

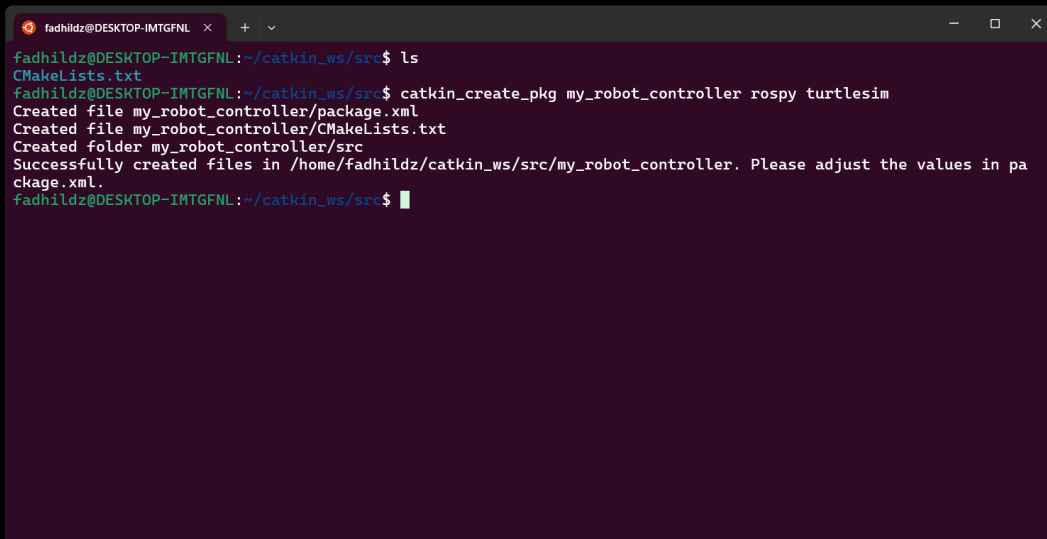
Nama : Fadhil Dzikri Aqila

NIM : 1103213136

Kelas : TK-45-G09

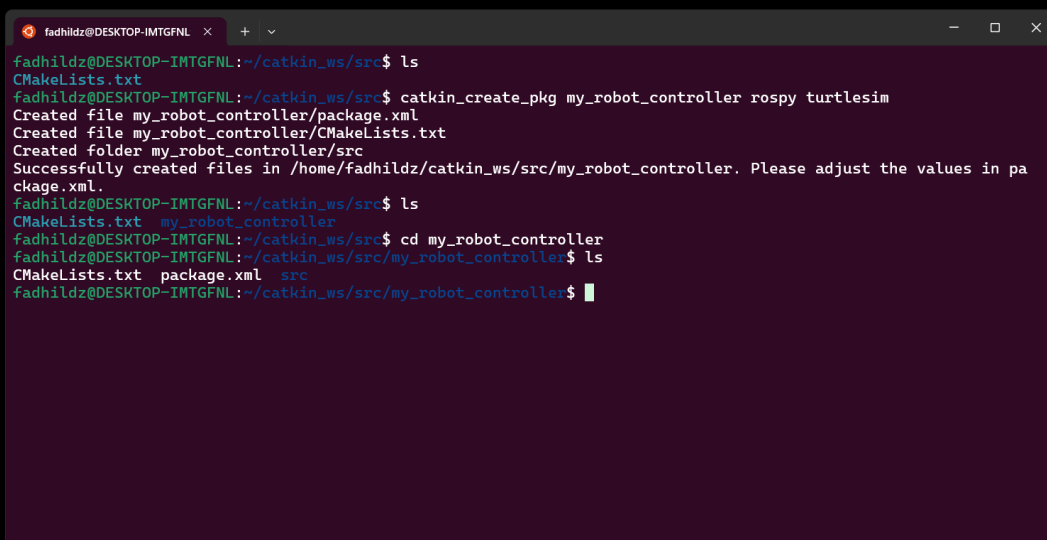
## Langkah-langkah Ros Tutorial 4 (ROS1) [Create a ROS Package](#)

