

**module** Main where

**import** Grad

**import** System.Environment(getArgs)

**import** System.Exit(die)

**import** Data.List(isInfixOf)

```
{- /  
Module      : <File name or $Header$ to be replaced automatically>  
Description  : Parallelized Gradient Descent algorithm for linear regression  
Copyright    : (c) <Max Helman, Riya Chakraborty>  
License      : BSD 3-Clause
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Maintainer   : mhh2148@columbia.edu, rc3242@columbia.edu
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Stability    : stable
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Portability   : portable
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-}
```

**main** :: IO()

**main** = **do**

args <- getArgs

input <- **case** args **of**

[f, method, guess, parseq, chunks] -> return [f, method, guess, parseq, chunks]

\_ -> **do**

die \$ "Usage: grad-descent <filename> <loss function: linear/logistic> <guess array> <parallel/sequential>  
<number of chunks>"

csvData <- getCSVData (head input)

**let** linMatch = or \$ map (\$ (head \$ tail input)) (map isInfixOf ["Linear", "linear", "LINEAR"])

**let** logMatch = or \$ map (\$ (head \$ tail input)) (map isInfixOf ["Logistic", "logistic", "LOGISTIC"])

appLoss <- **case** (linMatch || logMatch) **of**

True -> **if** linMatch **then** (return computeGradRowLinear) **else** (return computeGradRowLogistic)

False -> **do**

die \$ "Choose either Linear or Logistic loss functions"

**let** guess = read (head \$ tail \$ tail input) :: [Double]

**let** choice = last \$ init input

**let** chunkNum = read \$ last input :: Int

print \$ descendSteps choice chunkNum csvData appLoss guess (1000::Int) (0.0000001::Double)

-- print \$ descendSteps choice chunkNum csvData appLoss guess (10000::Int) (0.001::Double)