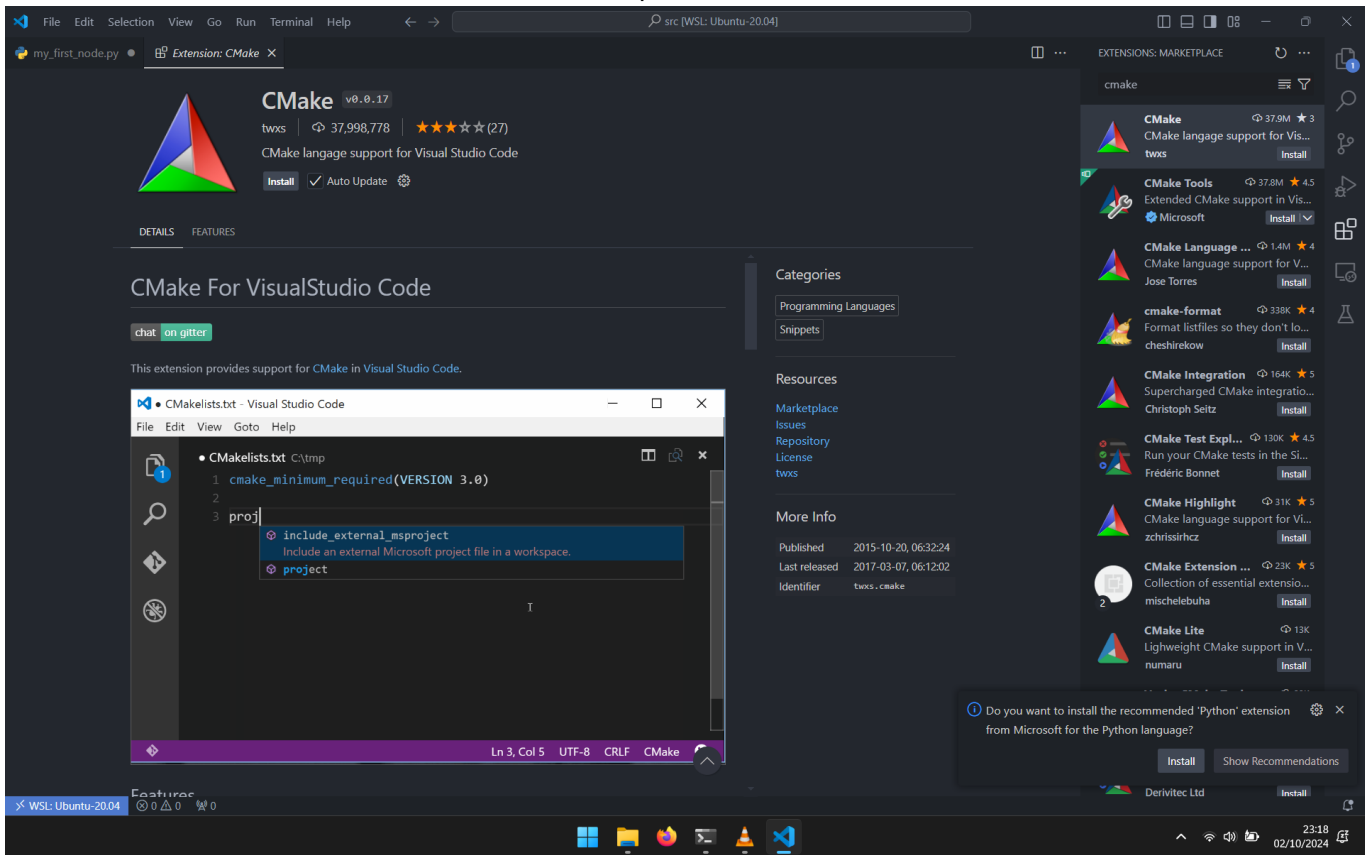
4. Visual Studio Code akan terbuka.



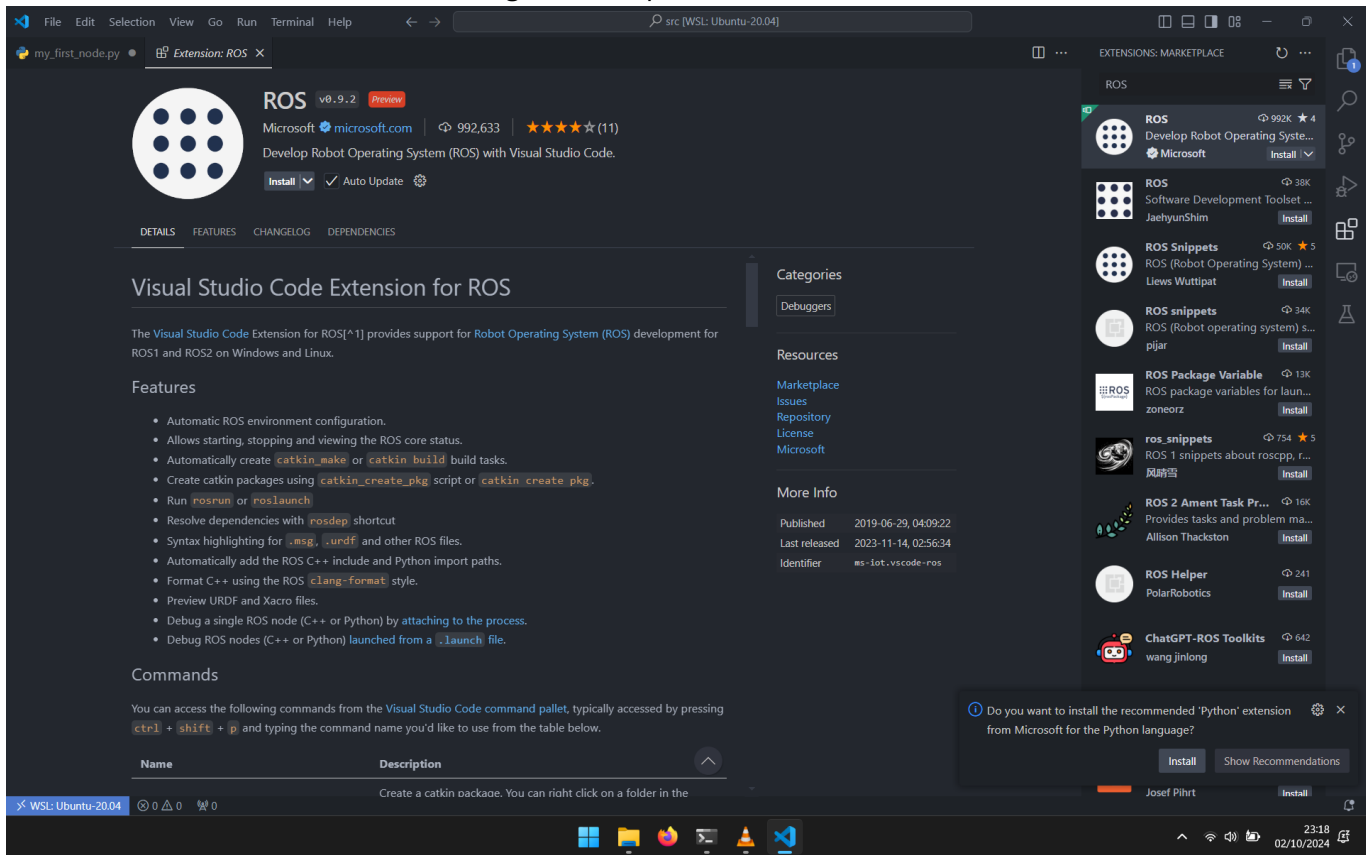
5. Install extension **Python** agar VS Code bisa membaca kode Python.



