Exercise 1. *Deadline: 12 October 2009.*

THE JAVA PROGRAMMING LANGUAGE

A NUMBER TO WORDS CONVERTER

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Exercise

There are many occasions when it is necessary to output a numeric value using text rather than numeric digits. A common example is the production of cheques. These usually require both the numeric and the spoken-word equivalent text to be printed.

Write the program, which will convert an integer to the corresponding word form. Use arrays with numerals in your program. Define a class `NumberWordsConverter` with the method `main` and add the following declarations to the class:

```
public class NumberWordsConverter
{
    private final static String[] smallNumbers =
    {
        "Zero", "One", "Two", "Three", "Four",
        "Five", "Six", "Seven", "Eight", "Nine",
        "Ten", "Eleven", "Twelve", "Thirteen", "Fourteen",
        "Fifteen", "Sixteen", "Seventeen", "Eighteen", "Nineteen"
    };
    private final static String[] tens =
    {
        "", "", "Twenty", "Thirty", "Forty",
        "Fifty", "Sixty", "Seventy", "Eighty", "Ninety"
    };
    private final static String[] scaleNumbers =
    {
        "", "Thousand", "Million", "Billion"
    };

    public static void main (String[] args)
    {
        // convert an integer into words
    }
}
```

In this example code, we will declare three arrays. An array of twenty items holds the small numbers, an array of ten items is used for the tens values (with two initial unused entries) and an array of four values contains the scale number names with the first entry containing an empty string.

Hint

Consider a simple program that reads data from the standard input and writes numbers to the standard output if possible. It can be helpful to create your own program.

```
import java.io.*;

public class NumbersFromStdIn
{
    public static void main (String[] args) throws Exception
    {
        BufferedReader in = new BufferedReader(new InputStreamReader(System.in));
        for (String line=in.readLine(); line!=null; line=in.readLine())
            try
            {
                int x = Integer.parseInt(line);
                System.out.println("integer: "+x);
            }
            catch (NumberFormatException ex)
            {
                System.err.println("\""+line+"\" is not an integer");;
            }
    }
}
```