

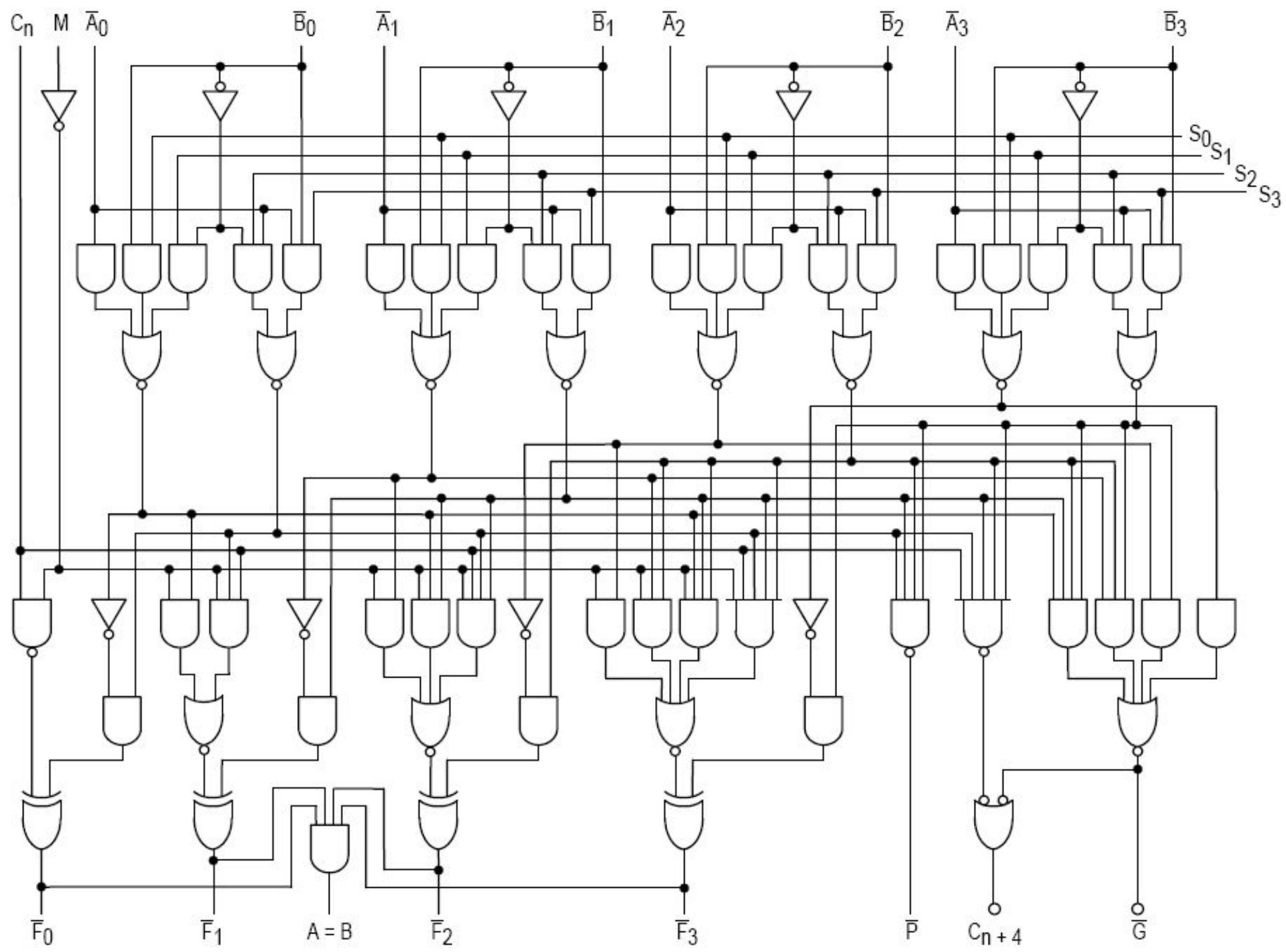
How Automated Tools can Communicate Effective Strategies for Fixing Bugs

