

Grapher README

This Java application, **Grapher**, allows you to parse, manipulate, and visualize directed graphs. It utilizes the JGraphT library for graph manipulation and the JGraphX library for graph visualization.

Features

1. Parsing Graph from DOT File

- **Method:** `parseGraph(String filePath)`
- **Description:** Parses a graph from a DOT file.
- **Example:**

```
Grapher grapher = new Grapher();
Graph<String, DefaultEdge> graph = grapher.parseGraph("path/to/your/graph.dot");
```



2. Adding Nodes

- **Methods:** `addNode(String label)` , `addNodes(String[] labels)`
- **Description:** Adds nodes to the graph.
- **Example:**

```
grapher.addNode("A");
grapher.addNodes(new String[]{"B", "C"});
```



3. Adding Edges

- **Method:** `addEdge(String srcLabel, String dstLabel)`
- **Description:** Adds directed edges between nodes.
- **Example:**

```
grapher.addEdge("A", "B");
```



4. Exporting Graph to DOT Format

- **Method:** `outputDOTGraph(String filePath)`
- **Description:** Exports the graph in DOT format to a file.
- **Example:**

```
grapher.outputDOTGraph("path/to/save/graph.dot");
```



5. Exporting Graph as Image

- **Method:** `outputGraphics(String filePath)`
- **Description:** Exports the graph as an image file (PNG format).
- **Example:**

```
grapher.outputGraphics("path/to/save/graph.png");
```



6. Generating Graph Information

- **Method:** `toString()`
- **Description:** Generates a string containing graph information, including nodes and edges.
- **Example:**

```
String graphInfo = grapher.toString();
```



7. Writing Graph Information to File

- **Method:** `writeToFile(String filePath)`
- **Description:** Writes graph information to a text file.
- **Example:**

```
grapher.writeToFile("path/to/save/graphInfo.txt");
```



How to Run [↗](#)

