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CDS 251

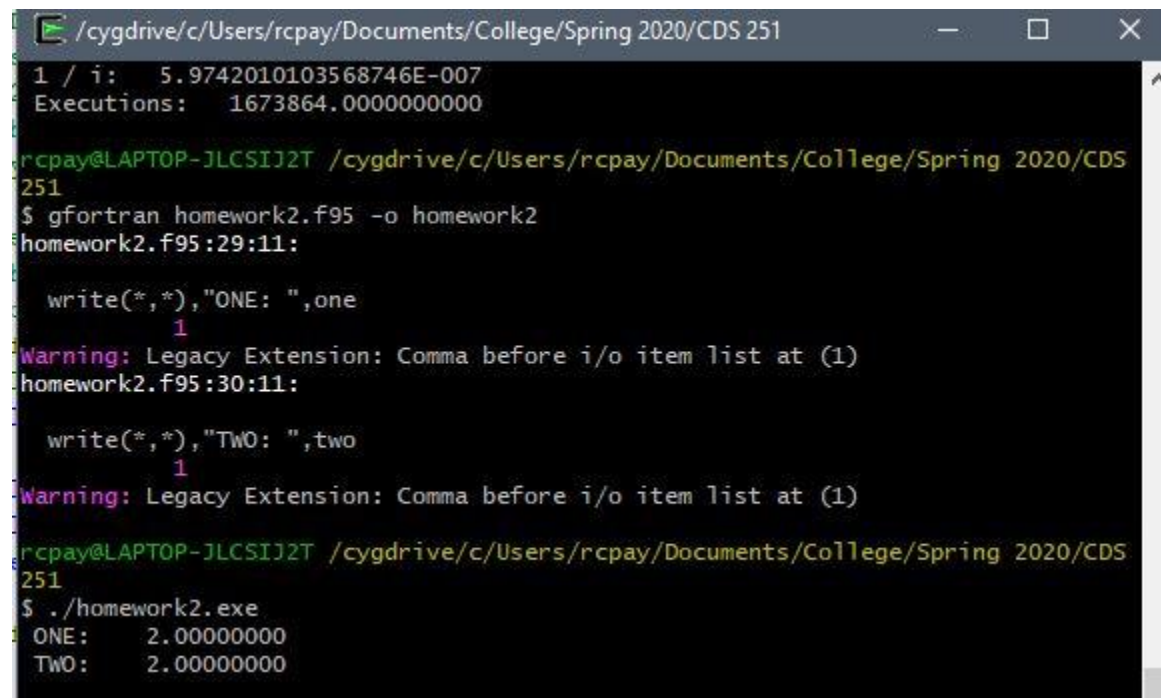
02/06/2020

Homework 2 (With Bonus) Report

These programs demonstrate that the limitations of a computer are based on the maximum data that the given data type can use. For example, a `real*4` can only store up to a 32-bit number. The program ceases or provides an error when the maximum value is reached. Most computers do not have this problem because users typically do not exceed this value unless they are performing some very intensive tasks on their computer.

See my program comments for more on this.

