

# Errors in Code...

- **Problem:**  
We want to avoid certain values for a variable.
- **Question:**  
How?

# General Hints

- `assert (expr) ;`
  - `expr` is `true`: nothing happens
  - `expr` is `false`: stop program

# Example

Problem: Some inputs are dangerous.

```
#include <iostream>

int main () {
    int a,b;
    std::cin >> a >> b;

    // Output: a/b
    std::cout << a/b << "\n";

    return 0;
}
```

Problem for:

$b == 0$

# Example

Problem: Some inputs are dangerous.

`assert ensures`

`b != 0`

Problem

`b =`

`}`

# Example

Problem: Some inputs are dangerous.

```
#include <iostream>
#include <cassert>

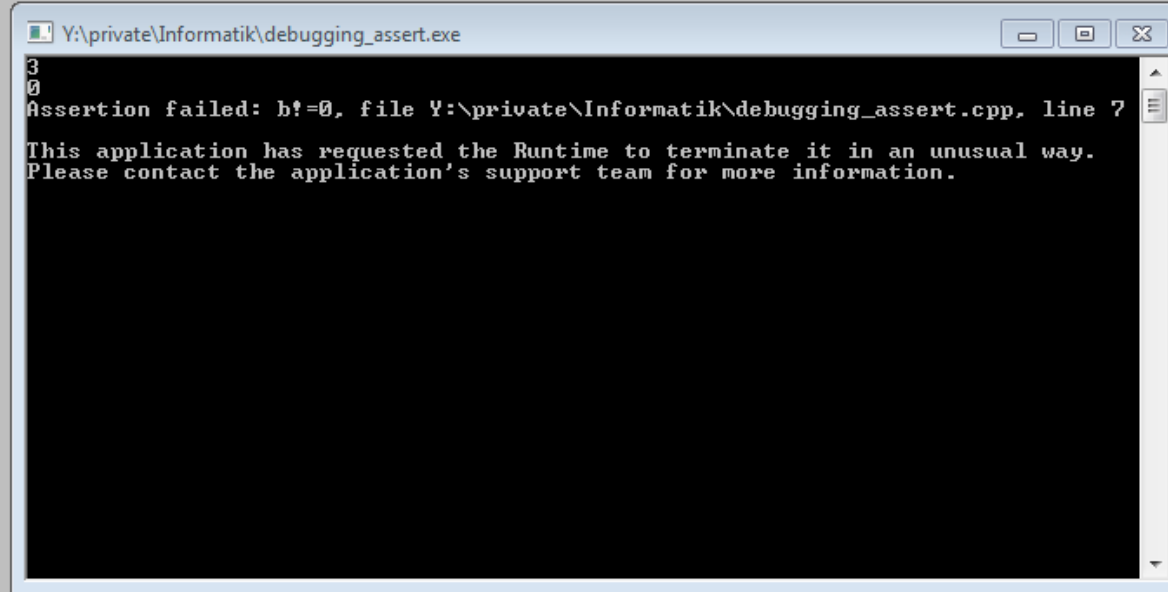
int main () {
    int a,b;
    std::cin >> a >> b;
    assert (b!=0) ;

    // Output: a/b
    std::cout << a/b << "\n";

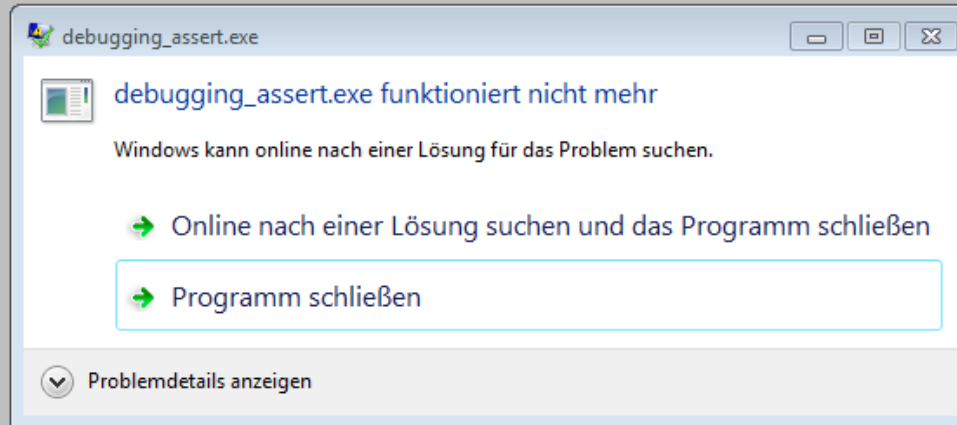
    return 0;
}
```

# Example

Pro



```
Y:\private\Informatik\debugging_assert.exe
3
0
Assertion failed: b!=0, file Y:\private\Informatik\debugging_assert.cpp, line 7
This application has requested the Runtime to terminate it in an unusual way.
Please contact the application's support team for more information.
```



debugging\_assert.exe

**debugging\_assert.exe funktioniert nicht mehr**

Windows kann online nach einer Lösung für das Problem suchen.

- ➔ Online nach einer Lösung suchen und das Programm schließen
- ➔ Programm schließen

▼ Problemdetails anzeigen

# Example

Pro

```
Y:\private\Informatik\debugging_assert.exe
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Assertion failed: b!=0, file Y:\private\Informatik\debugging_assert.cpp, line 7
This application has requested the Runtime to terminate it in an unusual way.
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```

WHAT is violated ...

... and WHERE.

debugging\_assert.exe

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⌵ Problemdetails anzeigen

# assert – Why?

- Still an easy example...
- So **why** and **where** is `assert` useful?



# assert – Why?

- Still an easy example...
- So **why** and **where** is `assert` useful?
  - **Long programs:** for overview
  - **User-Inputs required:** for safety
  - **Multiple programmers:** for safety