1. Masuk ke direktori `~/catkin_ws/src` dengan perintah `cd ~/catkin_ws/src/` lalu jalankan `catkin_create_pkg my_robot_controller rospy turtlesim` untuk membuat sebuah ROS package baru bernama `my_robot_controller` yang bergantung pada `rospy` dan `turtlesim`



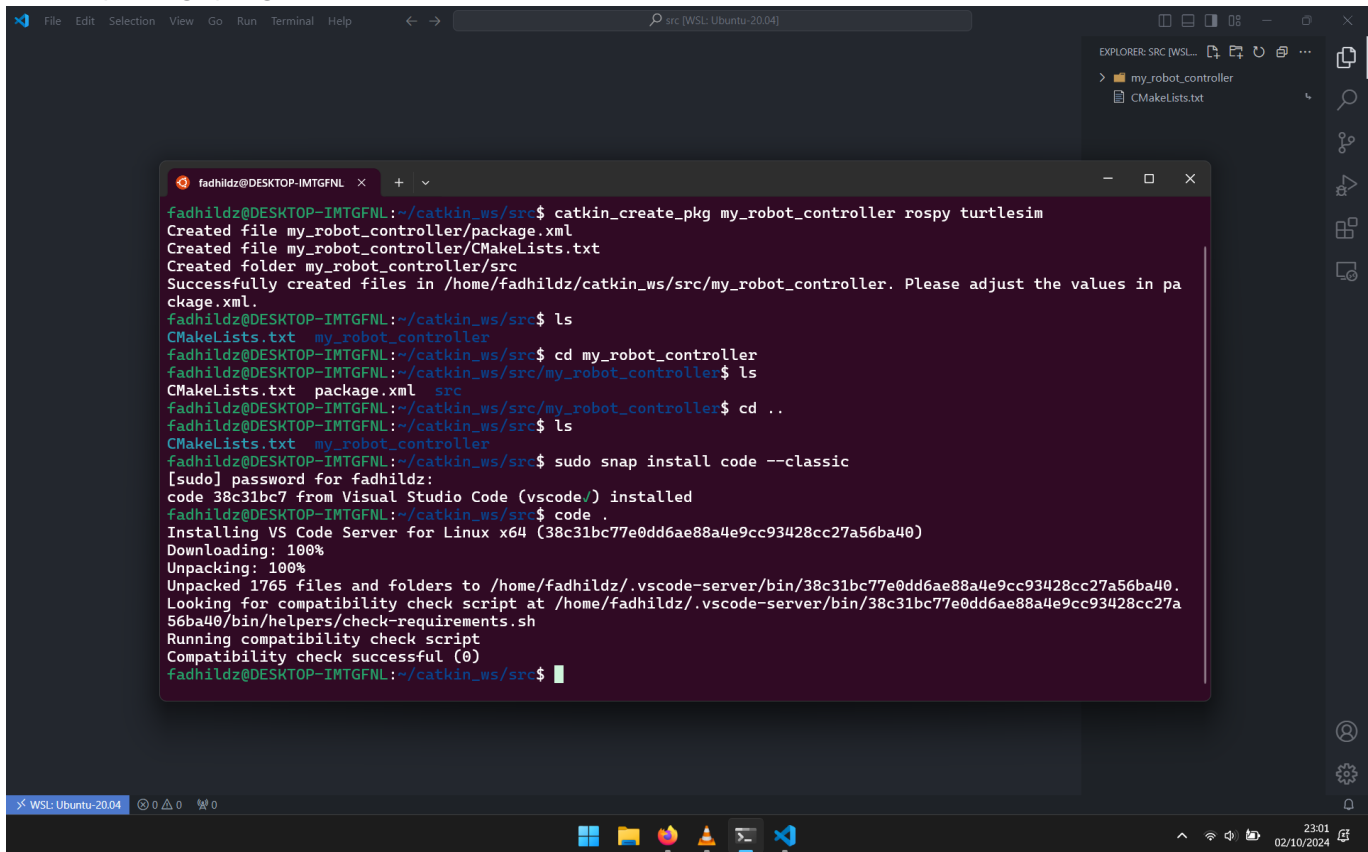
```
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$ ls
CMakeLists.txt
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$ catkin_create_pkg my_robot_controller rospy turtlesim
Created file my_robot_controller/package.xml
Created file my_robot_controller/CMakeLists.txt
Created folder my_robot_controller/src
Successfully created files in /home/fadhildz/catkin_ws/src/my_robot_controller. Please adjust the values in package.xml.
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$
```