Homework2:



```
/cygdrive/c/Users/rcpay/Documents/College/Spring 2020/CDS 251
1 / i: 5.9742010103568746E-007
Executions: 1673864.0000000000

rcpay@LAPTOP-JLCSIJ2T /cygdrive/c/Users/rcpay/Documents/College/Spring 2020/CDS
251
$ gfortran homework2.f95 -o homework2
homework2.f95:29:11:

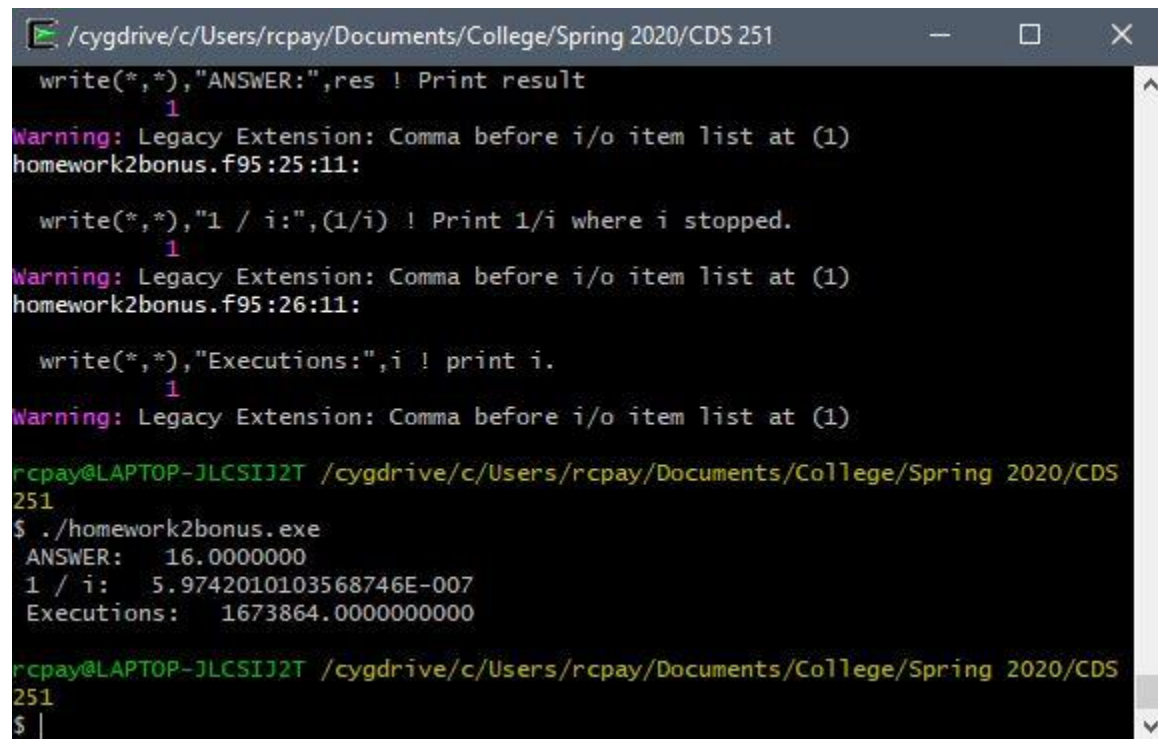
  write(*,*),"ONE: ",one
  1
Warning: Legacy Extension: Comma before i/o item list at (1)
homework2.f95:30:11:

  write(*,*),"TWO: ",two
  1
Warning: Legacy Extension: Comma before i/o item list at (1)

rcpay@LAPTOP-JLCSIJ2T /cygdrive/c/Users/rcpay/Documents/College/Spring 2020/CDS
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$ ./homework2.exe
ONE: 2.00000000
TWO: 2.00000000
```

Homework2Bonus:

My guess is (2) that eventually the partial sum would cease to increase because of a lack of precision. We're only using `real*4` where if we were to use double precision, we would likely get a higher number.



```
/cygdrive/c/Users/rcpay/Documents/College/Spring 2020/CDS 251
write(*,*),"ANSWER:",res ! Print result
1
Warning: Legacy Extension: Comma before i/o item list at (1)
homework2bonus.f95:25:11:

write(*,*),"1 / i:",(1/i) ! Print 1/i where i stopped.
1
Warning: Legacy Extension: Comma before i/o item list at (1)
homework2bonus.f95:26:11:

write(*,*),"Executions:",i ! print i.
1
Warning: Legacy Extension: Comma before i/o item list at (1)

rcpay@LAPTOP-JLCSIJ2T /cygdrive/c/Users/rcpay/Documents/College/Spring 2020/CDS
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$ ./homework2bonus.exe
ANSWER: 16.0000000
1 / i: 5.9742010103568746E-007
Executions: 1673864.0000000000

rcpay@LAPTOP-JLCSIJ2T /cygdrive/c/Users/rcpay/Documents/College/Spring 2020/CDS
251
$ |
```