

```
import System.IO
import System.Random
```

```
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data LE a
  = Var a
  | App (LE a) (LE a)
  | Abs a (LE a)
  deriving (Show,Eq)
```

```
subst :: Eq a => LE a -> a-> LE a -> LE a
subst what var wher = mks [] what var wher
```

```
mks :: Eq a => [a] -> LE a -> a-> LE a -> LE a
mks bound what var (Var a) =
  if a `elem` bound then Var a else what
mks bound what var (App e a) =
  App (mks bound what var e) (mks bound what var a)
mks bound what var (Abs v e) =
  Abs v (mks (v:bound) what var e)
```

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length' a [] = a -- 1
length' a (_:xs) = length' (a+1) xs -- 2
```

```
foldl' f a [] = a -- 3
foldl' f a (x:xs) = foldl' f (f a x) xs -- 4
```

```
{-
length 0 xs = foldl (\ a _ -> a+1) 0 xs
```

```
1)
```

```
xs = []
```

```
L = length 0 [] =|1
  = 0
P = foldl (\ a -> a+1) 0 [] =|3
  = 0
```

```
L = P
```

```
2)
```

```
I.P.
forall k in N: length k as = foldl (\ a _ -> a+1) k as
```

```
xs = (a:as)
```

```
L = length 0 (a:as) =|2
  = length (0+1) as =|soucet
  = length (1) as =|prebytecne zavorky
  = length 1 as =|I.P.
  = foldl (\ a _ -> a+1) 1 as
```

```
P = foldl (\ a _ -> a+1) 0 (a:as) =|4
  = foldl (\ a _ -> a+1) ((\ a _ -> a+1) 0 a) as =|beta_redukce
  = foldl (\ a _ -> a+1) ((\ _ -> 0+1) a) as =|beta_redukce
  = foldl (\ a _ -> a+1) (0+1) as =|soucet
  = foldl (\ a _ -> a+1) (1) as =|prebytecne zavorky
  = foldl (\ a _ -> a+1) 1 as
```

```
L = P
```

```
Q.E.D.
```

```
-}
```

```
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```

```

-----
primes = 2:[x | x <- [3,5..], isPrime x primes]
  where
    isPrime x (p:ps) =
      (p*p > x) || (x `mod` p /= 0 && isPrime x ps)
-----
-----

```

```

mkR :: String -> IO ()
mkR file = do
  h <- openFile file ReadMode
  c <- hGetContents h
  let alllogs = lines c
  let empty = length $ filter (=="") alllogs
  let wempty = filter (/=="") alllogs
  let notLogs = length $ filter (not . isLogin) wempty
  let correct = filter isLogin wempty
  putStrLn $ show (length correct) ++ "/" ++ show notLogs ++ "/" ++ show empty
  randLog <- genRand correct
  putStrLn $ unlines randLog
  hClose h

```

```

isLogin :: String -> Bool
isLogin x =
  length x == 8 && head x == 'x' &&
  (all (\x -> elem x ['a'..'z']) $ take 5 $ tail x) &&
  (all (\x -> elem x (['0'..'9']++['a'..'z'])) $ drop 6 x)

```

```

genRand :: [a] -> IO [a]
genRand [] = return []
genRand l = do
  ir <- randomRIO (0,length l - 1) :: IO Int
  let (h,t) = splitAt ir l
  let v = head t
  let r = tail t
  mkr <- genRand (h++r)
  return (v:mkr)

```

```

-- EOF

```