

# In C, things are far from straightforward

```
errors_c.c |
1  #include <stdio.h>
2  #include <errno.h>
3
4  int main(void) {
5      int s;
6
7      s = socket(...);
8      if (s < 0) {
9          fprintf(stderr, "socket() failed: %s\n", strerror(errno));
10         exit(1);
11     }
12 }
13
```

... and remember your experiences with using scanf with stdin from the terminal.

# Catching Exceptions

- sometimes, things fail, for example: parsing
- when this happens, this is called an `exceptional circumstance' or `exception', which should not in all cases lead to the program exiting
- a try-catch block can handle exceptions without the program breaking:

```
try {  
    // do the things that may go wrong here  
} catch (Exception e) {  
    // do the things that should happen when  
    // something went wrong here,  
    // the object e provides information about what happened  
}
```

# An Example of Handling Exceptions

```
class Adder {
```

Adder.java

```
    int sum;
```

```
    Adder() {
```

```
        sum = 0;
```

```
    }
```

```
    void add(int summand) { sum
```

```
        += summand;
```

```
    }
```

```
}
```

```
$ java Calculator 3 5 two
```

```
Something went wrong, but I can handle it!
```

```
$
```

code does not break  
anymore and exits normally

```
class ExceptionalCalculator {
```

ExceptionalCalculator.java

```
    public static void main (String[] args) {
```

```
        Adder adder = new Adder();
```

```
        try {
```

```
            for (String arg : args) {
```

```
                adder.add(Integer.parseInt(arg));
```

```
            }
```

```
            System.out.println("Sum:" + adder.sum);
```

```
        } catch (Exception e) {
```

```
            System.out.println("Something went wrong, but I can handle it!");
```

```
        } } }
```

this code block is secured – if  
an exception happens (e.g.  
parsing fails), the program  
does not stop, but jumps to  
the start of the catch block

# An (Better) Example of Handling Exceptions

```
class Adder {
```

Adder.java

```
    int sum;
```

```
    Adder() {  
        sum = 0;  
    }
```

```
    void add(int summand) {  
        sum += summand;  
    }  
}
```

```
public class ExceptionalCalculator2 {
```

ExceptionalCalculator2.java

```
    public static void main (String[] args) {  
        Adder adder = new Adder();  
        try {  
            for (String arg : args) {  
                adder.add(Integer.parseInt(arg));  
            }  
            System.out.println("Sum: " + adder.sum);  
        }
```

```
        catch (NumberFormatException e) {  
            System.out.println(e.getMessage());  
            System.out.println("Was that really an integer?");  
            //e.printStackTrace();  
        }
```

```
        catch (Exception e) {  
            System.out.println(e.getMessage());  
            System.out.println("Something went wrong");  
        }
```

```
    }  
}
```