Exception Handling

CSC 2310 Spring 2021 Lab-07

In this lab you will be practicing the following:

- Modify code to throw exceptions
- Modify code to handle exceptions

Pre-requisites

- Java 11
- Git
- IntelliJ IDE

Download the code base for the lab at your assigned url:

```
%  git clone https://gitlab.csc.tntech.edu/csc2310-sp21-
students/yourid/yourid-lab-07.git
```

Laboratory Description

In this lab you will be modifying the `AirportApp.java` class to throw and handle exceptions when the search for airports fail.

Run the program

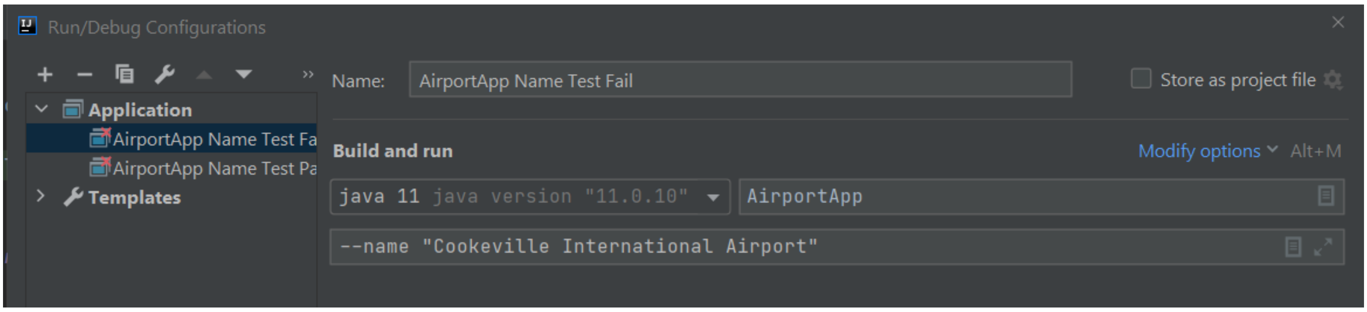
Create two run configurations in IntelliJ that run the program with the following parameters:

Pass version (AirportApp Name Test Pass)

```
--name "Los Angeles International Airport"
```

Fail version (AirportApp Name Test Fail)

```
--name "Cookeville International Airport"
```



Name: AirportApp Name Test Fail

java 11 java version "11.0.10"

AirportApp

```
--name "Cookeville International Airport"
```

You should run the application using the debugger to observe which lines of code are executed in the AirportApp program when running each of the configurations. In particular, set a breakpoint at line 32:

```
if (cmd.contentEquals("--iata")){
```

and step over the code to observe each of the cases for when airports are either found or not found.

Modify the code

We would like to change the code so that it throws an exception when the airport search operations fail. This occurs when `db.findAirportByCode(value)` or `db.findAirportByName(value)` return `null`, or in the case of `db.findAirportByCity(value)`, return an empty list. The code has been updated with `// TODO:` comments that indicate the changes that need to be made to the code. Specifically, you must do the following:

- Change the signature for `public AirportApp(String args[])` to specify that the method throws an exception
- Change the method so that it throws exceptions as indicated above.
- Handle the exception

Signature Change

To specify that a method throws an exception, you must add the `throws` modifier to the method signature along with the name of the exception class to be thrown. In this exercise, you will throw `AirportException` objects.

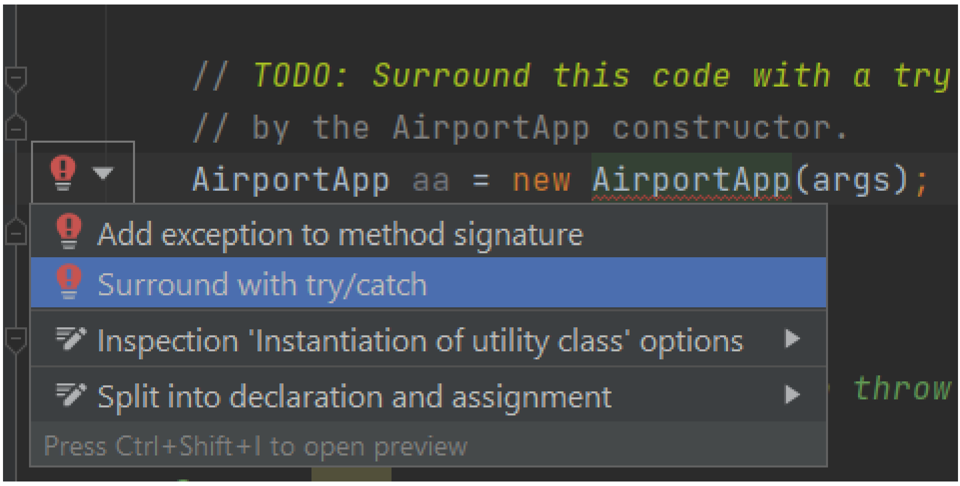
Throw the exceptions

To throw an exception you must instantiate an exception object and then use the `throw` command. When instantiating an `AirportException` object you should pass a message string. This is the message that will be displayed by the `getMessage()` method.

```
AirportException ex = new AirportException("Some message");
throw ex;
```

Handle the exception

When you modify the signature of the `AirportApp` constructor, the call to the constructor on line 13 will be marked as needing to be surrounded by a `try-catch` block. In IntelliJ you will see a menu that allow you to generate the `try-catch`:



```
// TODO: Surround this code with a try
// by the AirportApp constructor.
AirportApp aa = new AirportApp(args);
```

Add exception to method signature
Surround with try/catch
Inspection 'Instantiation of utility class' options
Split into declaration and assignment
Press Ctrl+Shift+I to open preview
throw

.

When you do this, a `catch` block will be created with a line of code that looks like the following:

```
e.printStackTrace();
```

Change this line using `e.getMessage()` so that the exception handler prints the following message when running the fail scenario:

```
Searching for Cookeville International Airport...
Exception (AirportDB Search: No airport found with name Cookeville
International Airport)
```

Submission

When you have completed the lab stage your changes, commit them, and push to gitlab. The lab is worth 20 points.