Exercise 5 (10 points)

- The first lines of all source files must be comment containing your name & ID

- Put all files (source, input, output) in folder Ex5_xxx where xxx = your full ID. That is, your source files must be in package Ex5_xxx and input/output files (if there is any) must be read from/write to this folder

- Zip Ex5_xxx & submits it to Google Classroom. Email submission is not accepted

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Modify your source code from Exercise 4 to handle exceptions

1. Handle exceptions when opening file (i.e. file not found). Keep asking user for a valid file name

2. Put the code that reads & splits each line of data in try-catch. If a runtime exception occurs, print exception message and line that causes the exception. Then skip that line and read the next one. Take note of which exception occurs in which situation, as this will be asked in Midterm exam

3. Using code from Exercise 4, sort & print Seafood objects by filters as before. Due to the exceptions in (2), some of them will be excluded from the output

```
m, Abalone,          l00,  70, 0.009            l instead of one
c, Blue crab,        40O,  80, 0.065            O instead of zero
x, Bluefish,         800,  60, 0.368            invalid input
f, Catfish,         -300,  50, 0.024            invalid input
m, Clams,            200,  60; 0.006            semi-colon instead of comma
f, Cod              100,  50, 0.111             missing comma
m, Cuttlefish,       100, 100                   missing column
f, Flounder,         400,  50, 0.056, 0.555     exceeding column
f, Haddock,         2.00,  60, 0.055            double instead of int
z, Halibut,          400  -30                   multiple exceptions
```

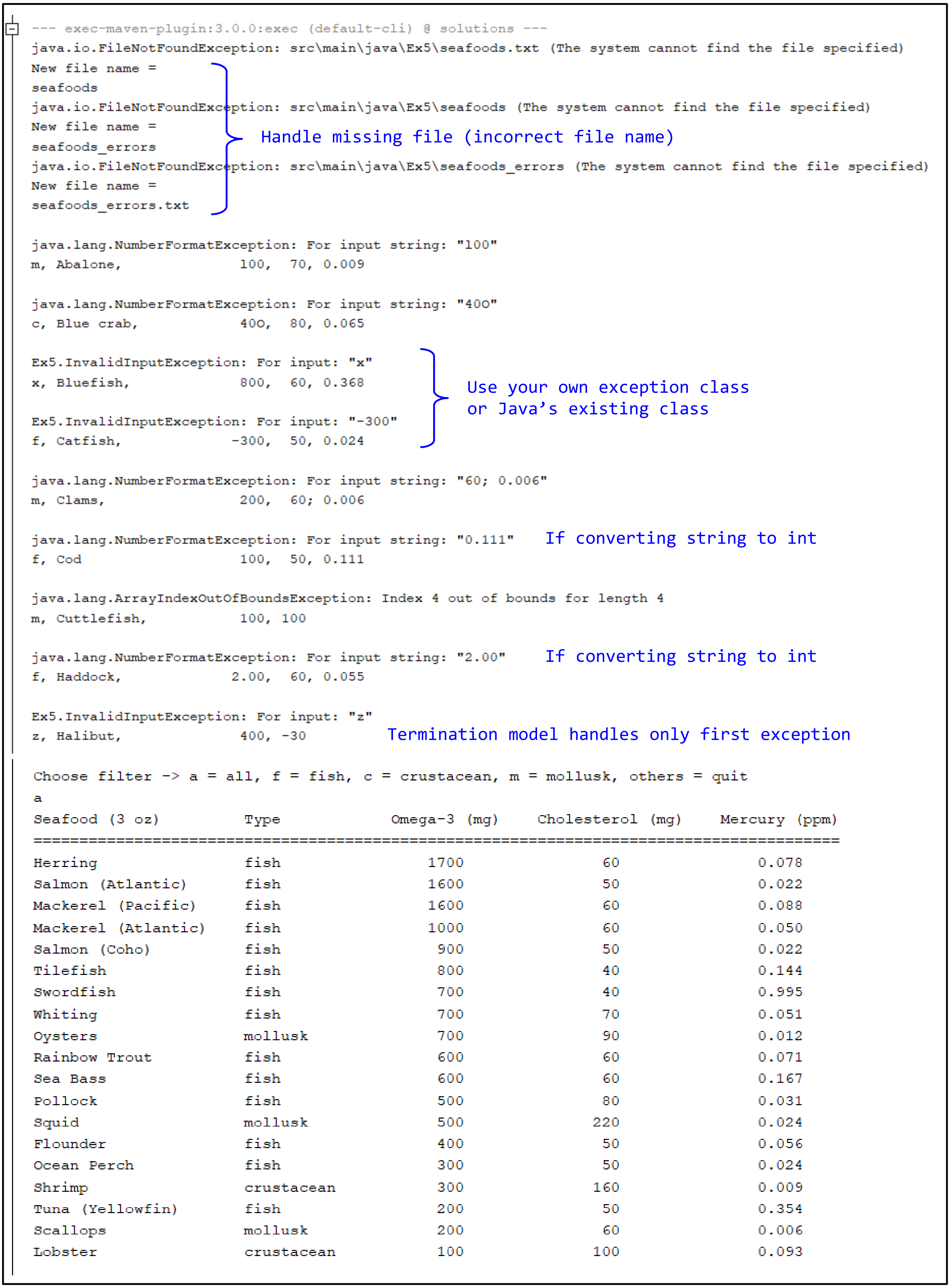
Note 1 : Some conditions such as invalid values will not cause runtime exception. You have to check these conditions by yourself and throw your own exception

```
if (value < 0)  throw new MyException("Invalid " + value);           // your own class
if (value < 0)  throw new ArithmeticException("Invalid " + value);   // Java class
```

