

```
1: {- *
2:   * Find all of the words in the dictionary that have two or more
3:   * consecutive pairs of letters.
4: -}
5:
6: import System.IO    -- readFile
7: import Data.Char    -- toLower
8:
9: -- | replace runs of identical things by a count and the the thing.
10: -- /e.g./
11: -- > runs [1,1,3,2,2,2,2]
12: -- is
13: -- > [(2,1),(1,3),(4,2)]
14: runs :: Eq a => [a] -> [(Int,a)]
15: runs [] = []
16: runs (x:xs) = runs' (1,x) xs where
17:   runs' a [] = [a]
18:   runs' (n,x) (y:ys)
19:     | x==y      = runs' (n+1,x) ys
20:     | otherwise = (n,x) : runs' (1,y) ys
21:
22: -- | count adjacent twos
23: -- /e.g./
24: -- > successivePairsCounts [2,1,2,2,2,3,2]
25: -- is
26: -- > [1,3,1]
27: successivePairsCounts :: [Int] -> [Int]
28: successivePairsCounts (2:xs) = let
29:   (ys,zs) = span (==2) xs
30:   in 1+length ys: successivePairsCounts zs
31: successivePairsCounts (_:xs) =
32:   successivePairsCounts . dropWhile (/= 2) $ xs
33: successivePairsCounts [] = []
34:
35: -- | find the maximum number of consecutive pairs in a list
36: maxPairCounts :: Eq a => [a] -> Int
37: maxPairCounts xs = maximum . (0:) . successivePairsCounts . map fst . runs $ xs
38:
39: {-
40: maxPairCounts xs = let
41:   counts = map fst (runs xs)
42:   successive = successivePairsCounts counts
43:   in maximum (0:successive)
44: -}
45:
46:
47: bookkeeperIsh :: String -> Bool
48: bookkeeperIsh = (> 1) . maxPairCounts
49: -- bookkeeperIsh string = (maxPairCounts string) > 1
50:
51:
52: dictFileName :: String
53: dictFileName = "/usr/share/dict/web2"
54:
55: main :: IO ()
56: main = do
57:   fileContents <- readFile dictFileName
58:   putStr . unlines . filter bookkeeperIsh . lines . map toLower $ fileContents
```