



# Lecture#6 : File I/O

# Exercises : Input and output

1. (12.2) In the following there are declared Fortran format statements in various ways. What the program does? Which declarations are most functional?

```

PROGRAM form
  IMPLICIT NONE
  REAL :: x
  CHARACTER(LEN=11) :: form1
  CHARACTER(LEN=*), PARAMETER :: form2 = '(F12.3,A)'
  x = 12.0
  form1 = '(F12.3,A)'
  WRITE (*, form1) x, ' hello '
  WRITE (*, form2) 2*x, ' hi '
  WRITE (*, '(F12.3,A)') 3*x, ' hi hi '
END PROGRAM form

```

2. (12.3) Write output statements for the following arrays:

```
REAL, DIMENSION(6,10) :: a
INTEGER, DIMENSION(24) :: h
CHARACTER(LEN=10), DIMENSION(6) :: marray
LOGICAL, DIMENSION(2) :: condition
COMPLEX, DIMENSION(20) :: z
```

3. (12.4) Write list directed input routines, which read values for the arrays of the previous exercise. Give an example of your program's input file.

4. (a) Write a program that reads 4 arguments included on the command line that runs the program. Print out the arguments.

```
$ myprogram mydata.dat myoutput.dat 10 4.5
```

*Use Fortran standard 2003 intrinsic procedures*

- *COMMAND\_ARGUMENT\_COUNT*
- *GET\_COMMAND\_ARGUMENT*

*See documentation from Gfortran online manual*  
<http://gcc.gnu.org/onlinedocs/gfortran/>

(b) *Modify your program so that the arguments 10 and 4.5 are converted from character values to numbers. 10 will be an integer number and 4.5 will be a real number. Use INTERNAL I/O for this conversion. Print out also the integer and real number.*

(c) *Modify your program so that it will check whether the file mydata.dat exist or not. Print out the answer. Use intrinsic procedure: INQUIRE*