Note 2 : Some conditions such as exceeding column will not cause runtime exception and have no effect on the calculation or result. You can just ignore it, i.e. let the program read only columns 0-3

Note 3 : Some conditions such as input being double instead of int may or may not cause runtime exception, depending on how you handle input string e.g.

- Convert string to int directly
- Convert string to double, then cast double to int



```
--- exec-maven-plugin:3.0.0:exec (default-cli) @ solutions ---
java.io.FileNotFoundException: src\main\java\Ex5\seafoods.txt (The system cannot find the file specified)
New file name =
seafoods
java.io.FileNotFoundException: src\main\java\Ex5\seafoods (The system cannot find the file specified)
New file name =
seafoods_errors
java.io.FileNotFoundException: src\main\java\Ex5\seafoods_errors (The system cannot find the file specified)
New file name =
seafoods_errors.txt

java.lang.NumberFormatException: For input string: "100"
m, Abalone,              100,  70, 0.009

java.lang.NumberFormatException: For input string: "400"
c, Blue crab,            400,  80, 0.065

Ex5.InvalidInputException: For input: "x"
x, Bluefish,             800,  60, 0.368

Ex5.InvalidInputException: For input: "-300"
f, Catfish,             -300,  50, 0.024

java.lang.NumberFormatException: For input string: "60; 0.006"
m, Clams,                200,  60; 0.006

java.lang.NumberFormatException: For input string: "0.111"
f, Cod                   100,  50, 0.111

java.lang.ArrayIndexOutOfBoundsException: Index 4 out of bounds for length 4
m, Cuttlefish,           100, 100

java.lang.NumberFormatException: For input string: "2.00"
f, Haddock,             2.00,  60, 0.055

Ex5.InvalidInputException: For input: "z"
z, Halibut,              400, -30

Choose filter -> a = all, f = fish, c = crustacean, m = mollusk, others = quit
a
Seafood (3 oz)         Type                Omega-3 (mg)    Cholesterol (mg)    Mercury (ppm)
=========================================================================================
Herring                fish                 1700             60              0.078
Salmon (Atlantic)      fish                 1600             50              0.022
Mackerel (Pacific)     fish                 1600             60              0.088
Mackerel (Atlantic)    fish                 1000             60              0.050
Salmon (Coho)          fish                  900             50              0.022
Tilefish               fish                  800             40              0.144
Swordfish              fish                  700             40              0.995
Whiting                fish                  700             70              0.051
Oysters                mollusk               700             90              0.012
Rainbow Trout          fish                  600             60              0.071
Sea Bass               fish                  600             60              0.167
Pollock                fish                  500             80              0.031
Squid                  mollusk               500            220              0.024
Flounder               fish                  400             50              0.056
Ocean Perch            fish                  300             50              0.024
Shrimp                 crustacean            300            160              0.009
Tuna (Yellowfin)       fish                  200             50              0.354
Scallops               mollusk               200             60              0.006
Lobster                crustacean            100            100              0.093
```