2. `cd my_robot_controller` untuk masuk ke dalam direktori, lalu `ls` untuk menampilkan isinya



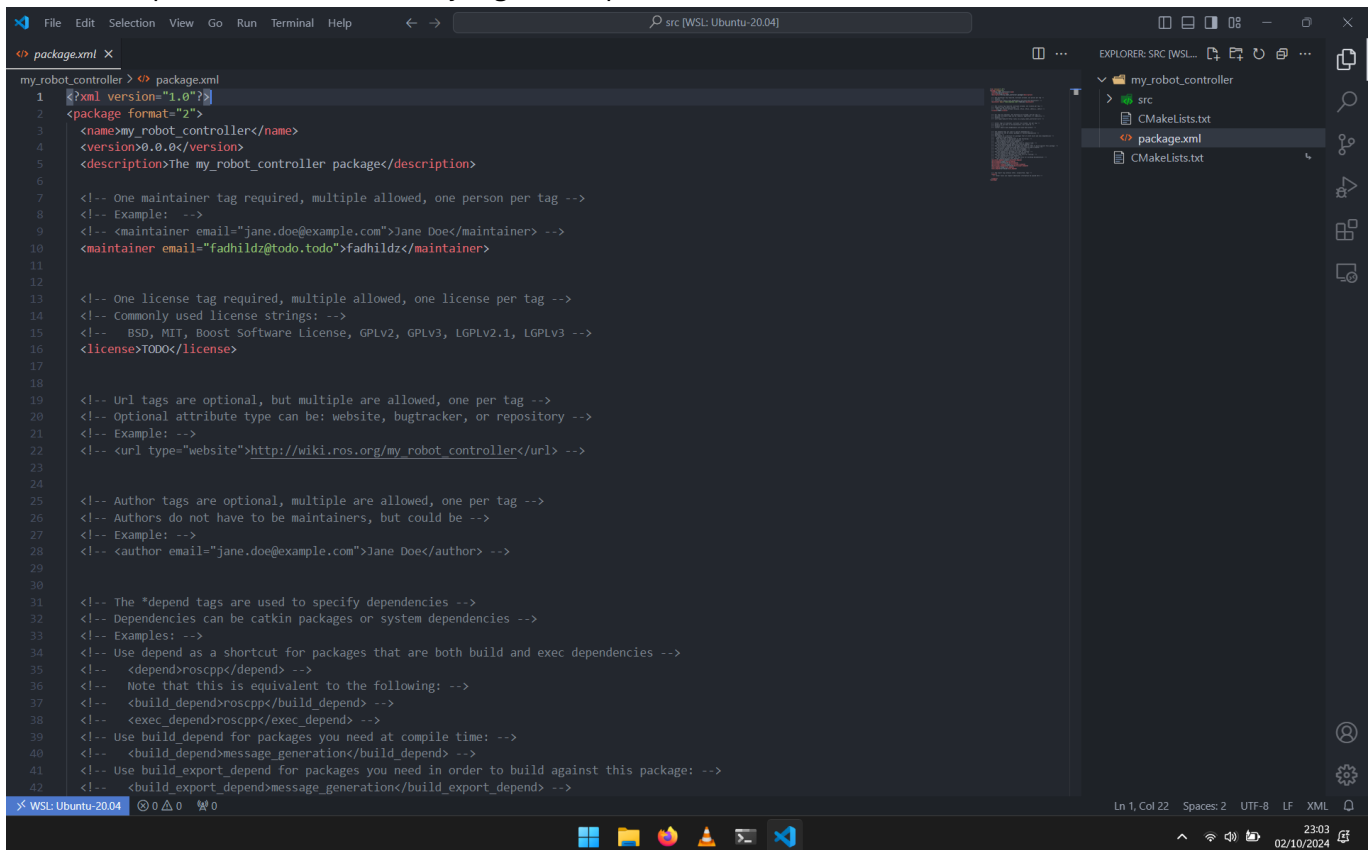
```
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$ ls
CMakeLists.txt
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$ catkin_create_pkg my_robot_controller rospy turtlesim
Created file my_robot_controller/package.xml
Created file my_robot_controller/CMakeLists.txt
Created folder my_robot_controller/src
Successfully created files in /home/fadhildz/catkin_ws/src/my_robot_controller. Please adjust the values in package.xml.
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$ ls
CMakeLists.txt  my_robot_controller
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$ cd my_robot_controller
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  src
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src/my_robot_controller$
```

