

NORTAL LEAP 2023

JAVA EXERCISE

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And the challenge begins.

There is one task in this test assignment. The description for it is given below. Solve as much as you can - a partial solution is better than no solution. In addition to making your code work, make it clean as well. 😊

Good luck!

Submitting Assignment

Once you have completed your development, run `./gradlew createSubmissionZip` for Windows or `gradlew createSubmissionZip` for Linux in the root directory, where this README.pdf resides. Your results will be packed into `assignment_submit.zip` under `build/` directory. This is the file that you need to upload.

Tips

- If something does not work – google it.
- Minimal Gradle instruction discrepancies may occur. It all depends on your OS (Operating System) and even the console (Command line) you use.
- We strongly recommend using IntelliJ IDEA development environment for your test assignment and work in general.

The escape from the woods

There is no sweeter person than a grandmother. The autumn came, and you, as her favorite grandchild, are the one who can help her to prepare for the winter. How? She wants to have some mushrooms picked and dried for the most delicious and warm dinner. And, of course, you said yes.

You go to the forest and see that mushrooms are growing like crazy, and you can bring it all back home to your grandma's house.

The hours passed while you were so busy that you had not noticed how the sunset started to set. When you realized the darkness was coming, it was already too late to take the same route you came here. The only solution is to find a new road in the forest, which would be the fastest way out. Luckily, grandma gave you the old map of the woods in case you got lost.

One thought that keeps you calm is that you are a DEVELOPER. There must be a solution that you can write to find the fastest way out! Grandma is waiting. Act now!

Setup

On Windows, execute `./gradlew build`. On Linux execute `gradlew build`. You can also use your own locally installed Gradle, but it might result in mismatching the Gradle project root folder. Alternatively, skip these previous steps by installing a smart IDE, like IntelliJ IDEA, which automates it.

Assignment

Read the map file from the resources folder and count **the least number of steps needed to get out of the forest**.

Game rules

- Find the fastest way out from the forest and return steps count as an answer (output)
- At the starting position (at the symbol "X"), your steps count is 0
- You can only move through the empty spaces (symbol " ")
- If the file is corrupted or there is no exit – return 0

Map Characteristics

- The map is a rectangular shape
- Axis size: $5 \leq X \leq 11000$, $5 \leq Y \leq 11000$
- Map consists of symbols " ", "1", "X":
 - " " – empty spaces where you can move
 - "1" – forest/trees
 - "X" – your start position
- There could be from 0 to 1000 exits

To achieve better results, you have several map files that you can test.

Other Requirements

- Keep the code clean and use the best coding practices
- Write unit tests for the solution
- The submitted solution should not be printing anything to the console
- You cannot make any changes in the Game.java file

Map example 1

File example:

```
11111
1 X 1
1 1 1
1    1
111 1
```

The expected output is integer number: 4

Map example 2

File example:

```
1111111111111
1      1    1
1 1 1 111 1
1 1 1      1
1 1 1 11111
1    1X    1
1 1111111 1
1    1      1
111 1 111 1
1    1 1    1
1 111 11111
```

The expected output is integer number: 13

Additional Important Instructions

TODOs have been left in the `GameImpl.java` file. Implementation is up to you. Just remember, you **cannot** make any changes in the `Game.java` interface. We are expecting **output to be returned from `escapeFromTheWoods(Resource resource)` method**. These are the only restrictions you have.

Do you have questions?

We opened a forum for you where you can ask any questions you have about the test assignment. Please note that your question will be visible to everyone together with the answer you'll receive from our specialists. Before asking your question, go through the ones already asked, maybe you'll already find your answer. 😊 Link to the discussion forum can be found from here: <https://nortal.com/careers/nortal-leap/task-discussion-2023/>

Good luck, have fun and most of all, don't quit after a first try, you'll have time to come up with a solution! 😊