

Linux Directions, LAB SB 3.02.02

Make sure you are in Linux mode. If computer is in Windows, choose "restart" and select ubuntu in boot screen. Log into your Linux account.

1. Click on **Applications->accessories->terminal** (opens up the equivalent of Window's DOS/command window). You may do this multiple times if you want multiple windows.
2. Create the `program.f90` file using a text editor:

(a) Text editors that work within a terminal window include `pico`, `vim`, and `emacs`. To use these simply issue a command like: `pico program.f90` in the terminal window

(b) You can also use a graphical text editor similar to Notepad by **Applications->accessories->text editor**. If you use this, make sure the directory of your terminal window matches where you save the file to (in the terminal window, `pwd` will display your present working directory [i.e, where you are in the filesystem]).

3. To compile the program ending in `.f90`, type:

```
gfortran -o program.exe program.f90
```

(where of course `program` is replaced by the name of your program).

- To get the compiler to give you a bunch of warnings about sloppy programming, add the `-Wall` flag to your compilation. I.e., type:

```
gfortran -Wall -o program.exe program.f90
```

4. To execute the program, simply type `./program.exe`.
5. To print the Fortran program, issue `lpr program.f90` in a terminal window.
 - to get more on a page, substitute `'enscript -2Gr'` for `'lpr'` in all print commands
6. To print results of a run of your program, redirect the output to a file, and then simply print that file, as in:

```
./program.exe > output.txt  
lpr output.txt
```

If `output.txt` already exists, this command won't work. To delete a previously created file, you can issue `rm output.txt`.

7. To copy the files to a floppy disk, issue the command `mcopy <file> a:.`

Windows Directions, LAB SB 3.02.02

Make sure you are in Windows mode. If computer is in Linux, ask lab assistant to reboot to windows. If you do the reboot yourself, make sure machine is one which can be legally rebooted!

1. Click on **start->My Computer-> Z directory icon**. The Z drive may show up as a name starting with **ntfs**. Do all your work in this Z directory.
2. Use a text editor (eg., Notepad, **start->All programs->Accessories->Notepad**) to type the Fortran program and save it to a file name ending in **.f90** (eg. **program.f90**). *Make sure to remove any prompted ending of .txt before you save it, even if the editor warns you that this may make the file unusable!*
3. Open the DOS window/command prompt: Click on **Start->run** and then type **cmd**. This should open a window in the Z directory, but if it doesn't, go to it by typing:

z:

at the command prompt.

4. To compile the program ending in **.f90**, type:

```
gfortran -o program.exe program.f90
```

(where of course **program** is replaced by the name of your program).
5. To execute the program, simply type **program.exe**.
6. To print the Fortran program, you can simply use 'print' from the Notepad editor.
7. To print results from the DOS window:
 - (a) right-click mouse inside DOS window
 - (b) Select the **Mark** option
 - (c) Drag and highlight the results you want to print
 - (d) Hit Enter
 - (e) Move the cursor with the mouse to a file: **output.txt**, which you have previously opened with Notepad
 - (f) Paste the text you have marked into **output.txt**
 - (g) Use **Print** of Notepad

Here's a program to convert Centigrade to Fahrenheit:

```
PROGRAM centigrade_to_fahrenheit
!
! This program converts a Centigrade temperature to Fahrenheit
!
  IMPLICIT NONE
  REAL :: temp_c, temp_f
!
! Prompt for Centigrade temp
!
  PRINT *, "What is the temperature in Centigrade? "
  READ *, temp_c
!
! Convert it to Fahrenheit
!
  temp_f = 9.0*temp_c/5.0 + 32.0
!
! Print results
!
  PRINT *, temp_c, "degrees Centigrade is ", temp_f, "degrees in Fahrenheit"

END PROGRAM centigrade_to_fahrenheit
```

Here's some example output:

```
prompt>gfortran -o xcent.exe centigrade.f90
prompt>./xcent.exe
What is the temperature in Centigrade?
40
  40.00000      degrees Centigrade is      104.0000      degrees in Fahrenheit
```

Here's the program written by my older brother, that inspired me to become a programmer at the age of 10:

```
SUBROUTINE poke_fun(N, first_name, last_name)
!
! This subroutine pokes fun at first_name:last_name by mocking him/her N times
!
CHARACTER(LEN=*), INTENT(IN) :: first_name, last_name
INTEGER, INTENT(IN) :: N
INTEGER :: I

DO I = 1, N
    PRINT*, TRIM(first_name), " ", TRIM(last_name), " is a complete loser!"
END DO

RETURN
END SUBROUTINE poke_fun

PROGRAM loser
    IMPLICIT NONE
    CHARACTER (LEN=80) :: first_name, last_name
    INTEGER :: N

!
! Get the loser's name
!
    PRINT *, 'Please enter an integer between 1 and 500'
    READ *, N
    print *, 'Please enter your first name:'
    READ *, first_name
    print *, 'Thanks ', TRIM(first_name), '! Now please enter your last name:'
    READ *, last_name
    CALL poke_fun(N, first_name, last_name)

END PROGRAM loser
```