Java Programming II
Lab7

514770-1
Fall 2024
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Kyoung Shin Park
Computer Engineering
Dankook University
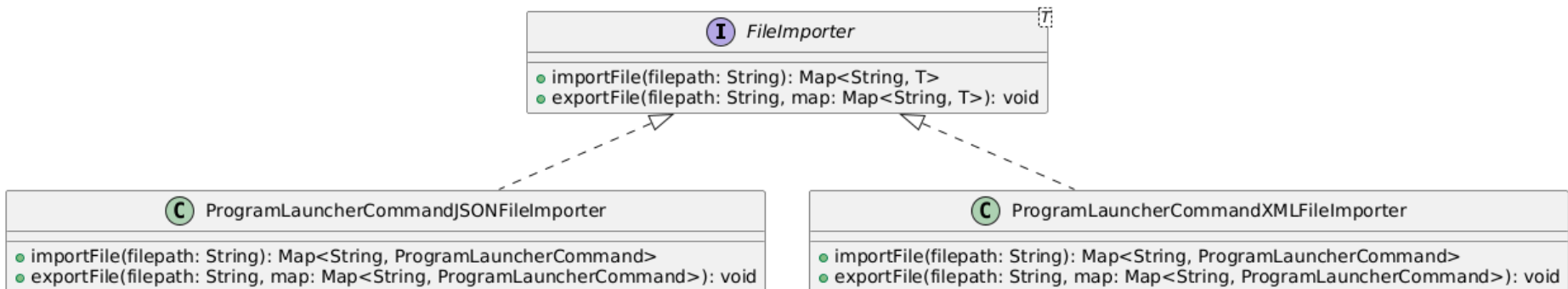
Lab7

- Practice to write a program that adapts FileLoader<T> to FileImporter<T>.
  - **FileImporter<T>** interface has *Map<String, T> importFile(String filepath)* and *void exportFile(String filepath, Map<String, T> map)*.
    - **ProgramLauncherCommandJSONFileImporter** class implements *FileImporter<ProgramLauncherCommand>*.
    - **ProgramLauncherCommandXMLFileImporter** class implements *FileImporter<ProgramLauncherCommand>*.
  - **FileLoader<T>** interface has *Map<String, T> load(String filepath)* and *void save(String filepath, Map<String, T> map)*.
    - **ProgramLauncherCommandCSVFileLoder** class implements *FileLoader<ProgramLauncherCommand>*.
  - **FileLoaderImporterAdapter<T> class** takes **FileLoader<T> adaptee class** to support **FileImporter<T> target** interface.
  - **FileImporterLoaderAdapter<T> class** takes **FileImporter<T> adaptee class** to support **FileLoader<T> target** interface.