6. Install extension **Cmake** untuk membantu penulisan file build.



7. Install extension **ROS** untuk integrasi workspace ROS.



Visual Studio Code Extension for ROS

The Visual Studio Code Extension for ROS^(^1) provides support for Robot Operating System (ROS) development for ROS1 and ROS2 on Windows and Linux.

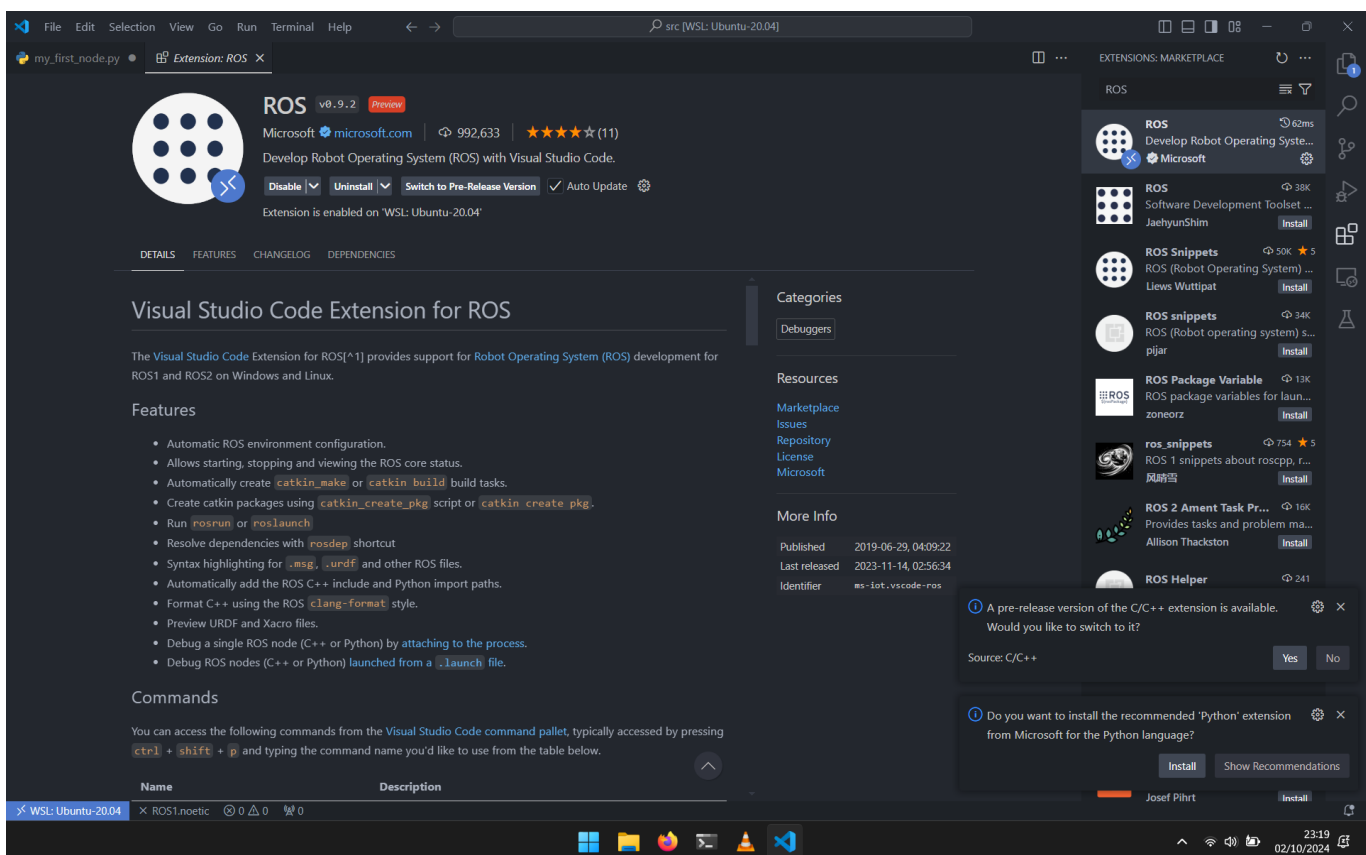
Features

- Automatic ROS environment configuration.
- Allows starting, stopping and viewing the ROS core status.
- Automatically create `catkin_make` or `catkin_build` build tasks.
- Create catkin packages using `catkin_create_pkg` script or `catkin create pkg`.
- Run `roslaunch` or `roslaunch`.
- Resolve dependencies with `rospdep` shortcut
- Syntax highlighting for `.msg`, `.urdf` and other ROS files.
- Automatically add the ROS C++ include and Python import paths.
- Format C++ using the ROS `clang-format` style.
- Preview URDF and Xacro files.
- Debug a single ROS node (C++ or Python) by attaching to the process.
- Debug ROS nodes (C++ or Python) launched from a `.launch` file.