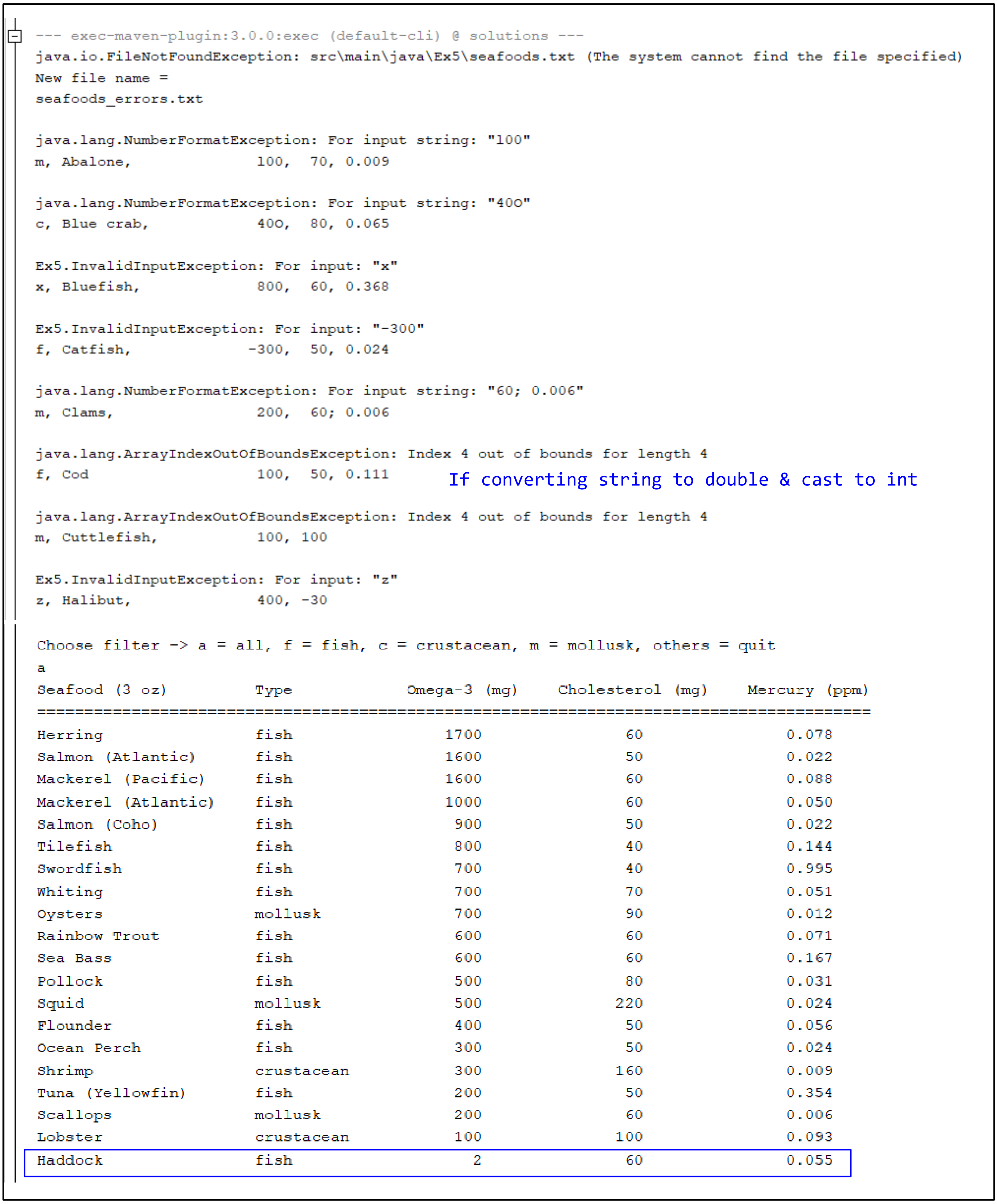
Handle missing file (incorrect file name)

Use your own exception class
or Java's existing class

If converting string to int

If converting string to int

Termination model handles only first exception



```
--- exec-maven-plugin:3.0.0:exec (default-cli) @ solutions ---
java.io.FileNotFoundException: src\main\java\Ex5\seafoods.txt (The system cannot find the file specified)
New file name =
seafoods_errors.txt

java.lang.NumberFormatException: For input string: "100"
m, Abalone,              100,  70, 0.009

java.lang.NumberFormatException: For input string: "4OO"
c, Blue crab,            4OO,  80, 0.065

Ex5.InvalidInputException: For input: "x"
x, Bluefish,             800,  60, 0.368

Ex5.InvalidInputException: For input: "-300"
f, Catfish,             -300,  50, 0.024

java.lang.NumberFormatException: For input string: "60; 0.006"
m, Clams,                200,  60; 0.006

java.lang.ArrayIndexOutOfBoundsException: Index 4 out of bounds for length 4
f, Cod                   100,  50, 0.111      If converting string to double & cast to int

java.lang.ArrayIndexOutOfBoundsException: Index 4 out of bounds for length 4
m, Cuttlefish,           100, 100

Ex5.InvalidInputException: For input: "z"
z, Halibut,              400, -30

Choose filter -> a = all, f = fish, c = crustacean, m = mollusk, others = quit
a
Seafood (3 oz)          Type            Omega-3 (mg)    Cholesterol (mg)    Mercury (ppm)
==========================================================================================
Herring                 fish                1700              60               0.078
Salmon (Atlantic)       fish                1600              50               0.022
Mackerel (Pacific)      fish                1600              60               0.088
Mackerel (Atlantic)     fish                1000              60               0.050
Salmon (Coho)           fish                 900              50               0.022
Tilefish                fish                 800              40               0.144
Swordfish               fish                 700              40               0.995
Whiting                 fish                 700              70               0.051
Oysters                 mollusk              700              90               0.012
Rainbow Trout           fish                 600              60               0.071
Sea Bass                fish                 600              60               0.167
Pollock                 fish                 500              80               0.031
Squid                   mollusk              500             220               0.024
Flounder                fish                 400              50               0.056
Ocean Perch             fish                 300              50               0.024
Shrimp                  crustacean           300             160               0.009
Tuna (Yellowfin)        fish                 200              50               0.354
Scallops                mollusk              200              60               0.006
Lobster                 crustacean           100             100               0.093
Haddock                 fish                   2              60               0.055
```