An Example

- Write a program segment that reads a sequence of integers until a 0 is encountered, and computes and outputs the sum of the numbers read.

```java
Scanner in = new Scanner(System.in);
int sum = 0;
int i = in.nextInt();
while (i != 0)
{
    sum = sum + i;
    i = in.nextInt();
}
System.out.println("The sum is "+ sum);
```

Your Turn

- Write a program segment that reads a sequence of integers until a 0 is encountered, and counts and outputs the number of even and the number of odd numbers read (not including the final 0).
Count Odd/Even

Scanner in = new Scanner(System.in);
int countEven = 0, countOdd = 0;
int i = in.nextInt();
while (i != 0)
{
  if ((i % 2) == 0) // i is even
  {
    countEven = countEven + 1;
  }
  else // i is odd
  {
    countOdd = countOdd + 1;
  }
  i = in.nextInt();
}
System.out.println("Read " + countEven + " even numbers, and " + countOdd + " odd numbers");

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Your Turn, Again

- Write a program segment that given a String variable `str` and a character variable `ch`, counts and outputs the number of occurrences of character `ch` in String `str`. 
Count Character

```java
int index = 0, count = 0;
while (index < str.length())
{
    if (str.charAt(index) == ch) // found it!
    {
        count = count + 1;
    }
    index = index + 1; // go to the next char
}
System.out.println("'" + ch + "' occurs " + count + " times in \\
str + "\"");
```

Your Turn, One More Time

- Write a program segment that given two integer variables, `width` and `height`, outputs a rectangle of ‘+’s of the given width and height.
- Start by solving a simpler problem: given integer variable `width`, output `width` ‘+’s on one line.
Output One Row Of ‘+’s

```java
int col = 0;
while (col < width)
{
    System.out.print('+');
    col = col + 1;
}
System.out.println();
```

- How are we going to output `height` rows of `width` columns of ‘+’? In other words, how do we repeat the code above `height` times?

Output A Rectangle Of ‘+’s

```java
int row = 0;
while (row < height)
{
    int col = 0;
    while (col < width)
    {
        System.out.print('+');
        col = col + 1;
    }
    System.out.println();
    row = row + 1;
}
```