Commands

You can access the following commands from the Visual Studio Code command pallet, typically accessed by pressing `ctrl + shift + p` and typing the command name you'd like to use from the table below.

Name	Description
Create a catkin package	You can right click on a folder in the



Visual Studio Code Extension for ROS

The Visual Studio Code Extension for ROS^(^1) provides support for Robot Operating System (ROS) development for ROS1 and ROS2 on Windows and Linux.

Features

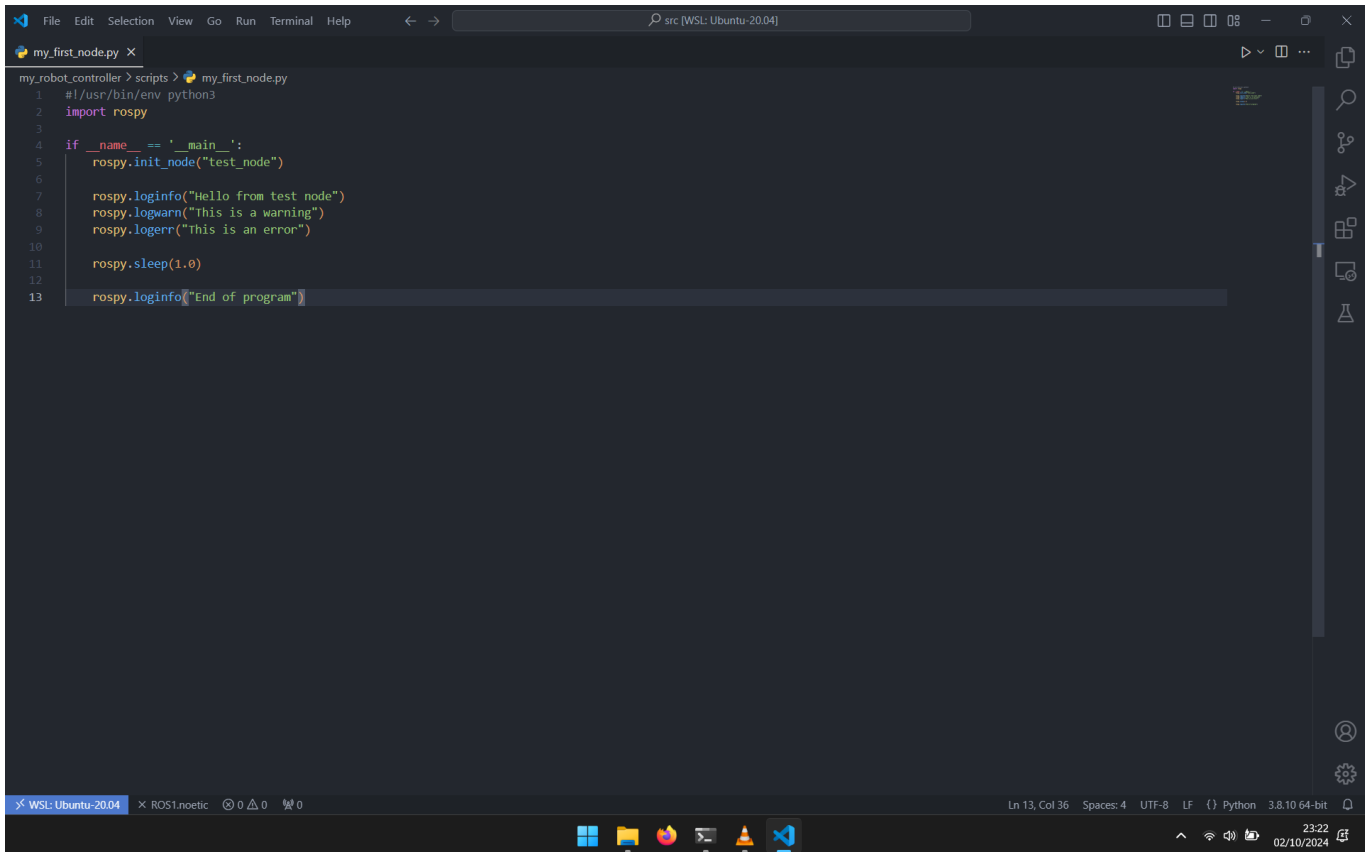
- Automatic ROS environment configuration.
- Allows starting, stopping and viewing the ROS core status.
- Automatically create `catkin_make` or `catkin_build` build tasks.
- Create catkin packages using `catkin_create_pkg` script or `catkin create pkg`.
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- Resolve dependencies with `rospdep` shortcut
- Syntax highlighting for `.msg`, `.urdf` and other ROS files.
- Automatically add the ROS C++ include and Python import paths.
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Commands