3. **sudo snap install code --classic** untuk menginstall **Visual Studio Code** lalu **code .** untuk membuka package yang baru dibuat di dalam **Visual Studio Code**.



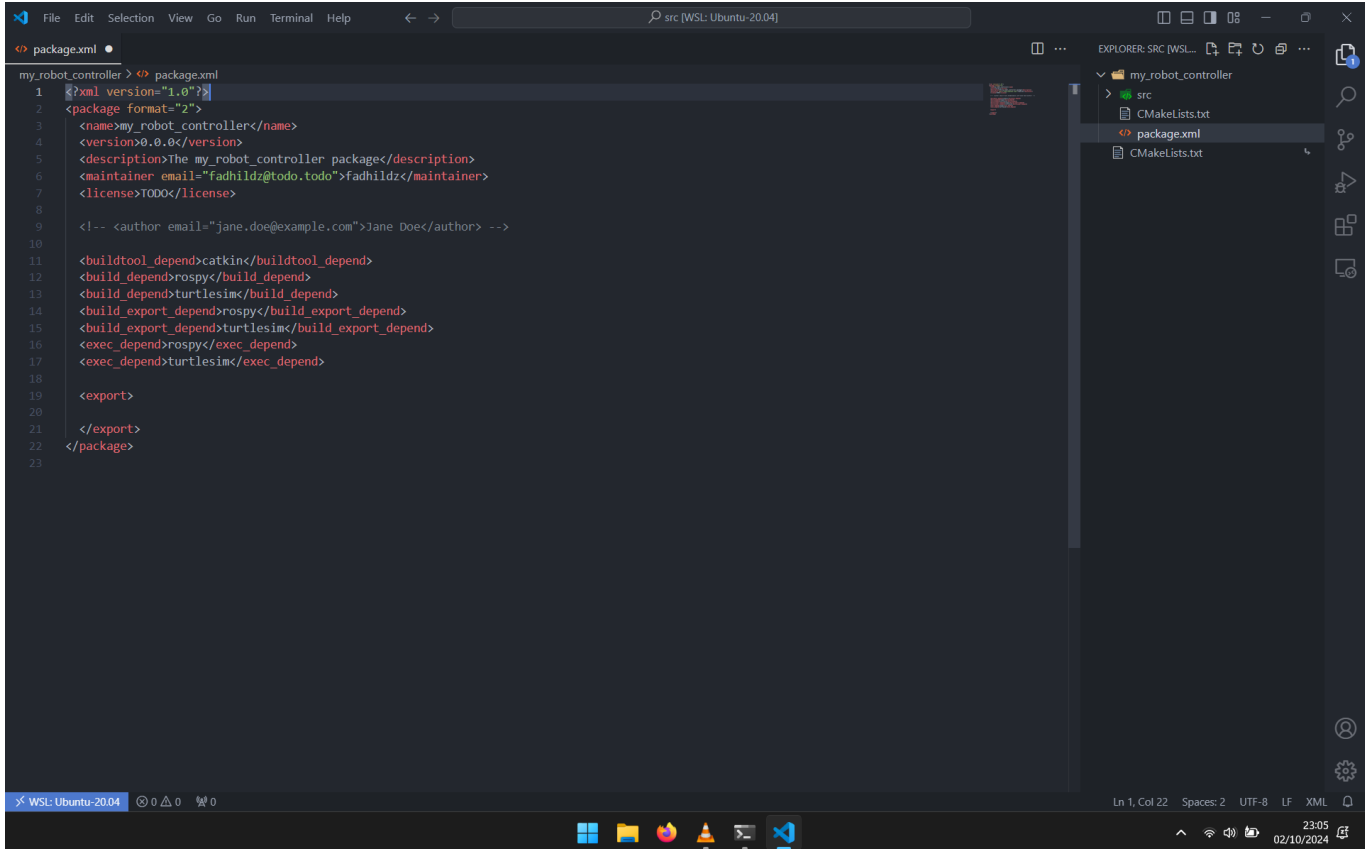
```
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src$ catkin_create_pkg my_robot_controller rospy turtlesim
Created file my_robot_controller/package.xml
Created file my_robot_controller/CMakeLists.txt
Created folder my_robot_controller/src
Successfully created files in /home/fadhildz/catkin_ws/src/my_robot_controller. Please adjust the values in package.xml.
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src$ ls
CMakeLists.txt  my_robot_controller
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src$ cd my_robot_controller
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src/my_robot_controller$ ls
CMakeLists.txt  package.xml  src
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src/my_robot_controller$ cd ..
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src$ ls
CMakeLists.txt  my_robot_controller
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src$ sudo snap install code --classic
[sudo] password for fadhildz:
code 38c31bc7 from Visual Studio Code (vscode✓) installed
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src$ code .
Installing VS Code Server for Linux x64 (38c31bc77e0dd6ae88a4e9cc93428cc27a56ba40)
Downloading: 100%
Unpacking: 100%
Unpacked 1765 files and folders to /home/fadhildz/.vscode-server/bin/38c31bc77e0dd6ae88a4e9cc93428cc27a56ba40.
Looking for compatibility check script at /home/fadhildz/.vscode-server/bin/38c31bc77e0dd6ae88a4e9cc93428cc27a56ba40/bin/helpers/check-requirements.sh
Running compatibility check script
Compatibility check successful (0)
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/src$
```