1. Clone the repository - [Link](#)
2. Compile the Code:

```
mvn package
```



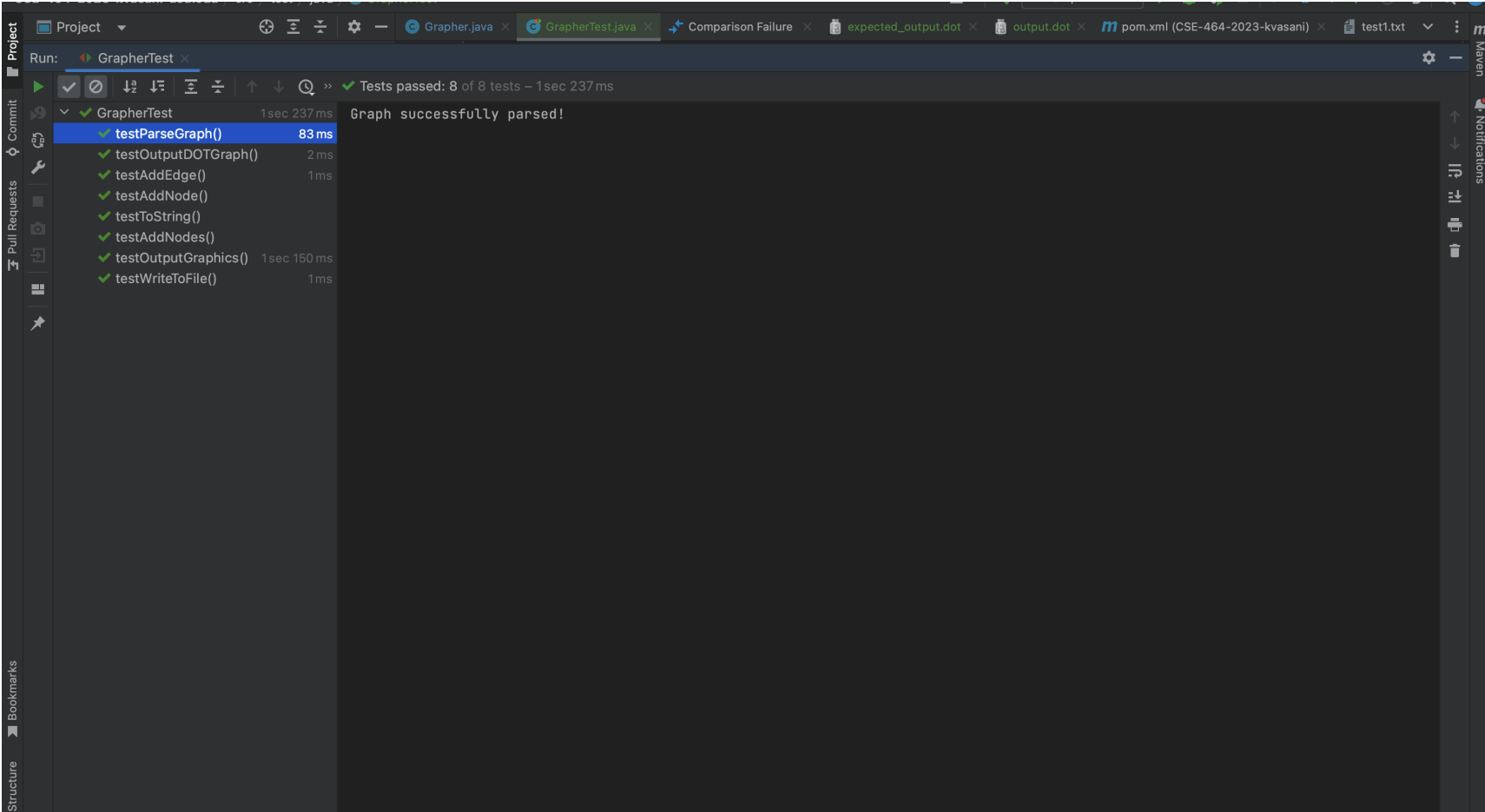
