1 Problem

The series, $1^1 + 2^2 + 3^3 + ... + 10^10 = 10405071317$.

Find the last ten digits of the series, $1^1 + 2^2 + 3^3 + ... + 1000^{1000}$.

2 Solution

```
import Data.List
import qualified Data.Map as Map
import Data.Maybe
import System.Environment

powMod b e m = b ↑ e `mod` m

main = do
  let limit = 10 ↑ 10
      soln = (`mod` limit) $ sum [n ↑ n | n ← [1..1000]]
  putStrLn $ "The last ten digits of the series are " ++
    show soln ++ "."
```

3 Result

```
runhaskell problem48.lhs
The last ten digits of the series are 9110846700.
```