4. Buka file **package.xml**, akan tampil kode, hapus komentar yang tidak terpakai untuk membersihkan tampilan file dari komentar yang tidak diperlukan.



```
1 <?xml version="1.0"?>
2 <package format="2">
3   <name>my_robot_controller</name>
4   <version>0.0.0</version>
5   <description>The my_robot_controller package</description>
6
7   <!-- One maintainer tag required, multiple allowed, one person per tag -->
8   <!-- Example: -->
9   <!-- <maintainer email="jane.doe@example.com">Jane Doe</maintainer> -->
10  <maintainer email="fadhildz@todo.todo">fadhildz</maintainer>
11
12  <!-- One license tag required, multiple allowed, one license per tag -->
13  <!-- Commonly used license strings: -->
14  <!--   BSD, MIT, Boost Software License, GPLv2, GPLv3, LGPLv2.1, LGPLv3 -->
15  <license>TODO</license>
16
17
18  <!-- Url tags are optional, but multiple are allowed, one per tag -->
19  <!-- Optional attribute type can be: website, bugtracker, or repository -->
20  <!-- Example: -->
21  <!-- <url type="website">http://wiki.ros.org/my_robot_controller</url> -->
22
23
24  <!-- Author tags are optional, multiple are allowed, one per tag -->
25  <!-- Authors do not have to be maintainers, but could be -->
26  <!-- Example: -->
27  <!-- <author email="jane.doe@example.com">Jane Doe</author> -->
28
29
30
31  <!-- The *depend tags are used to specify dependencies -->
32  <!-- Dependencies can be catkin packages or system dependencies -->
33  <!-- Examples: -->
34  <!-- Use depend as a shortcut for packages that are both build and exec dependencies -->
35  <!--   <depend>roscpp</depend> -->
36  <!-- Note that this is equivalent to the following: -->
37  <!--   <build_depend>roscpp</build_depend> -->
38  <!--   <exec_depend>roscpp</exec_depend> -->
39  <!-- Use build_export depend for packages you need at compile time: -->
40  <!--   <build_export_depend>message_generation</build_export_depend> -->
41  <!-- Use build_export depend for packages you need in order to build against this package: -->
42  <!--   <build_export_depend>message_generation</build_export_depend> -->
```