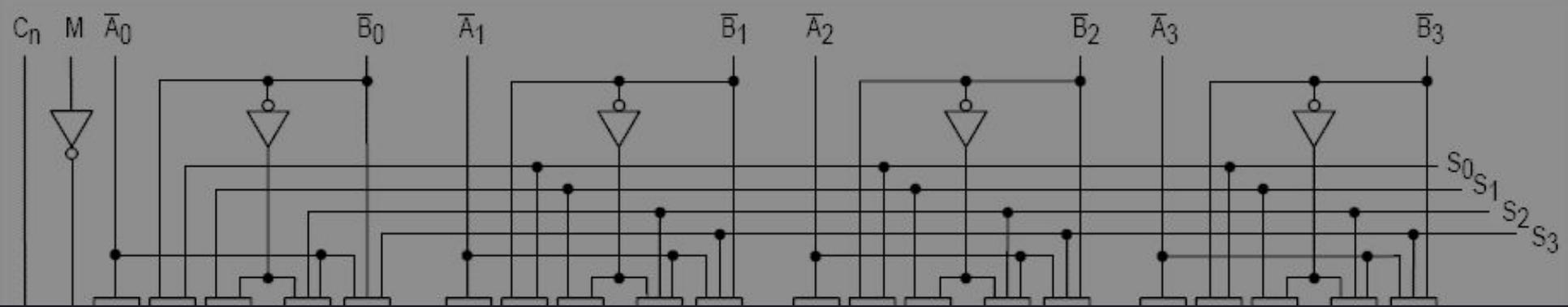
Justin Smith

LAFAYETTE

COLLEGE

 @JustinSmith0903
 smithjus@lafayette.edu
 <https://jssmith1.github.io/>



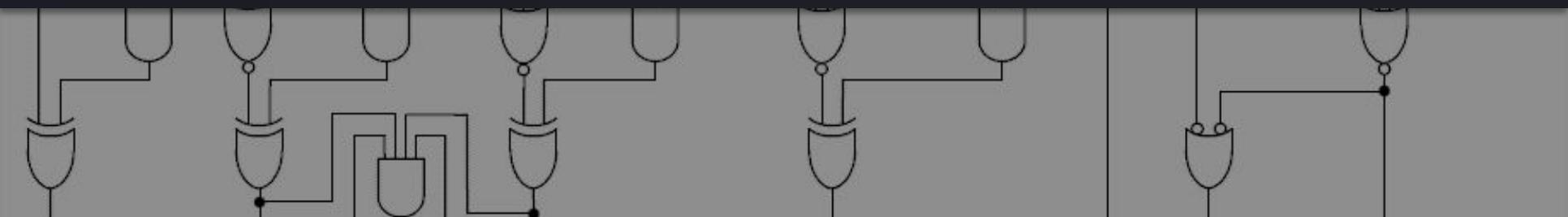


StartupBot

The future has landed

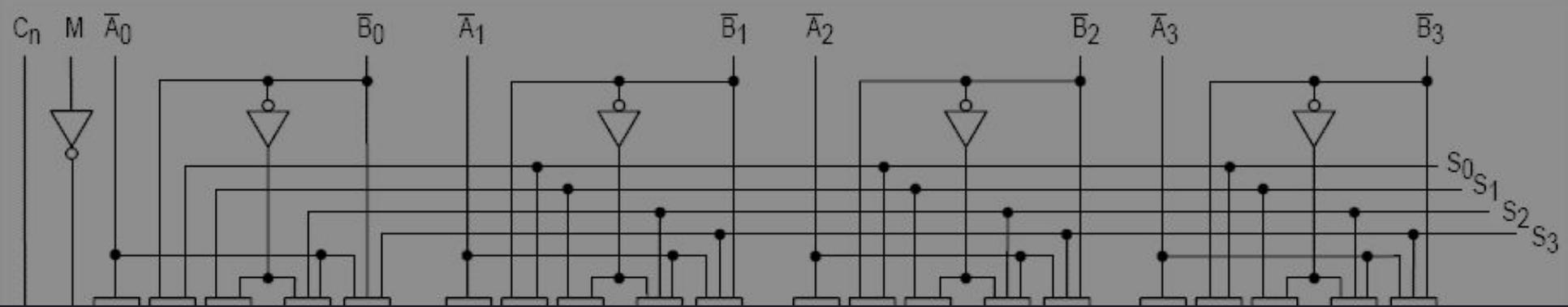
And there are no hoverboards or flying cars.

Just startups. Lots of computer generated startups.