Lab7

- **FileImporter\<T>** interface
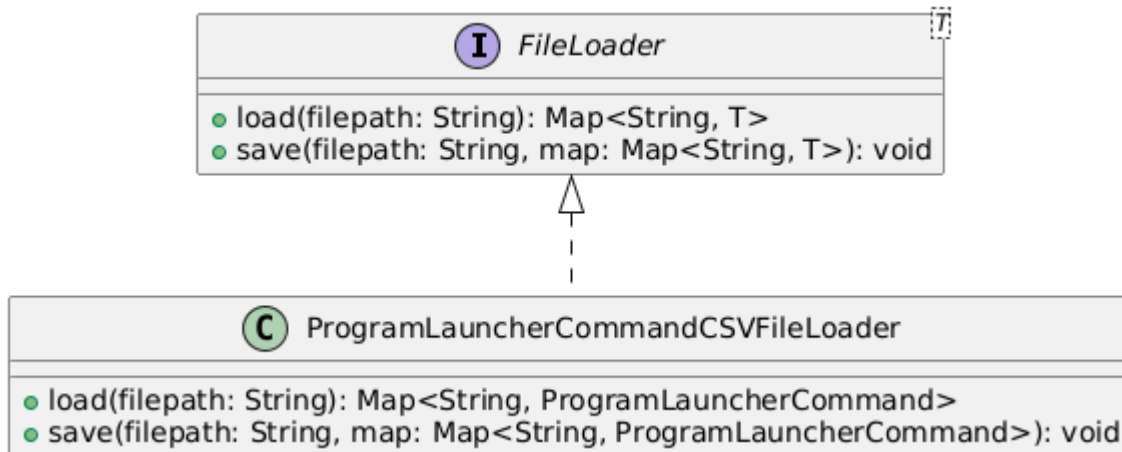 - ProgramLauncherCommandJSONFileImporter class implements FileImporter\<ProgramLauncherCommand>.
    - **using com.google.gson.Gson (gson-2.11.0.jar)**
  - ProgramLauncherCommandXMLFileImporter class implements FileImporter\<ProgramLauncherCommand>.
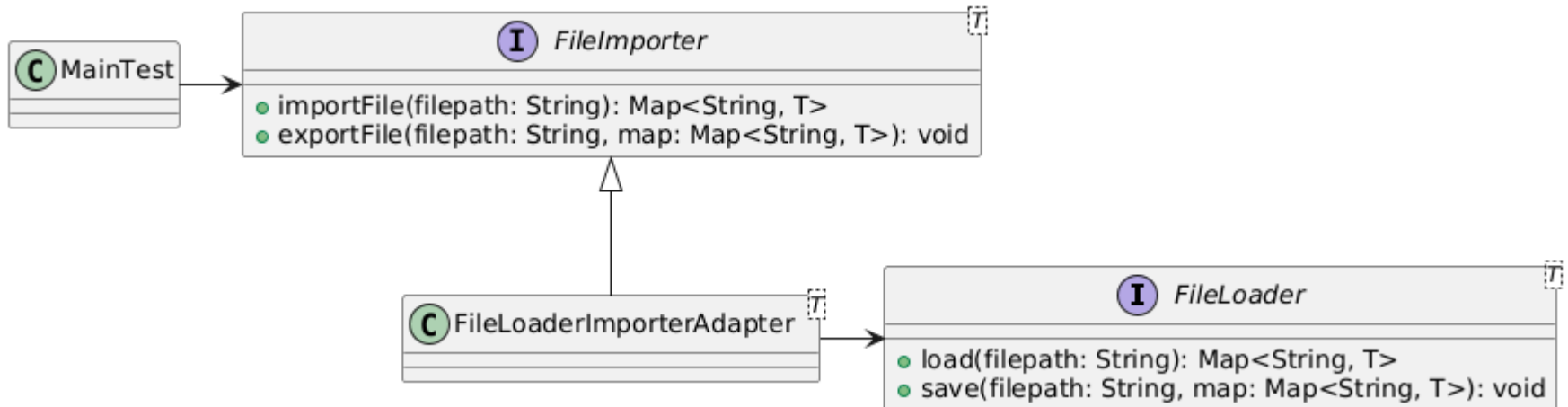   - **using org.w3c.dom.Element/Document/NodeList**

FileImporter
- importFile(filepath: String): Map\<String, T>
- exportFile(filepath: String, map: Map\<String, T>): void

ProgramLauncherCommandJSONFileImporter
- importFile(filepath: String): Map\<String, ProgramLauncherCommand>
- exportFile(filepath: String, map: Map\<String, ProgramLauncherCommand>): void

ProgramLauncherCommandXMLFileImporter
- importFile(filepath: String): Map\<String, ProgramLauncherCommand>
- exportFile(filepath: String, map: Map\<String, ProgramLauncherCommand>): void