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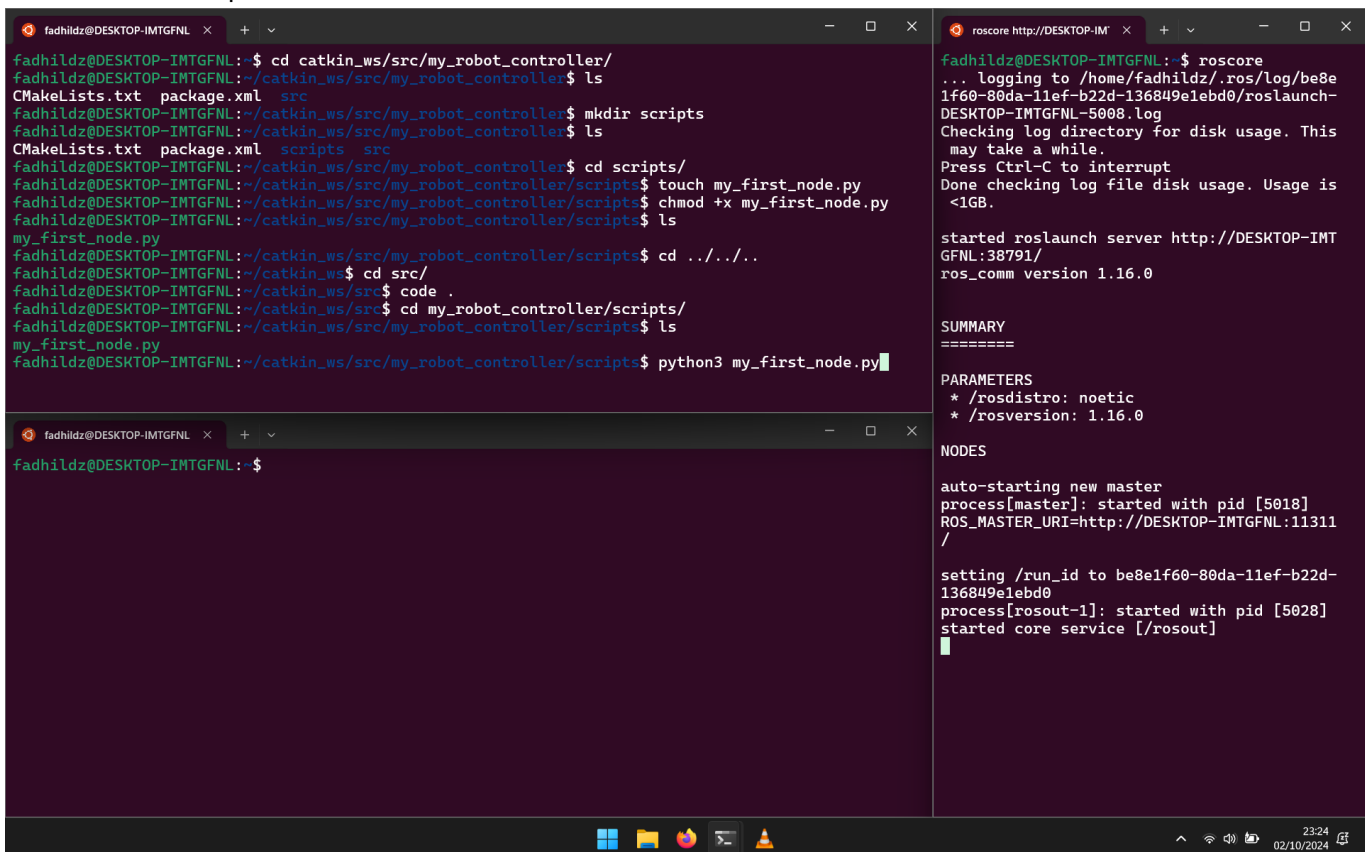
Name	Description
Create a catkin package	You can right click on a folder in the

8. Tulis kode berikut di file `my_first_node.py`



```
1 #!/usr/bin/env python3
2 import rospy
3
4 if __name__ == '__main__':
5     rospy.init_node("test_node")
6
7     rospy.loginfo("Hello from test node")
8     rospy.logwarn("This is a warning")
9     rospy.logerr("This is an error")
10
11     rospy.sleep(1.0)
12
13     rospy.loginfo("End of program")
```

9. `cd my_robot_controller/scripts/` untuk masuk ke folder scripts, lalu `ls` untuk menampilkan isi folder scripts.



```
fadhildz@DESKTOP-INTGFNL:~$ cd catkin_ws/src/my_robot_controller/
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  src
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ mkdir scripts
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  scripts  src
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller$ cd scripts/
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ touch my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ chmod +x my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ cd ../../..
fadhildz@DESKTOP-INTGFNL:~/catkin_ws$ cd src/
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src$ cd my_robot_controller/scripts/
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ python3 my_first_node.py
```

```
fadhildz@DESKTOP-INTGFNL:~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-INTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://DESKTOP-INTGFNL:38791/
ros_comm version 1.16.0

SUMMARY
=====
PARAMETERS
* /roscpp: noetic
* /rosversion: 1.16.0

NODES
auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-INTGFNL:11311/

setting /run_id to be8e1f60-80da-11ef-b22d-136849e1ebd0
process[rosout-1]: started with pid [5028]
started core service [/rosout]
```

10. Jalankan **roscore** untuk mengaktifkan ROS master, lalu jalankan **python3 my_first_node.py** untuk menjalankan node.

```
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  scripts  src
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller$ cd scripts/
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ touch my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ chmod +x my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ cd ../../..
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws$ cd src/
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src$ code .
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src$ cd my_robot_controller/scripts/
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ python3 my_first_node.py
[INFO] [1727886256.432037]: Hello from test node
[WARN] [1727886256.436785]: This is a warning
[ERROR] [1727886256.439088]: This is an error
[INFO] [1727886257.442847]: End of program
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$
```

```
fadhildz@DESKTOP-INTGFNL: ~$
```

```
roscore http://DESKTOP-INTGFNL:11311/
fadhildz@DESKTOP-INTGFNL: ~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-INTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://DESKTOP-INTGFNL:38791/
ros_comm version 1.16.0

SUMMARY
=====

PARAMETERS
* /roscore: noetic
* /rosversion: 1.16.0

NODES
auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-INTGFNL:11311/

setting /run_id to be8e1f60-80da-11ef-b22d-136849e1ebd0
process[rosout-1]: started with pid [5028]
started core service [/rosout]
```

