

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>

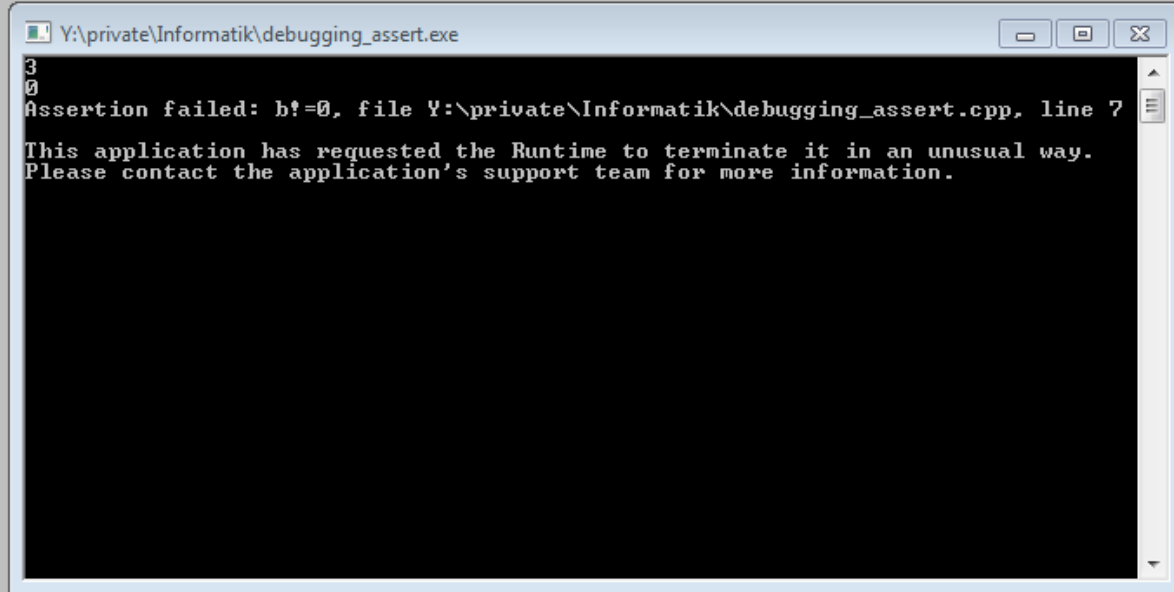
int main () {
    int a,b;
    std::cin >> a >> b;
    assert (b!=0) ;

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

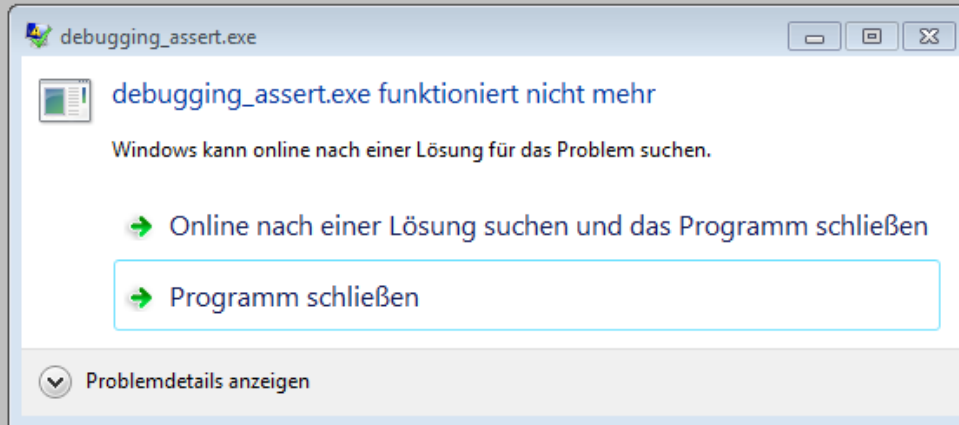
    return 0;
}
```

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

debugging_assert.exe funktioniert nicht mehr

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

⌵ 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