## 5. Sisakan baris yang berisi informasi author email

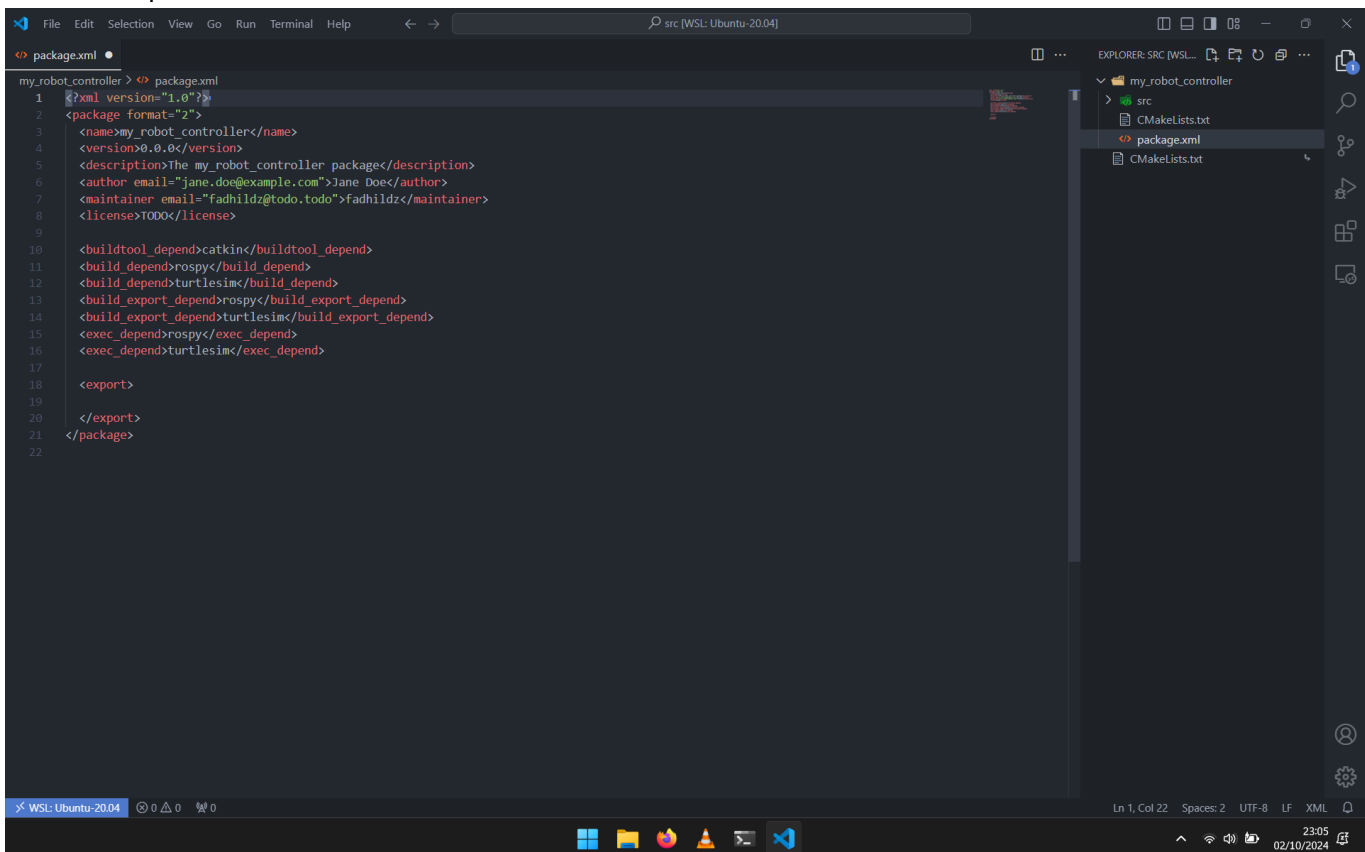


The screenshot shows a Visual Studio Code editor window with a file named `package.xml` open. The file content is as follows:

```
1 <?xml version="1.0"?>
2 <package format="2">
3   <name>my_robot_controller</name>
4   <version>0.0.0</version>
5   <description>The my_robot_controller package</description>
6   <maintainer email="fadhildz@todo.todo">fadhildz</maintainer>
7   <license>TODO</license>
8
9   <!-- <author email="jane.doe@example.com">Jane Doe</author> -->
10
11   <buildtool_depend>catkin</buildtool_depend>
12   <build_depend>roscpp</build_depend>
13   <build_export_depend>roscpp</build_export_depend>
14   <exec_depend>roscpp</exec_depend>
15   <exec_depend>turtlesim</exec_depend>
16
17   <export>
18     </export>
19 </package>
```

The file explorer on the right shows the project structure with `package.xml` selected. The status bar at the bottom indicates the file is at line 1, column 22, with 2 spaces, in UTF-8 encoding, LF line endings, and XML format.

## 6. Uncomment (hilangkan tanda komentar) lalu pindahkan kode author email ke bagian atas file lalu simpan file tersebut.



The screenshot shows the same Visual Studio Code editor window after editing `package.xml`. The file content is now:

```
1 <?xml version="1.0"?>
2 <package format="2">
3   <name>my_robot_controller</name>
4   <version>0.0.0</version>
5   <description>The my_robot_controller package</description>
6   <author email="jane.doe@example.com">Jane Doe</author>
7   <maintainer email="fadhildz@todo.todo">fadhildz</maintainer>
8   <license>TODO</license>
9
10   <buildtool_depend>catkin</buildtool_depend>
11   <build_depend>roscpp</build_depend>
12   <build_export_depend>roscpp</build_export_depend>
13   <exec_depend>roscpp</exec_depend>
14   <exec_depend>turtlesim</exec_depend>
15
16   <export>
17     </export>
18 </package>
```

The file explorer and status bar remain the same as in the previous screenshot.

