Zawinski's Law:

“Every program attempts to expand until it can read mail. Those programs which cannot so expand are replaced by ones which can.” Coined by Jamie Zawinski (who called it the "Law of Software Envelopment") to express his belief that all truly useful programs experience pressure to evolve into toolkits and application platforms (the mailer thing, he says, is just a side effect of that). It is commonly cited, though with widely varying degrees of accuracy.

- The Hacker's Dictionary, Jargon File version 4.4.7

Improved Output

- Java 1.5 has a C style printf method
- printf can be used to format text output

```java
out.printf("%s \n", "a string"); // strings
out.printf("%d \n", 1212); // ints
out.printf("%f \n", 123.1234); // real numbers
```

Formatting with printf

```java
out.printf("%.2f \n", 123.1199); // results in 123.12 being output

out.printf("%5.3f \n", 4.2399); // results in 4.240 being output
```

The 5 in the 5.2 has no real effect
More Formatting with printf

```java
out.printf("%20s \n", "a string");
out.printf("%-20s \n", "a string");
```

%20 = column width of 20 spaces default left aligned

- signals right aligned

Old Input

- old style input using Java standard classes as opposed to a third party class

```java
BufferedReader keyboard = new BufferedReader
    (new InputStreamReader(System.in));
try{
    String str = keyboard.readLine();
    int n = Integer.parseInt(str);
    System.out.println(n);
}
occatch(Exception e)
{
    System.out.println("An error occurred while" + " attempting to read: " + e);
}
// GACK!!!
```

New Input

```java
Scanner keyboard = Scanner.create(System.in);

int n = keyboard.nextInt();
double d = keyboard.nextDouble();

// Ahhh
// On to the slides from Sun
```