3. Run Tests:

```
mvn test
```

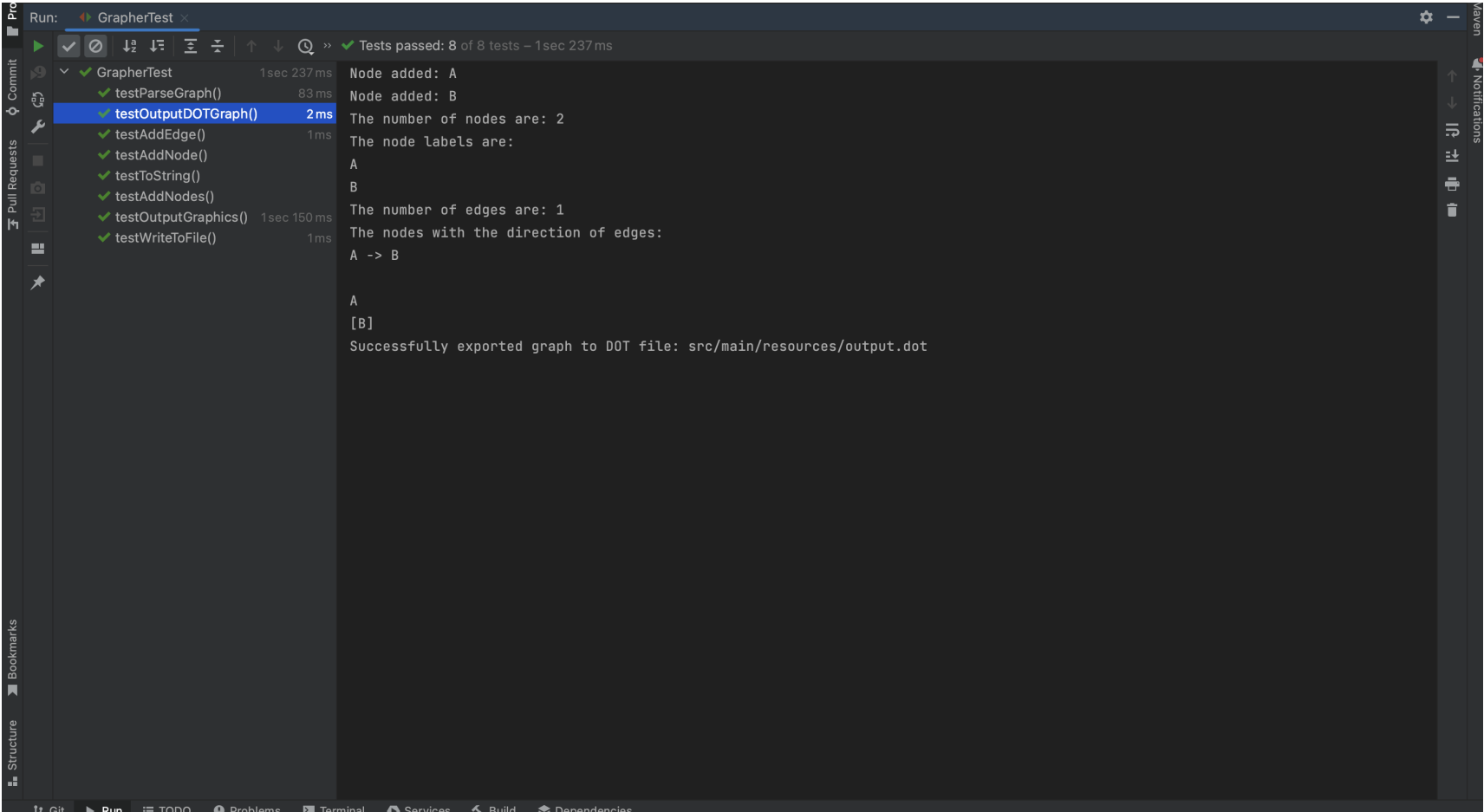


Screenshots [↗](#)