7. **cd ..** untuk kembali ke direktori **~/catkin\_ws/src**, lalu **catkin\_make** untuk membangun workspace dengan package yang baru saja dibuat.

```
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws/src$ cd ..
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws$ catkin_make
Base path: /home/fadhildz/catkin_ws
Source space: /home/fadhildz/catkin_ws/src
Build space: /home/fadhildz/catkin_ws/build
Devel space: /home/fadhildz/catkin_ws/devel
Install space: /home/fadhildz/catkin_ws/install
####
#### Running command: "cmake /home/fadhildz/catkin_ws/src -DCATKIN_DEVEL_PREFIX=/home/fadhildz/catkin_ws/devel
-DCMAKE_INSTALL_PREFIX=/home/fadhildz/catkin_ws/install -G Unix Makefiles" in "/home/fadhildz/catkin_ws/build"
####
-- Using CATKIN_DEVEL_PREFIX: /home/fadhildz/catkin_ws/devel
-- Using CMAKE_PREFIX_PATH: /home/fadhildz/catkin_ws/devel;/opt/ros/noetic
-- This workspace overlays: /home/fadhildz/catkin_ws/devel;/opt/ros/noetic
-- Found PythonInterp: /usr/bin/python3 (found suitable version "3.8.10", minimum required is "3")
-- Using PYTHON_EXECUTABLE: /usr/bin/python3
-- Using Debian Python package layout
-- Using empy: /usr/lib/python3/dist-packages/em.py
-- Using CATKIN_ENABLE_TESTING: ON
-- Call enable_testing()
-- Using CATKIN_TEST_RESULTS_DIR: /home/fadhildz/catkin_ws/build/test_results
-- Forcing gtest/gmock from source, though one was otherwise available.
-- Found gtest sources under '/usr/src/googletest': gtests will be built
-- Found gmock sources under '/usr/src/googletest': gmock will be built
-- Found PythonInterp: /usr/bin/python3 (found version "3.8.10")
-- Using Python nosetests: /usr/bin/nosetests3
```

```
-- Using PYTHON_EXECUTABLE: /usr/bin/python3
-- Using Debian Python package layout
-- Using empy: /usr/lib/python3/dist-packages/em.py
-- Using CATKIN_ENABLE_TESTING: ON
-- Call enable_testing()
-- Using CATKIN_TEST_RESULTS_DIR: /home/fadhildz/catkin_ws/build/test_results
-- Forcing gtest/gmock from source, though one was otherwise available.
-- Found gtest sources under '/usr/src/googletest': gtests will be built
-- Found gmock sources under '/usr/src/googletest': gmock will be built
-- Found PythonInterp: /usr/bin/python3 (found version "3.8.10")
-- Using Python nosetests: /usr/bin/nosetests3
-- catkin 0.8.10
-- BUILD_SHARED_LIBS is on
-- BUILD_SHARED_LIBS is on
-- traversing 1 packages in topological order:
--   - my_robot_controller
-- +++ processing catkin package: 'my_robot_controller'
-- ==> add_subdirectory(my_robot_controller)
-- Configuring done
-- Generating done
-- Build files have been written to: /home/fadhildz/catkin_ws/build
####
#### Running command: "make -j20 -l20" in "/home/fadhildz/catkin_ws/build"
####
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws$
```

8. **cd build/** untuk masuk ke direktori build yang baru saja dihasilkan oleh **catkin\_make** lalu **ls** untuk melihat isi dari direktori build

```
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws$ ls
build  devel  src
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws$ cd build/
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/build$ ls
CATKIN_IGNORE          CTestCustom.cmake    bin                  cmake_install.cmake
CMakeCache.txt         CTestTestfile.cmake  catkin              gtest
CMakeFiles             Makefile              catkin_generated    my_robot_controller
CTestConfiguration.ini  atomic_configure      catkin_make.cache   test_results
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/build$
```

9. **cd ..** untuk kembali ke direktori sebelumnya.

```
fadhildz@DESKTOP-IMTGFNL: ~/catkin_ws$ ls
build  devel  src
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws$ cd build/
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/build$ ls
CATKIN_IGNORE          CTestCustom.cmake    bin                  cmake_install.cmake
CMakeCache.txt         CTestTestfile.cmake  catkin              gtest
CMakeFiles             Makefile              catkin_generated    my_robot_controller
CTestConfiguration.ini  atomic_configure      catkin_make.cache   test_results
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws/build$ cd ..
fadhildz@DESKTOP-IMTGFNL:~/catkin_ws$
```