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#!/usr/bin/python

import os
import sys
from string import atof
from scipy import stats
from math import log
from math import exp

infile='Data/NS5A'
outfile1='Output/0.00005_NS5A'
outfile2='Output/0.00005_NS5A_std_error'
outfile1=open(outfile1,'w')
outfile2=open(outfile2,'w')
countline=0
infile=open(infile,'r')
for line in infile.xreadlines():
  countline+=1
  print countline
  if "RNA" in line: continue
  array=line.rstrip().rsplit('\t')
  R_all=[]
  for i in range(0,len(array)):
    if i==0:
      if array[0]=='0':break
      else: R_all.append(atof(array[0]))
    else:
      if atof(array[i])<0.00005:break
      else:
        R_all.append(atof(array[i]))
  print R_all

  for i in range(0,len(R_all)):
    R_all[i]=log(R_all[i])


  X_all=[]
  for i in range(0,len(R_all)):
    X_all.append(i)
  if len(R_all)>0 and exp(R_all[0])<0.00005:
    fit_reg='Initial Input Too Low'
  elif len(R_all)==0:
    fit_reg=1
    p_value='NA'
    std_err='NA'
  elif len(R_all)==1:
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    fit_reg='0'
    p_value='NA'
    std_err='NA'
  elif len(R_all)==2:
    fit_reg=exp(R_all[2]-R_all[1])
    p_value='NA'
    std_err='NA'
  elif len(R_all)>2:
    r=0
    for i in range(3,len(R_all)):
      X=X_all[1:i]
      R=R_all[1:i]
      slope, intercept, r_value, p_value, std_err = stats.linregress(X,R)
      print r_value*r_value
      print 'p_value ',p_value
      print 'std_err ',std_err
      print 'slope', exp(slope)
      if r_value*r_value>r:
        fit_reg=exp(slope)
  outfile1.write(str(fit_reg)+'\n')
  outfile2.write(str(fit_reg)+'\t'+str(std_err)+'\t'+str(p_value)+'\n')

infile.close()
outfile1.close()
```