11. Jalankan **./my_first_node.py** untuk eksekusi langsung.

```
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ cd ../../..
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src$ cd my_robot_controller/scripts/
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ python3 my_first_node.py
[INFO] [1727886256.432037]: Hello from test node
[WARN] [1727886256.436785]: This is a warning
[ERROR] [1727886256.439088]: This is an error
[INFO] [1727886257.442847]: End of program
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$ ./my_first_node.py
[INFO] [1727886302.819797]: Hello from test node
[WARN] [1727886302.822061]: This is a warning
[ERROR] [1727886302.823820]: This is an error
[INFO] [1727886303.826938]: End of program
fadhildz@DESKTOP-INTGFNL: ~/catkin_ws/src/my_robot_controller/scripts$
```

```
fadhildz@DESKTOP-INTGFNL: ~$
```

```
roscore http://DESKTOP-INTGFNL:11311/
fadhildz@DESKTOP-INTGFNL: ~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-INTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://DESKTOP-INTGFNL:38791/
ros_comm version 1.16.0

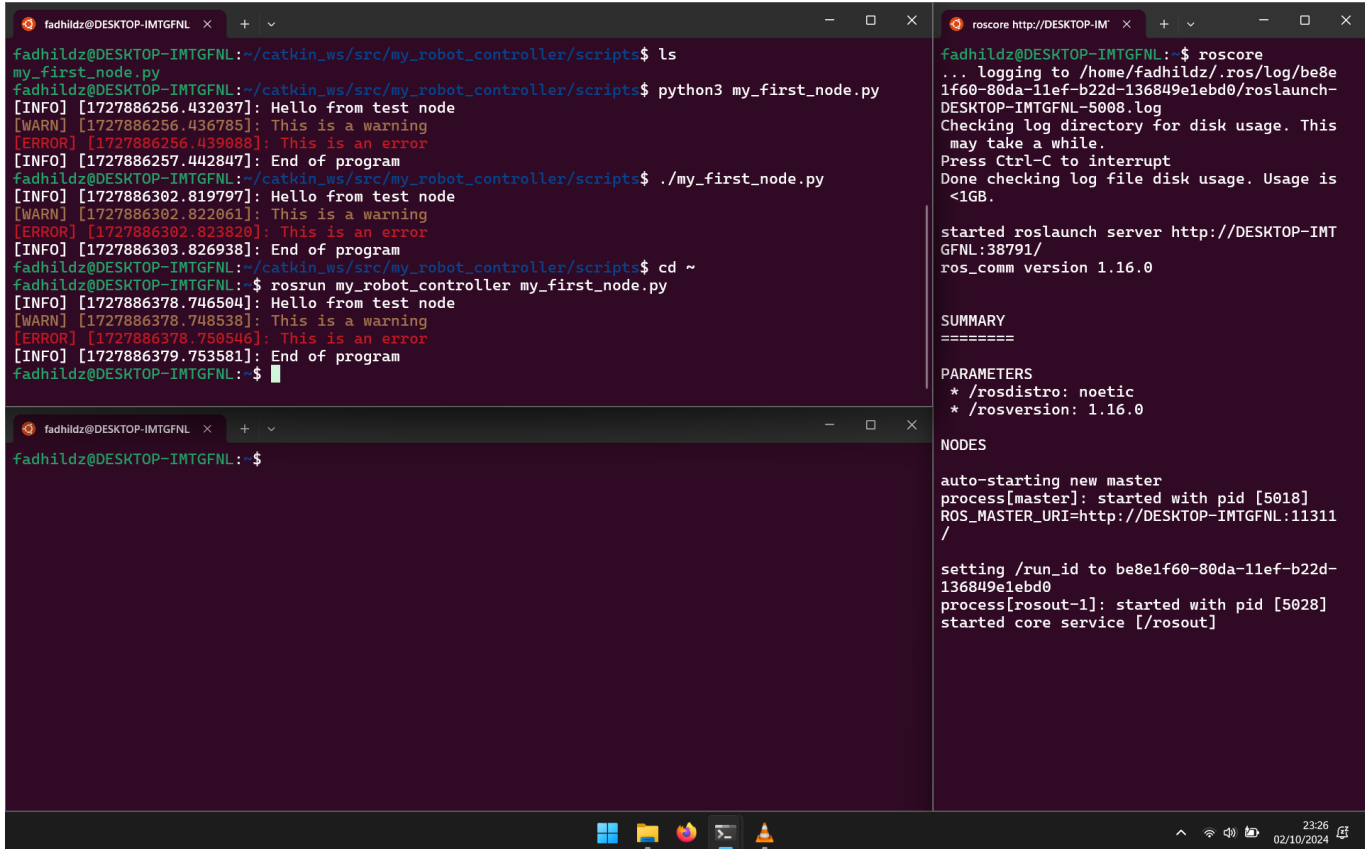
SUMMARY
=====

PARAMETERS
* /roscore: noetic
* /rosversion: 1.16.0

NODES
auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-INTGFNL:11311/

setting /run_id to be8e1f60-80da-11ef-b22d-136849e1ebd0
process[rosout-1]: started with pid [5028]
started core service [/rosout]
```


