

Model 1 Reading from a File

The Internet Movie Database (IMDb) maintains information about movies, television shows, video games, and more—including their cast, production crew, trivia, ratings, etc.

Download the *title2020.tsv* file into your Eclipse project. It's a subset of all titles from the year 2020 and is based on the data available at <https://www.imdb.com/interfaces/>.

Create a new program named *IMDb.java*, and add the following lines to the main method:

```
File file = new File("title2020.tsv");
Scanner in = new Scanner(file);
for (int i = 0; i < 3; i++) {
    System.out.println(in.nextLine());
}
in.close();
```

Note: You will need to import `java.io.File` and `java.util.Scanner`.

Questions (20 min)

Start time:

1. Explain the compiler error when attempting to construct the `Scanner`.

Unhandled exception type `FileNotFoundException`.
(The constructor throws `FileNotFoundException`.)

2. Explain two ways you can modify the code to handle this error. (*Hint*: Eclipse offers them as “quick fixes”.) Which way is better?

You can (1) add a `throws` declaration, or (2) surround with `try/catch`. The first option is simpler because it changes the least amount of code. But it causes the entire method to ignore file not found exceptions. The latter option is better, because it isolates the problem.

3. Modify the program so that it compiles: 1) surround the “`new Scanner`” line with `try/catch`; 2) remove the auto-generated `TODO` comment; and 3) initialize the `in` variable to `null` (before the `try` block). Copy and paste the beginning on your main method (from the “`File file`” line to the end of the `catch` block) in the box below.

```
File file = new File("title2020.tsv");
Scanner in = null;
try {
    in = new Scanner(file);
} catch (FileNotFoundException e) {
    e.printStackTrace();
}
```

4. Run the program. What is the output of the `for` loop?

```
tid type    title    original    isadult year    ended    runtime genres
60366  short    A Embalagem de Vidro    A Embalagem de Vidro    0    2020    11    Document
62336  movie    El tango del viudo y su espejo deformante    El tango del viudo y su espejo
```

5. TSV stands for “tab-separated values”. Explain the format of the *title2020.tsv* file:

a) What does the first line represent? the attribute names

b) What do the remaining lines represent? movies / TV shows

c) How are “column breaks” represented? by tab characters

6. By default, `Scanner.next()` separates input by whitespace. Replace the `for` loop in your main method with the following code. What is the resulting output?

```
in.useDelimiter("\t");
in.nextLine();

for (int i = 0; i < 3; i++) {
    System.out.println(in.next());
}
```

```
60366
short
A Embalagem de Vidro
```

7. Remove the `for` loop from your program. Write code that outputs the `tid`, `type`, and `title` of the first 5 titles that start with "A". (Hint: Use a `while` loop, call `in.next()` to get each of the three values, and call `in.nextLine()` to advance to the next line.) Paste your code below, starting from the `while` loop.

```
int count = 0;
while (count < 5) {
    String tid = in.next();
    String type = in.next();
    String title = in.next();
    if (title.startsWith("A")) {
        System.out.println(tid + "\t" + type + "\t" + title);
        count++;
    }
    in.nextLine();
}
```