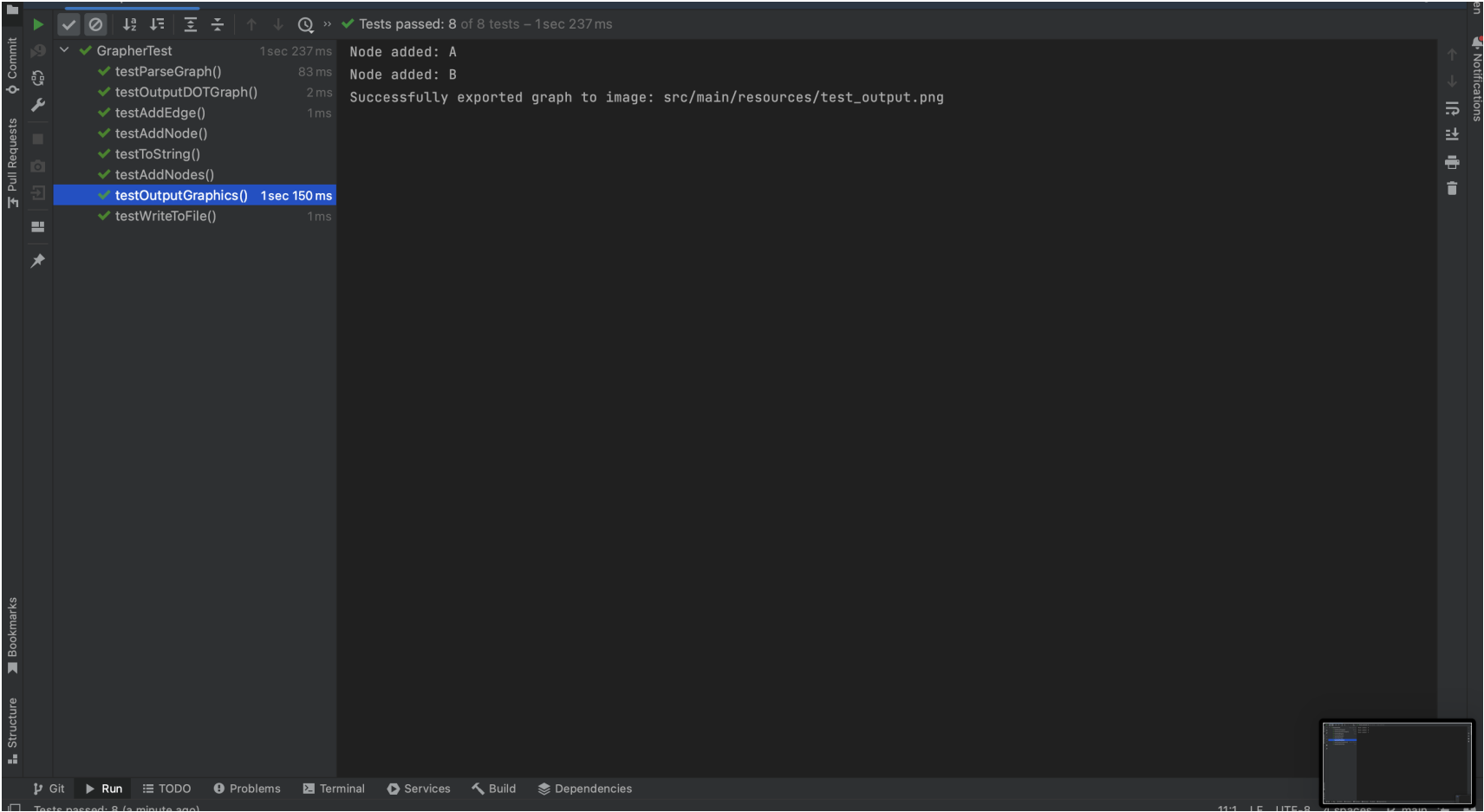
- **Parsed Graph Information:**



- Exported Graph (DOT Format):



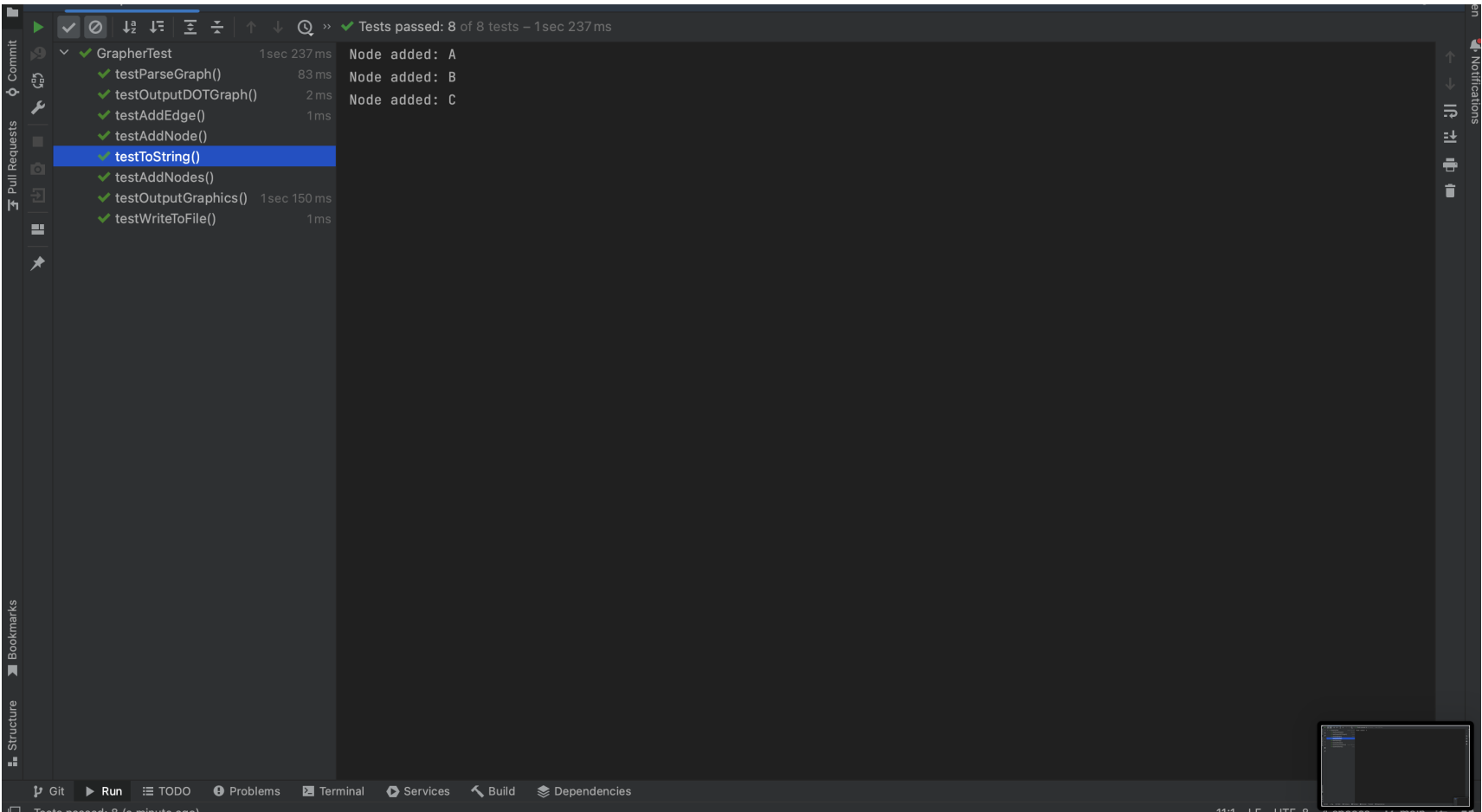
- Exported Graph (Image):



