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
Problem: Some inputs are dangerous.

```cpp
#include <iostream>

int main () {
    int a,b;
    std::cin >> a >> b;
    // Output: a/b
    std::cout << a/b << "\n";
    return 0;
}
```

Problem for: $b = 0$
Problem: Some inputs are dangerous.

```cpp
#include <iostream>

int main () {
  int a, b;
  std::cin >> a >> b;
  // Output: a/b
  std::cout << a / b << "n";
  return 0;
}

Problem:
  b = 0

assert ensures
  b != 0
```
Problem: Some inputs are dangerous.

```cpp
#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

Problem: Some inputs are dangerous.

```cpp
#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;
}
```

This application has requested the Runtime to terminate it in an unusual way. Please contact the application's support team for more information.
Example

Problem:

Some inputs are dangerous.

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

int main () {
    int a, b;
    std::cin >> a >> b;
    assert(b != 0);
    // Output: a/b
    std::cout << a / b << std::endl;
    return 0;
}
```

WHAT is violated … and WHERE.
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