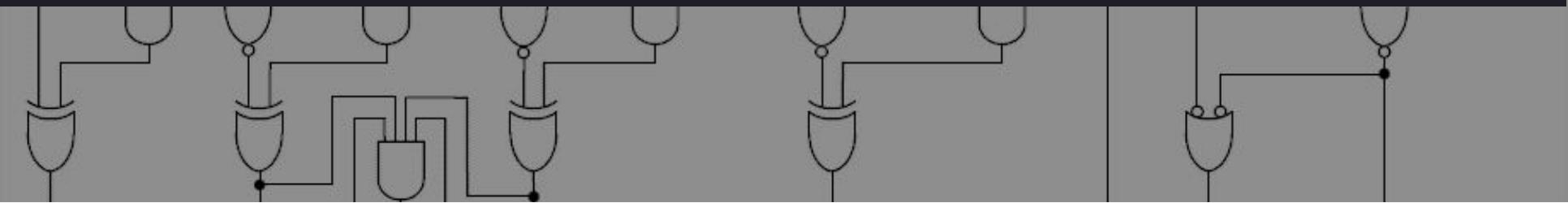


“We believe the process of creating a startup can be largely automated.”

<http://startupbot.github.io/>



Many of our defect detection tools are stuck in the dark ages.





Java ▾

Example ▾

```
1 void setup(){  
2   int thing = 1.5;  
3 }
```

cannot convert from float to int



```
1 void setup(){
2   int thing = 1.5;
3 }
```

processing cannot convert from float to int

All Videos News Images Shopping More Tools

About 3,980,000 results (0.58 seconds)

Cannot convert from float to int Processing/Java - Stack Overflow

Jul 28, 2017 — This code gives an error on both samples of returning a value saying "Type mismatch: Cannot convert from float to int.

2 answers · Top answer: You need to change the return type to float in order to return decimal ...

Cannot convert from float to int Processing/Java

Asked 2 years, 9 months ago Active 2 years, 9 months ago Viewed 1k times

I have some code here:






```
int mutate(float x){
    if (random(1) < .1){
        float offset = randomGaussian()/2;
        float newX = x + offset;
        return newX;
    } else {
        return x;
    }
}
```

This code gives an error on both samples of returning a value saying "Type mismatch: Cannot convert from float to int." What is wrong with my code?

Thanks in advance.

processing

Cannot convert from float to int Processing/Java

Asked 2 years, 9 months ago · Active 2 years, 9 months ago · Viewed 1k times

I have

3

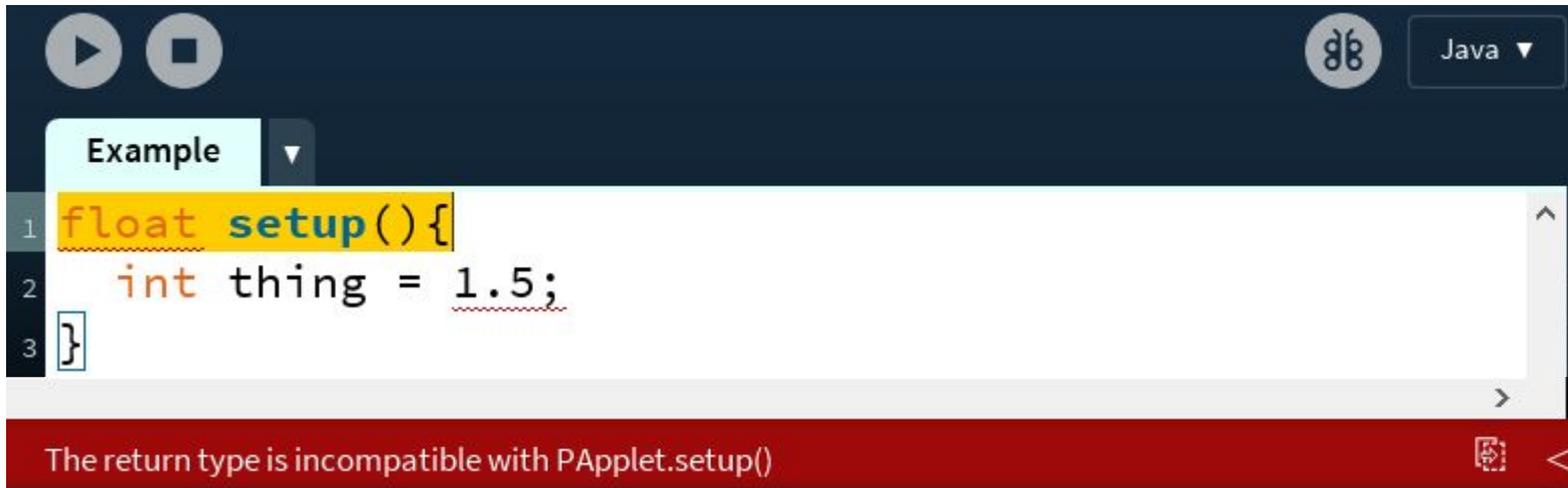
You need to change the return type to float in order to return decimal values (if that's what you are interested in):

```
float mutate(float x){
    if (random(1) < .1){
        float offset = randomGaussian()/2;
        float newX = x + offset;
        return newX;
    } else {
        return x;
    }
}
```