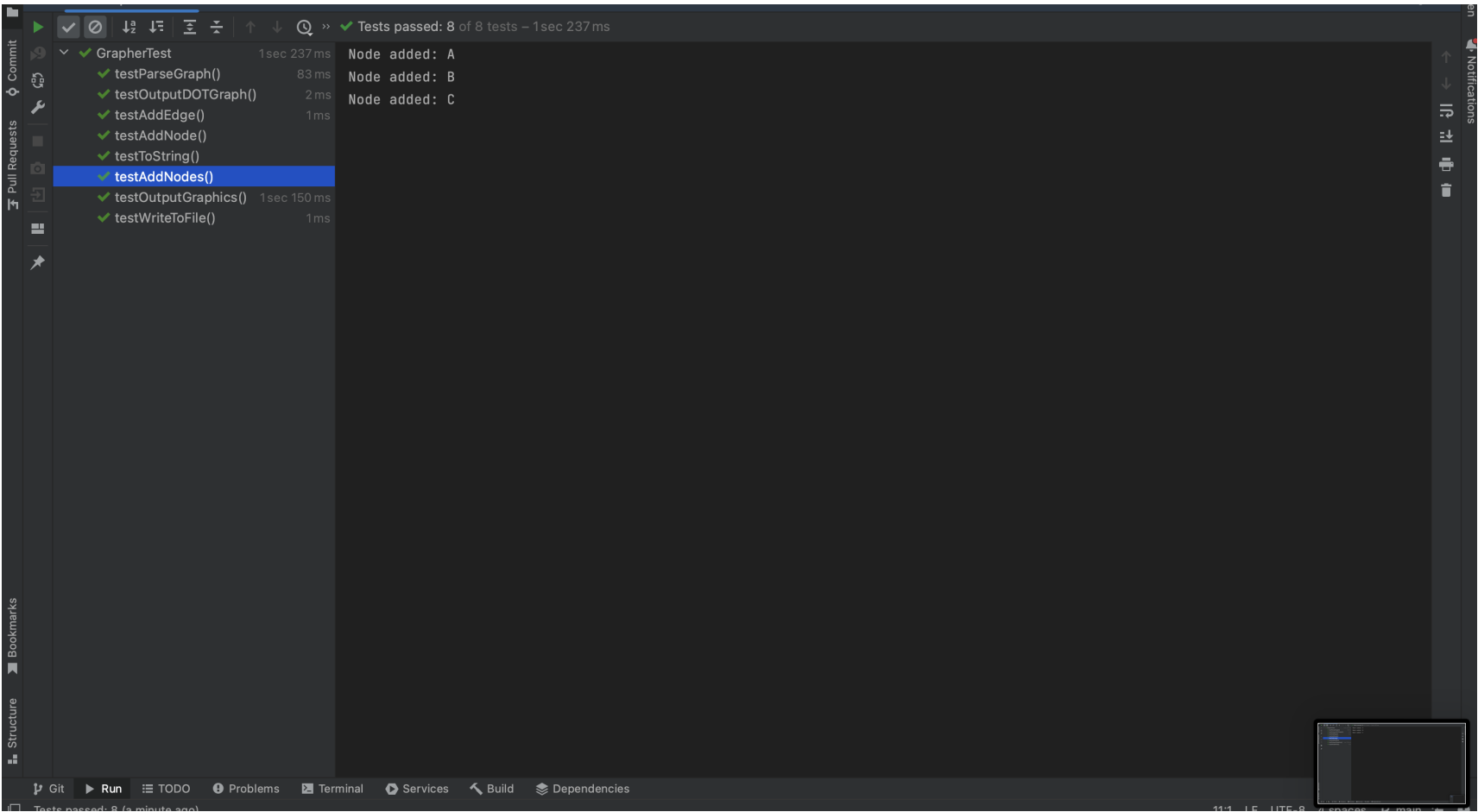
- Exported Graph (Image):