Lab7

- **FileLoader<T>** interface
  - ProgramLauncherCommandCSVFileLoder class implements FileLoader<ProgramLauncherCommand>.
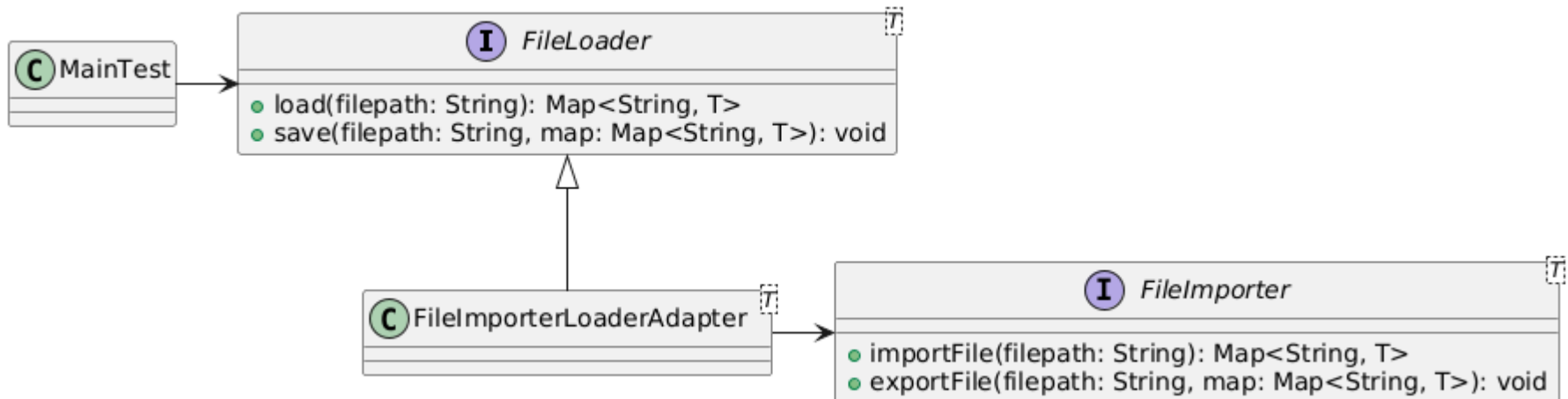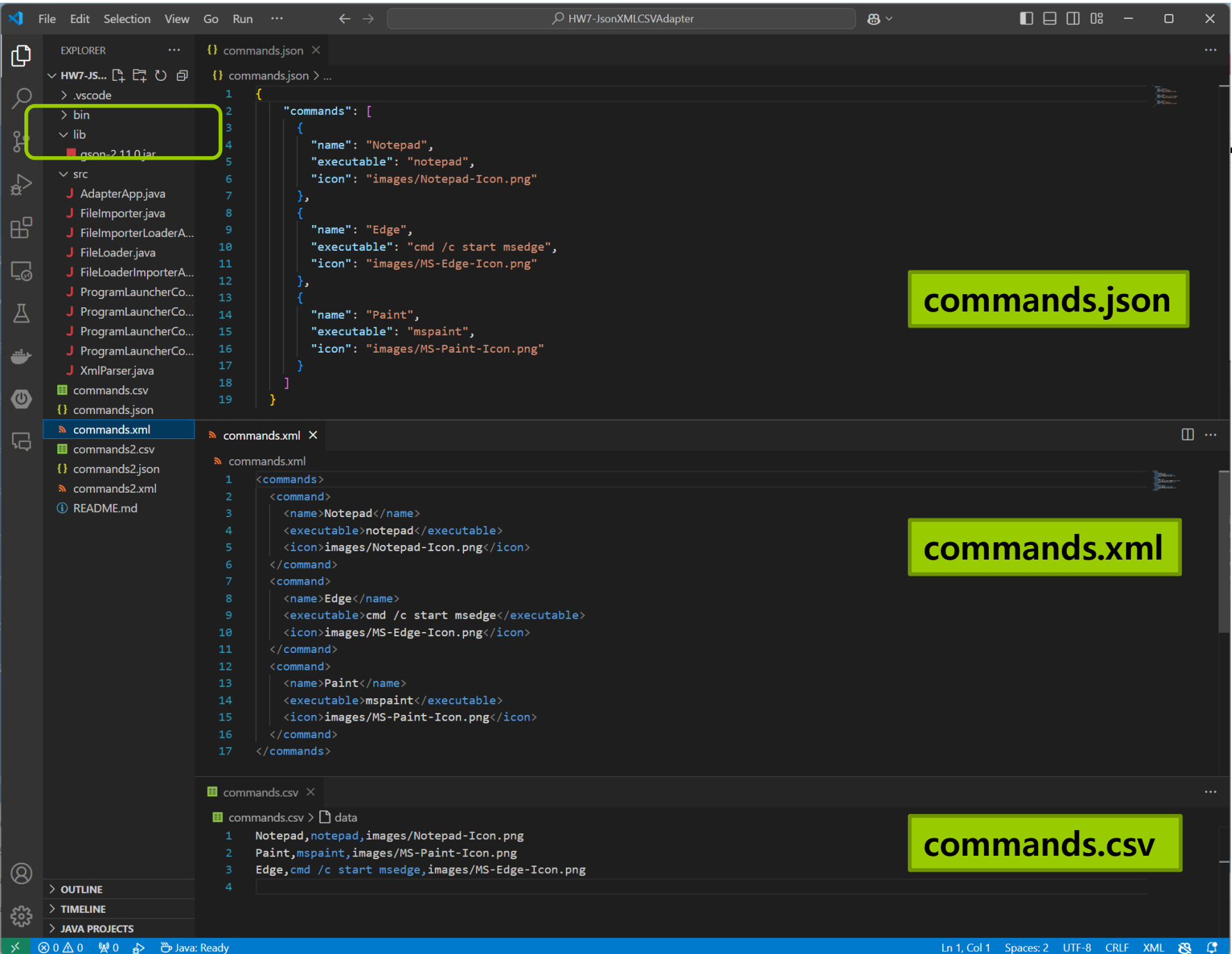
Lab7

□ **FileLoaderImporterAdapter<T> adapter class** takes **FileLoader<T> adaptee class** to support **FileImporter<T> target** interface.