12. **cd ~** untuk kembali ke home, **roslaunch my_robot_controller my_first_node.py** untuk jalankan node.



```
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ ls
my_first_node.py
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ python3 my_first_node.py
[INFO] [1727886256.432037]: Hello from test node
[WARN] [1727886256.436785]: This is a warning
[ERROR] [1727886256.439888]: This is an error
[INFO] [1727886257.442847]: End of program
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ ./my_first_node.py
[INFO] [1727886302.819797]: Hello from test node
[WARN] [1727886302.822061]: This is a warning
[ERROR] [1727886302.823820]: This is an error
[INFO] [1727886303.826938]: End of program
fadhildz@DESKTOP-INTGFNL:~/catkin_ws/src/my_robot_controller/scripts$ cd ~
fadhildz@DESKTOP-INTGFNL:~$ roslaunch my_robot_controller my_first_node.py
[INFO] [1727886378.746504]: Hello from test node
[WARN] [1727886378.748538]: This is a warning
[ERROR] [1727886378.750546]: This is an error
[INFO] [1727886379.753581]: End of program
fadhildz@DESKTOP-INTGFNL:~$
```

```
fadhildz@DESKTOP-INTGFNL:~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-INTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

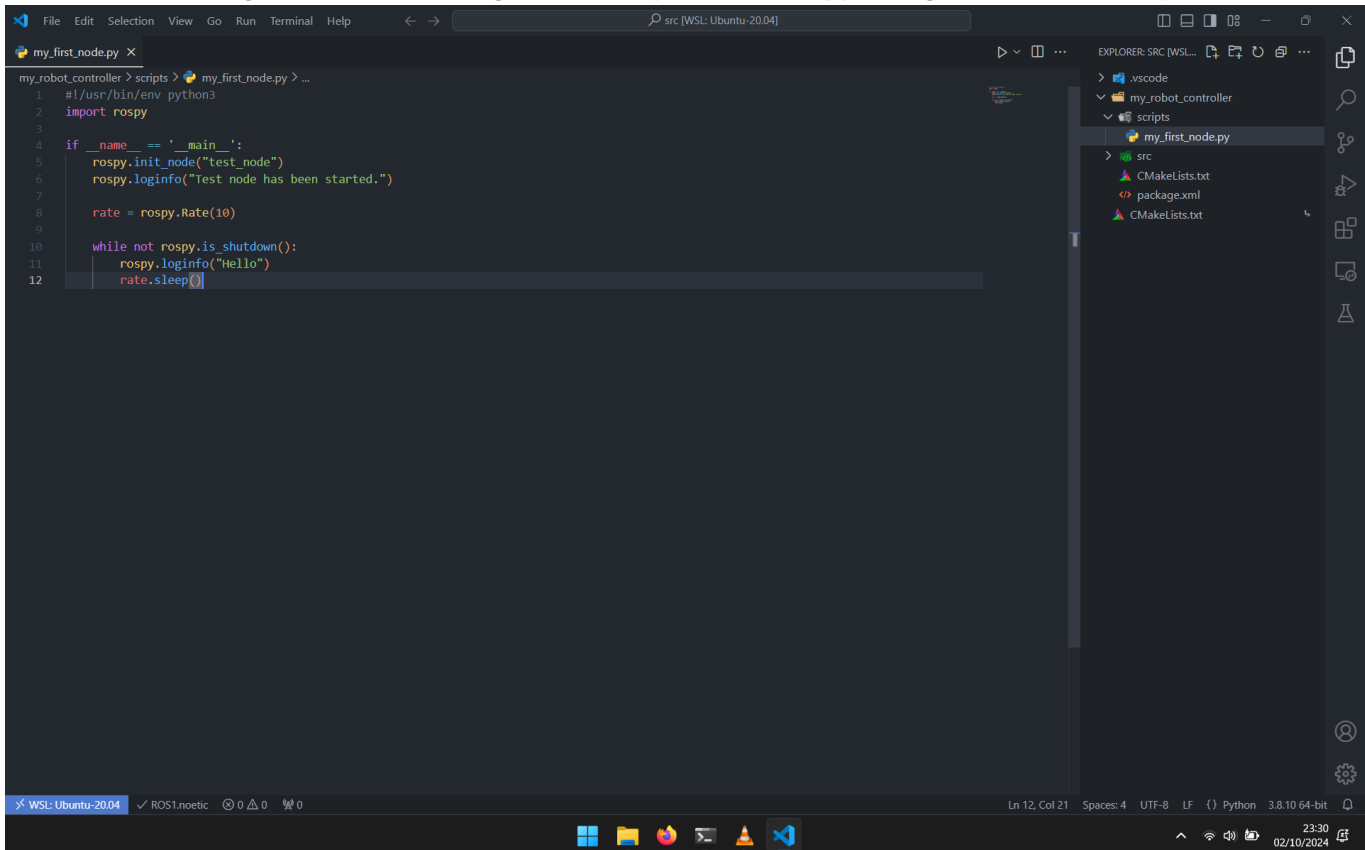
started roslaunch server http://DESKTOP-INTGFNL:38791/
ros_comm version 1.16.0

SUMMARY
=====
PARAMETERS
* /roscpp: noetic
* /rosversion: 1.16.0

NODES
auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-INTGFNL:11311/

setting /run_id to be8e1f60-80da-11ef-b22d-136849e1ebd0
process[roscout-1]: started with pid [5028]
started core service [/roscout]
```

13. Jalankan lagi **code .** untuk mengedit kode **my_first_node.py** sebagai berikut lalu simpan



```
my_robot_controller > scripts > my_first_node.py > ...
1 #!/usr/bin/env python3
2 import rospy
3
4 if __name__ == '__main__':
5     rospy.init_node("test_node")
6     rospy.loginfo("Test node has been started.")
7
8     rate = rospy.Rate(10)
9
10    while not rospy.is_shutdown():
11        rospy.loginfo("Hello")
12        rate.sleep()
```


14. Jalankan lagi **roslaunch my_robot_controller my_first_node.py**

```
fadhildz@DESKTOP-IMTGFNL: ~$ cat README.md
[WARN] [1727886378.748538]: This is a warning
[ERROR] [1727886378.750546]: This is an error
[INFO] [1727886379.753581]: End of program
fadhildz@DESKTOP-IMTGFNL:~$ code .
fadhildz@DESKTOP-IMTGFNL:~$ rosrn my_robot_controller my_first_node.py
[INFO] [1727886663.629129]: Test node has been started.
[INFO] [1727886663.631134]: Hello
[INFO] [1727886663.731880]: Hello
[INFO] [1727886663.831772]: Hello
[INFO] [1727886663.932157]: Hello
[INFO] [1727886664.031704]: Hello
[INFO] [1727886664.131793]: Hello
[INFO] [1727886664.231924]: Hello
[INFO] [1727886664.331725]: Hello
[INFO] [1727886664.431567]: Hello
[INFO] [1727886664.531523]: Hello
[INFO] [1727886664.631568]: Hello
[INFO] [1727886664.731608]: Hello

fadhildz@DESKTOP-IMTGFNL:~$
fadhildz@DESKTOP-IMTGFNL:~$

roscore http://DESKTOP-IMTGFNL:~$ rosnode
... logging to /home/fadhildz/.ros/log/be8e
1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-
DESKTOP-IMTGFNL-5008.log
Checking log directory for disk usage. This
may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is
<1GB.

started roslaunch server http://DESKTOP-IMT
GFNL:38791/
ros_comm version 1.16.0

SUMMARY
=====

PARAMETERS
* /rostdistro: noetic
* /rosversion: 1.16.0

NODES

auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-IMTGFNL:11311
/

setting /run_id to be8e1f60-80da-11ef-b22d-
136849e1ebd0
process[rosout-1]: started with pid [5028]
started core service [/rosout]
```