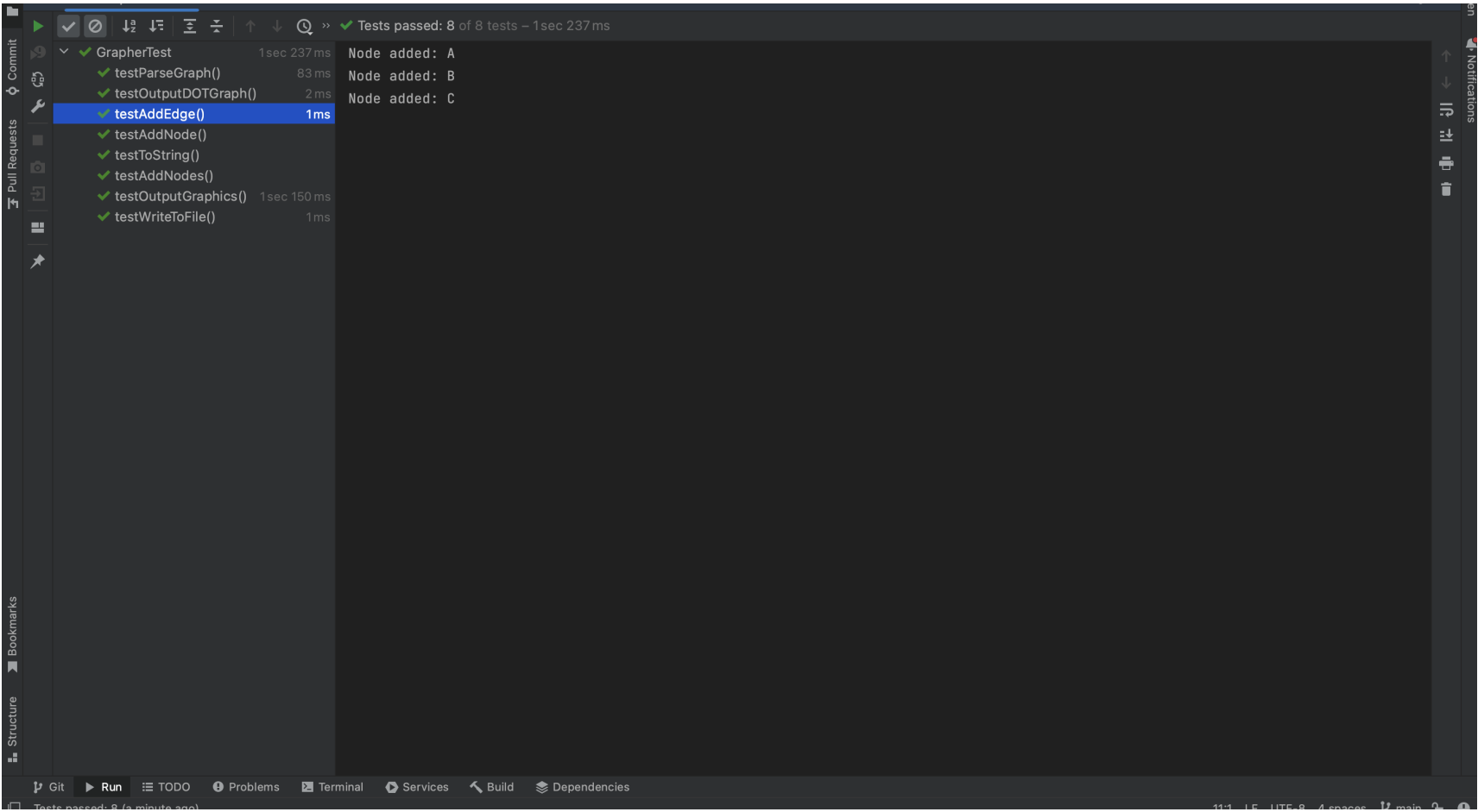
- Output to String:



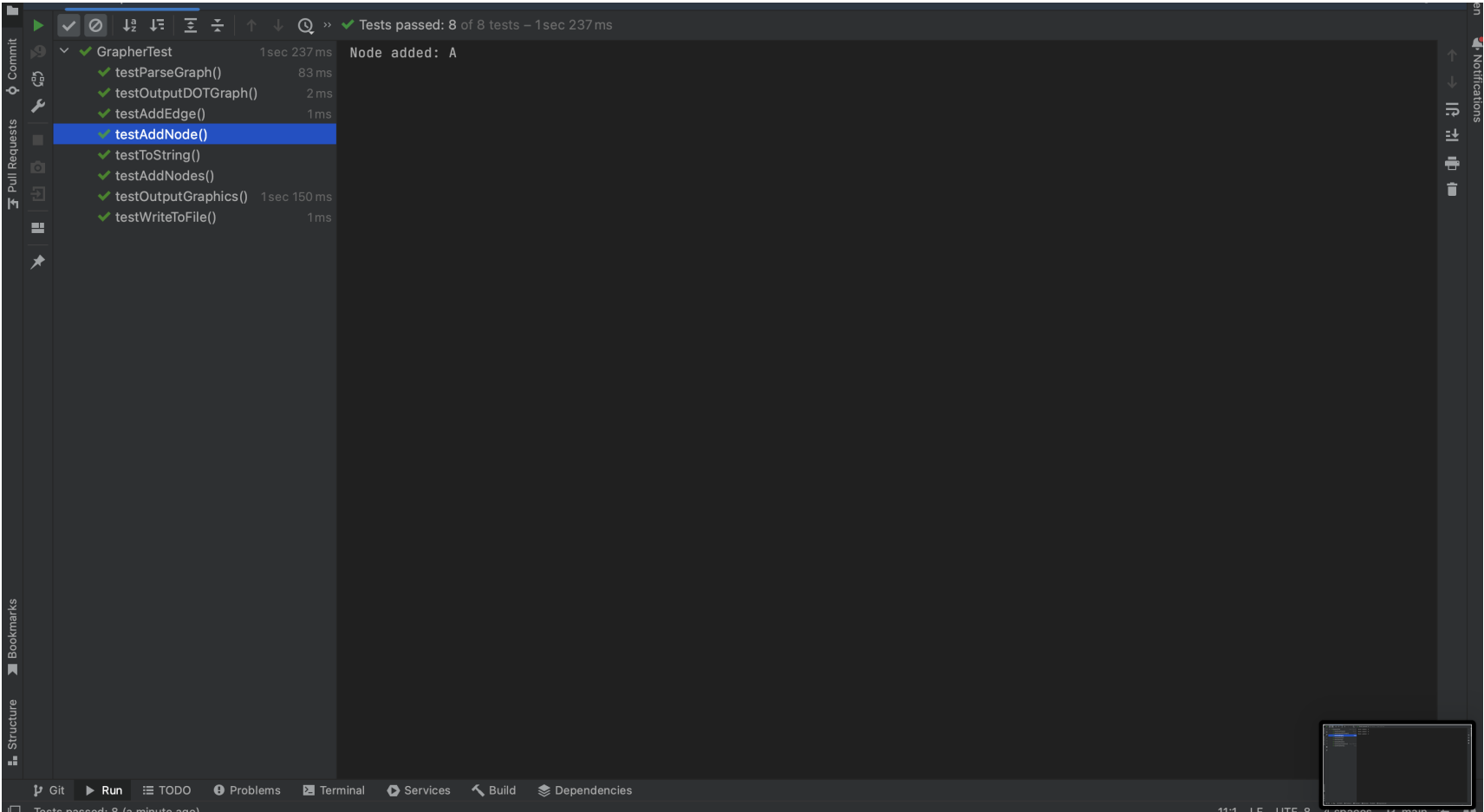
• Adding list of nodes:



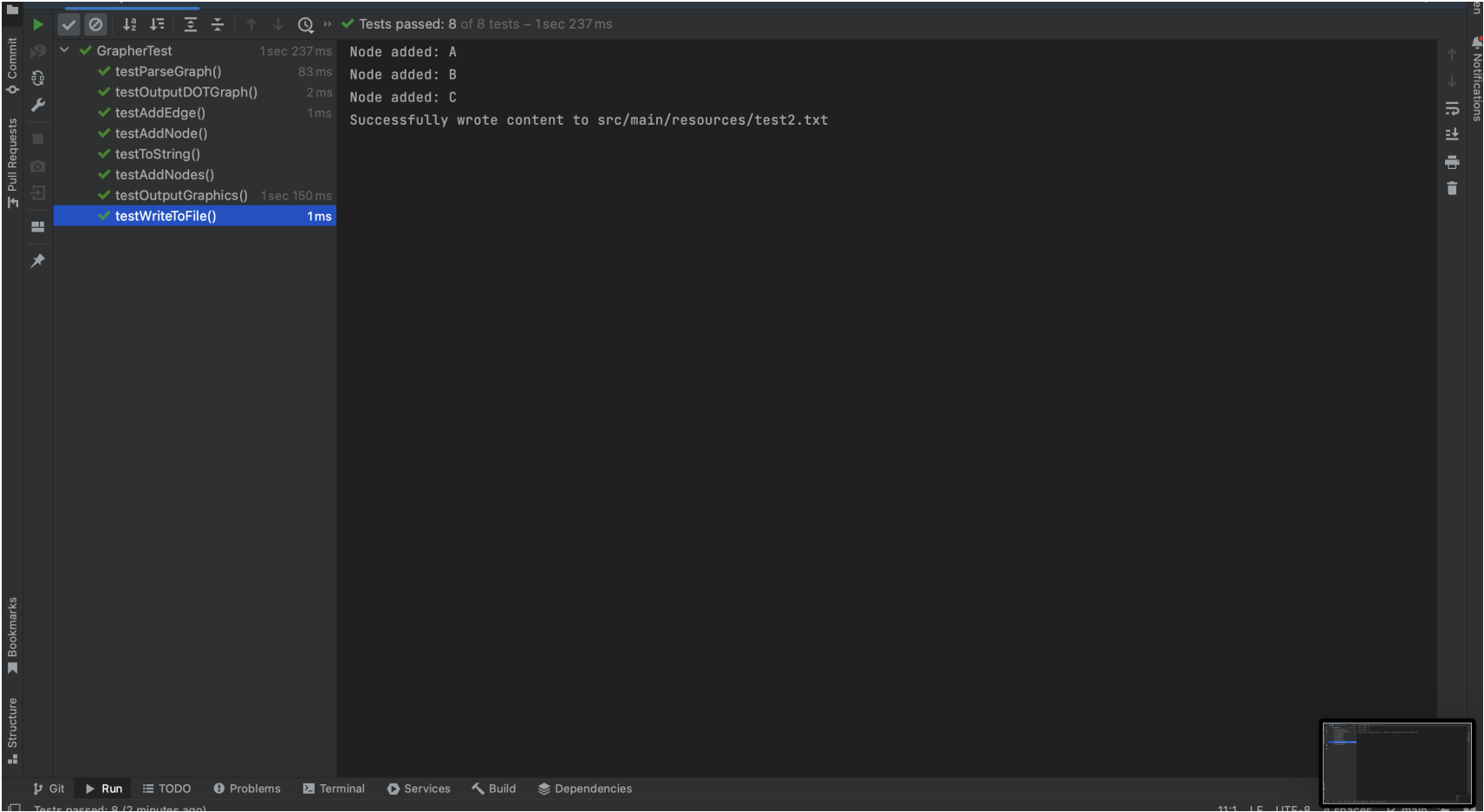
• Added Edges:



• Added Node:



• Write Graph to text file:



Commits [↗](#)

- Initial commit
- Built Maven. Also added feature 1
- Finished feature 1. This commit outputs the graph and writes it to a text file.
- Finished feature 2. Node and list of nodes can now be added. The result is reflected in the output of the graph.
- Finished Feature 3. The Edges are added to the graph and it is reflected when the graph is outputed.
- Finished Feature 4. The graph is visible in the dot file and a png image is also formed to visualize the graph.
- Added all the tests and the finishing touches