This code gives an error on both samples of returning a value saying "Type mismatch: Cannot convert from float to int." What is wrong with my code?

Thanks in advance.

processing

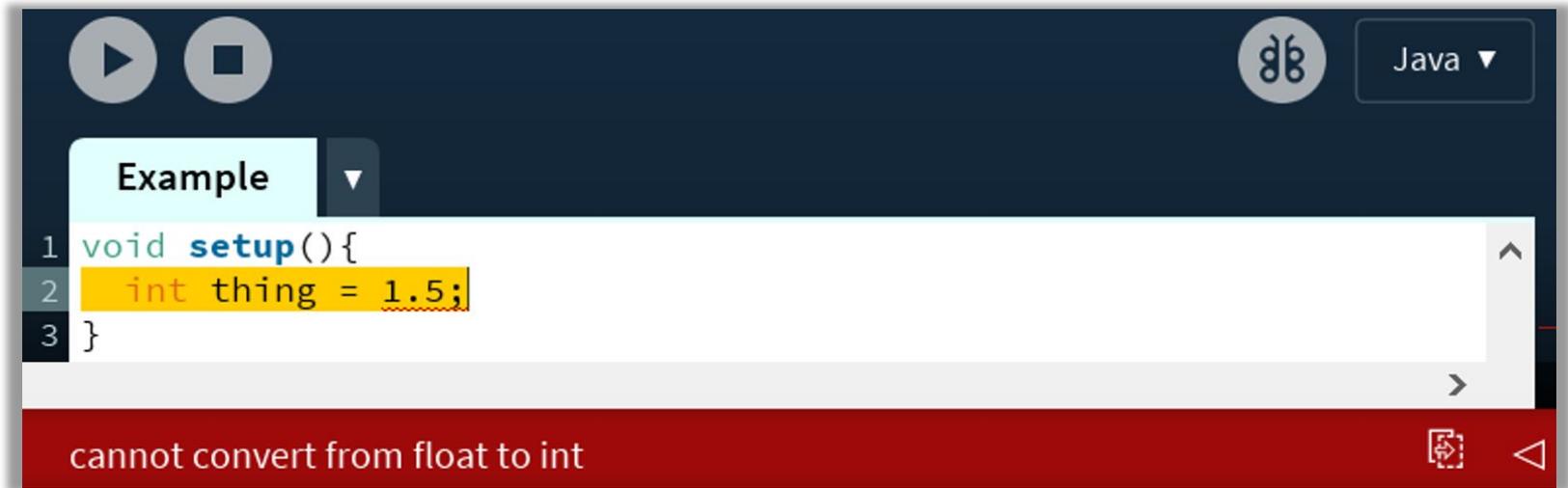


The screenshot shows a code editor window with a dark theme. At the top, there are control buttons: a play button, a square stop button, a logo, and a language dropdown menu set to "Java". Below the toolbar is a tab labeled "Example". The code editor contains the following code:

```
1 float setup(){  
2     int thing = 1.5;  
3 }
```

A red error banner at the bottom of the editor displays the message: "The return type is incompatible with PApplet.setup()".

What went wrong?



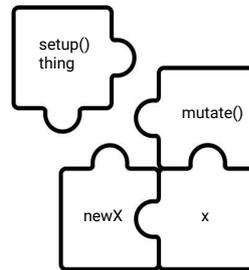
The screenshot shows an IDE window with a dark theme. At the top right, there is a logo and a dropdown menu set to "Java". Below that is a tab labeled "Example". The code editor contains the following code:

```
1 void setup(){  
2   int thing = 1.5;  
3 }
```

The line `int thing = 1.5;` is highlighted in yellow. Below the code editor, a red error bar displays the message: "cannot convert from float to int".