15. **rostopic list** untuk melihat node yang berjalan.

```
fadhildz@DESKTOP-IMTGFNL x + v
[INFO] [1727886718.945768]: Hello
[INFO] [1727886719.045775]: Hello
[INFO] [1727886719.145775]: Hello
[INFO] [1727886719.245823]: Hello
[INFO] [1727886719.346230]: Hello
[INFO] [1727886719.445805]: Hello
[INFO] [1727886719.545731]: Hello
[INFO] [1727886719.645836]: Hello
[INFO] [1727886719.745776]: Hello
[INFO] [1727886719.845785]: Hello
[INFO] [1727886719.945687]: Hello
[INFO] [1727886720.045769]: Hello
[INFO] [1727886720.145713]: Hello
[INFO] [1727886720.245731]: Hello
[INFO] [1727886720.345762]: Hello
[INFO] [1727886720.445795]: Hello
[INFO] [1727886720.545756]: Hello
[INFO] [1727886720.645741]: Hello

fadhildz@DESKTOP-IMTGFNL x + v
fadhildz@DESKTOP-IMTGFNL:~$ rosnode list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$

roscore http://DESKTOP-IM x + v
fadhildz@DESKTOP-IMTGFNL:~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-IMTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://DESKTOP-IMTGFNL:38791/
ros_comm version 1.16.0

SUMMARY
=====

PARAMETERS
* /roscpp: noetic
* /rosversion: 1.16.0

NODES

auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-IMTGFNL:11311/

setting /run_id to be8e1f60-80da-11ef-b22d-136849e1ebd0
process[rosout-1]: started with pid [5028]
started core service [/rosout]
```

16. Hentikan node, lalu jalankan **rostopic list** lagi maka **/test_node** akan hilang. Ketika node dijalankan kembali, maka **rostopic list** akan menampilkan **/test_node** lagi.

```
fadhildz@DESKTOP-IMTGFNL:~$ rostopic list
[INFO] [1727886754.621416]: Hello
[INFO] [1727886754.721459]: Hello
[INFO] [1727886754.821252]: Hello
[INFO] [1727886754.921222]: Hello
[INFO] [1727886755.021161]: Hello
[INFO] [1727886755.121308]: Hello
[INFO] [1727886755.221293]: Hello
[INFO] [1727886755.321251]: Hello
[INFO] [1727886755.421237]: Hello
[INFO] [1727886755.521309]: Hello
[INFO] [1727886755.621452]: Hello
[INFO] [1727886755.721378]: Hello
[INFO] [1727886755.821324]: Hello
[INFO] [1727886755.921399]: Hello
[INFO] [1727886756.021197]: Hello
[INFO] [1727886756.121131]: Hello
[INFO] [1727886756.221133]: Hello
[INFO] [1727886756.321481]: Hello
fadhildz@DESKTOP-IMTGFNL:~$

fadhildz@DESKTOP-IMTGFNL:~$ rostopic list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$ rostopic list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$
```

```
roscore http://DESKTOP-IMTGFNL:~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-IMTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://DESKTOP-IMTGFNL:38791/
ros_comm version 1.16.0

SUMMARY
=====

PARAMETERS
* /roscpp: noetic
* /rosversion: 1.16.0

NODES
auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-IMTGFNL:11311
/

setting /run_id to be8e1f60-80da-11ef-b22d-136849e1ebd0
process[roscpp-1]: started with pid [5028]
started core service [/rosout]
```

17. **rostopic kill /test_node** untuk menghentikan node bernama **/test_node**.

```
fadhildz@DESKTOP-IMTGFNL:~$ rostopic list
[INFO] [1727886777.121234]: Hello
[INFO] [1727886777.221407]: Hello
[INFO] [1727886777.321030]: Hello
[INFO] [1727886777.421417]: Hello
[INFO] [1727886777.521445]: Hello
[INFO] [1727886777.621225]: Hello
[INFO] [1727886777.721379]: Hello
[INFO] [1727886777.821364]: Hello
[INFO] [1727886777.921467]: Hello
[INFO] [1727886778.021448]: Hello
[INFO] [1727886778.121090]: Hello
[INFO] [1727886778.221392]: Hello
[INFO] [1727886778.321391]: Hello
[INFO] [1727886778.421815]: Hello
[INFO] [1727886778.521103]: Hello
[INFO] [1727886778.620973]: Hello
shutdown request: user request
[INFO] [1727886778.721906]: Hello
fadhildz@DESKTOP-IMTGFNL:~$

fadhildz@DESKTOP-IMTGFNL:~$ rostopic list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$ rostopic list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$ rostopic list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$ rostopic kill /test_node
killing /test_node
killed
fadhildz@DESKTOP-IMTGFNL:~$
```

```
roscore http://DESKTOP-IMTGFNL:~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-IMTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://DESKTOP-IMTGFNL:38791/
ros_comm version 1.16.0

SUMMARY
=====

PARAMETERS
* /roscpp: noetic
* /rosversion: 1.16.0

NODES
auto-starting new master
process[master]: started with pid [5018]
ROS_MASTER_URI=http://DESKTOP-IMTGFNL:11311
/

setting /run_id to be8e1f60-80da-11ef-b22d-136849e1ebd0
process[roscpp-1]: started with pid [5028]
started core service [/rosout]
```

18. `rqt_graph` untuk menampilkan visualisasi node.