Lab7

- **FileImporterLoaderAdapter<T> adapter class** takes **FileImporter<T> adaptee class** to support **FileLoader<T> target** interface.

File Edit Selection View Go Run ···

EXPLORER

∨ HW7-JS...
  > .vscode
  > bin
  ∨ lib
    gson-2.11.0.jar
  ∨ src
    J AdapterApp.java
    J FileImporter.java
    J FileImporterLoaderA...
    J FileLoader.java
    J FileLoaderImporterA...
    J ProgramLauncherCo...
    J ProgramLauncherCo...
    J ProgramLauncherCo...
    J ProgramLauncherCo...
    J XmlParser.java
    ▦ commands.csv
    {} commands.json
    ⬟ commands.xml
    ▦ commands2.csv
    {} commands2.json
    ⬟ commands2.xml
    ⓘ README.md

commands.json

```json
{
  "commands": [
    {
      "name": "Notepad",
      "executable": "notepad",
      "icon": "images/Notepad-Icon.png"
    },
    {
      "name": "Edge",
      "executable": "cmd /c start msedge",
      "icon": "images/MS-Edge-Icon.png"
    },
    {
      "name": "Paint",
      "executable": "mspaint",
      "icon": "images/MS-Paint-Icon.png"
    }
  ]
}
```

commands.xml

```xml
<commands>
  <command>
    <name>Notepad</name>
    <executable>notepad</executable>
    <icon>images/Notepad-Icon.png</icon>
  </command>
  <command>
    <name>Edge</name>
    <executable>cmd /c start msedge</executable>
    <icon>images/MS-Edge-Icon.png</icon>
  </command>
  <command>
    <name>Paint</name>
    <executable>mspaint</executable>
    <icon>images/MS-Paint-Icon.png</icon>
  </command>
</commands>
```

commands.csv

```
Notepad,notepad,images/Notepad-Icon.png
Paint,mspaint,images/MS-Paint-Icon.png
Edge,cmd /c start msedge,images/MS-Edge-Icon.png
```

commands.csv > data

Ln 1, Col 1   Spaces: 2   UTF-8   CRLF   XML

Lab7

```java
public class MainTest {
  public static void main(String[] args) {
    // ProgramLauncherCommandJSONFileImporter

    FileImporter<ProgramLauncherCommand> importer = new
ProgramLauncherCommandJSONFileImporter();

    Map<String, ProgramLauncherCommand> map =
importer.importFile("commands.json");

    for (Map.Entry<String, ProgramLauncherCommand> entry :
map.entrySet()) {

            System.out.println(entry.getKey() + " " +
entry.getValue().getExecutable() + " " + entry.getValue().getIcon());
    }

    importer.exportFile("commands2.json", map);
```

Lab7

```
    // use Adapter to load json file
    System.out.println("\n\n JSONFileImporter use adapter to load");
        FileLoader<ProgramLauncherCommand> loader = new
FileImporterLoaderAdapter<ProgramLauncherCommand>(importer);
        map = loader.load("commands.json");
        for (Map.Entry<String, ProgramLauncherCommand> entry :
map.entrySet()) {
            System.out.println(entry.getKey() + " " +
entry.getValue().getExecutable() + " " + entry.getValue().getIcon());
        }
    // use Adapter to save to xml file
    loader = new
FileImporterLoaderAdapter<ProgramLauncherCommand>(new
ProgramLauncherCommandXMLFileImporter());
    loader.save("commands2.xml", map);
    // use Adapter to export to csv file
    importer = new
FileLoaderImporterAdapter<ProgramLauncherCommand>(new
ProgramLauncherCommandCSVFileLoader();
```

Submit to e-learning

- Add your code (e.g Iterator or Façade pattern) in the Lab7 assignment.
- Submit the Lab7 assignment (JAVA24-2-Lab7-YourID-YourName.zip including the report) to e-learning (due by 11/19).