No
Explanation



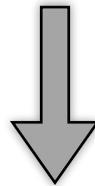
Mismatched
Example



Different
Root Cause

MatchingRef

cannot convert from float to int



Translation: You are trying to use the variable *thing* of type *int* as a *float*-type variable.

You may have assigned a *float* value to variable *thing* of type *int*. +

You may have returned a *float* value in a method that expects to return a *int* value. +

You may have used *int*-type variable *thing* in an operation involving *float* type. -

Change the type of *thing* from *int* to *float*. -

Incorrect Example

```
int thing = 3;
thing = thing * 3.14;
```

Correct Example

```
float thing = 3;
thing = thing * 3.14;
```

Happy with these suggestions?



MatchingRef

Cannot convert from **float** to **int**

*Translation: You are trying to use the variable **thing** of type **int** as a **float**-type variable.*

1: You may have assigned a **float value to variable **thing** of type **int**** 

Tick the box once you have tried the suggestion

Suggestion 1: Change variable declaration of **thing** to type **float** 

```
int thing = 5.0;
```

```
float thing = 5.0;
```

Suggestion 2: Change value of **thing** to a **int** value 

```
SQLFileCache.java x AddPatientFileA... ReportAdverseEv... AdverseEventBea... ReportAdverseEv...
}
private List<String> parseSQLFile(String filepath) throws FileNotFoundException, IOException {
    List<String> queries = new ArrayList<String>();
    BufferedReader reader = new BufferedReader(new FileReader(new File(filepath)));
    String line = "";
    String currentQuery = "";
    while ((line = reader.readLine()) != null) {
        for (int i = 0; i < line.length(); i++) {
            if (line.charAt(i) == ';') {
                queries.add(currentQuery);
                currentQuery = "";
            } else
                currentQuery += line.charAt(i);
        }
    }
}
```

Bug Info

Resolution Strategy

Console

▼ Potential Path Traversal (Line 27 foo.java)

Detected By: Find Security Bugs (FSB)
FSB Confidence/Severity: High/High
FSB Pattern: [Path Traversal - Read File](#)

▶ Read the vulnerability info.

▼ Check for a false positive.

If the user cannot control the filepath, then this instance is a false positive.

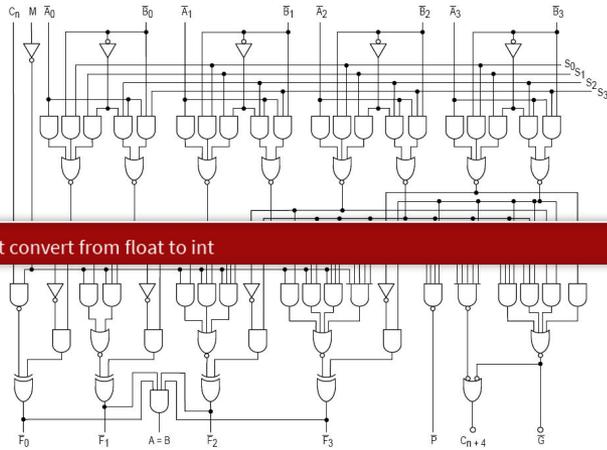
▼ Determine where the filepath is defined.

Invoke [Open Declaration](#) on the filepath variable.

▶ Determine where this method can be called.

▶ Consider the possible fixes.

Takeaways



Cannot convert from float to int

Translation: You are trying to use the variable `thing` of type `int` as a `float`-type variable.

1: You may have assigned a float value to variable `thing` of type `int`

Tick the box once you have tried the suggestion

Suggestion 1: Change variable declaration of `thing` to type `float`

```
int thing = 5.0;
```

```
float thing = 5.0;
```

Suggestion 2: Change value of `thing` to a `int` value

[Processing Plugin](https://github.com/jssmith1/helpful-java-mode)

<https://github.com/jssmith1/helpful-java-mode>

[MatchingRef Strategies](https://github.com/jssmith1/RefPage)

<https://github.com/jssmith1/RefPage>

 @JustinSmith0903

 smithjus@lafayette.edu

 <https://jssmith1.github.io/>