The screenshot shows a terminal window on the left and an `rqt_graph` window in the center. The terminal displays a series of "Hello" messages from a node with IP `172.7886876.909750`. Below this, the user runs `rosnode list`, which returns `/rosout` and `/test_node`. Then, `rosnode kill /test_node` is executed, returning "killing /test_node" and "killed". Finally, `rqt_graph` is run, opening a window titled `rqt_graph_RosGraph - rqt`. The window shows a single node labeled `/test_node` in an oval. The top of the window has a "Node Graph" tab and a search bar. The bottom of the window has a toolbar with icons for zooming and other graph functions.

```
[INFO] [1727886876.909750]: Hello
[INFO] [1727886877.009809]: Hello
[INFO] [1727886877.109778]: Hello
[INFO] [1727886877.209832]: Hello
[INFO] [1727886877.309842]: Hello
[INFO] [1727886877.409811]: Hello
[INFO] [1727886877.509724]: Hello
[INFO] [1727886877.609736]: Hello
[INFO] [1727886877.709795]: Hello
[INFO] [1727886877.809752]: Hello
[INFO] [1727886877.909900]: Hello
[INFO] [1727886878.009794]: Hello
[INFO] [1727886878.109772]: Hello
[INFO] [1727886878.209859]: Hello
[INFO] [1727886878.309817]: Hello
[INFO] [1727886878.409746]: Hello
[INFO] [1727886878.509861]: Hello
[INFO] [1727886878.609795]: Hello

fadhildz@DESKTOP-INTGFNL:~$ rosnode list
/rosout
/test_node
fadhildz@DESKTOP-INTGFNL:~$ rosnode list
/rosout
fadhildz@DESKTOP-INTGFNL:~$ rosnode list
/rosout
/test_node
fadhildz@DESKTOP-INTGFNL:~$ rosnode kill /test_node
killing /test_node
killed
fadhildz@DESKTOP-INTGFNL:~$ rqt_graph
```

19. Hilangkan ceklis **Debug** di `rqt_graph` untuk menampilkan node secara rinci.

The screenshot shows a terminal window on the left and an `rqt_graph` window in the center. The terminal displays a series of "Hello" messages from a node with IP `172.7886879.809768`. Below this, the user runs `rosnode list`, which returns `/rosout` and `/test_node`. Then, `rosnode kill /test_node` is executed, returning "killing /test_node" and "killed". Finally, `rqt_graph` is run, opening a window titled `rqt_graph_RosGraph - rqt`. The window shows a detailed graph with nodes `/statistics`, `/rqt_gui_py_node_7218`, `/test_node`, `/rosout`, and `/rosout_agg`. The `Debug` checkbox in the top toolbar is unchecked. The graph shows connections between these nodes, with `/statistics` and `/rqt_gui_py_node_7218` connected to `/rosout`, and `/test_node` connected to `/rosout`. `/rosout` is connected to `/rosout_agg`.

```
[INFO] [1727886879.809768]: Hello
[INFO] [1727886879.909678]: Hello
[INFO] [1727886880.009748]: Hello
[INFO] [1727886880.109872]: Hello
[INFO] [1727886880.209814]: Hello
[INFO] [1727886880.309665]: Hello
[INFO] [1727886880.409794]: Hello
[INFO] [1727886880.509743]: Hello
[INFO] [1727886880.609849]: Hello
[INFO] [1727886880.709694]: Hello
[INFO] [1727886880.809677]: Hello
[INFO] [1727886880.909717]: Hello
[INFO] [1727886881.009765]: Hello
[INFO] [1727886881.109805]: Hello
[INFO] [1727886881.209729]: Hello
[INFO] [1727886881.309687]: Hello
[INFO] [1727886881.409746]: Hello
[INFO] [1727886881.509777]: Hello

fadhildz@DESKTOP-INTGFNL:~$ rosnode list
/rosout
/test_node
fadhildz@DESKTOP-INTGFNL:~$ rosnode list
/rosout
fadhildz@DESKTOP-INTGFNL:~$ rosnode list
/rosout
/test_node
fadhildz@DESKTOP-INTGFNL:~$ rosnode kill /test_node
killing /test_node
killed
fadhildz@DESKTOP-INTGFNL:~$ rqt_graph
```

20. Jika mencoba menjalankan lagi `roslaunch my_robot_controller my_first_node.py` di terminal lain, maka akan muncul pesan bahwa node sudah berjalan.

```
fadhildz@DESKTOP-IMTGFNL x + v
[INFO] [1727886958.409986]: Hello
[INFO] [1727886958.509776]: Hello
[INFO] [1727886958.609823]: Hello
[INFO] [1727886958.709690]: Hello
[INFO] [1727886958.809748]: Hello
[INFO] [1727886958.909772]: Hello
[INFO] [1727886959.009686]: Hello
[INFO] [1727886959.109652]: Hello
[INFO] [1727886959.209976]: Hello
[INFO] [1727886959.309889]: Hello
[INFO] [1727886959.409781]: Hello
[INFO] [1727886959.509641]: Hello
[INFO] [1727886959.609815]: Hello
[INFO] [1727886959.709702]: Hello
[INFO] [1727886959.809690]: Hello
[INFO] [1727886959.909726]: Hello
[INFO] [1727886960.009949]: Hello
shutdown request: [/test_node] Reason: new node registered with same name
fadhildz@DESKTOP-IMTGFNL:~$

fadhildz@DESKTOP-IMTGFNL x + v
fadhildz@DESKTOP-IMTGFNL:~$ roslaunch my_robot_controller my_first_node.py
[INFO] [1727886960.007613]: Test node has been started.
[INFO] [1727886960.010417]: Hello
shutdown request: [/test_node] Reason: new node registered with same name
fadhildz@DESKTOP-IMTGFNL:~$

fadhildz@DESKTOP-IMTGFNL:~$ rosnode list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$ rosnode list
/rosout
/test_node
fadhildz@DESKTOP-IMTGFNL:~$ rosnode kill /test_node
killing /test_node
killed
fadhildz@DESKTOP-IMTGFNL:~$ rqt_graph
fadhildz@DESKTOP-IMTGFNL:~$ roslaunch my_robot_controller my_first_node.py
[INFO] [1727886960.007613]: Test node has been started.
[INFO] [1727886960.010417]: Hello
shutdown request: [/test_node] Reason: new node registered with same name
fadhildz@DESKTOP-IMTGFNL:~$
```

```
roscore http://DESKTOP-IMTGFNL:11311
fadhildz@DESKTOP-IMTGFNL:~$ roscore
... logging to /home/fadhildz/.ros/log/be8e1f60-80da-11ef-b22d-136849e1ebd0/roslaunch-DESKTOP-IMTGFNL-5008.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://DESKTOP-IMTGFNL:11311/
ros_comm version 1.16.0

SUMMARY
=====

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process[master]: started with pid [5018]
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process[rosout-1]: started with pid [5028]
started core service [/rosout]
```