## Writing "Hello World" Program

A "Hello World" program is a computer program that prints to the screen the words "hello world". It is the simplest example of a program one can write and is often used to introduce students to a programming language.

1. **Open up a terminal window and creating a folder**

Open up the terminal window (this can be found under accessories in the applications tab). Create a directory/folder called "Introduction" by using the UNIX command `mkdir` (make directory)

```
mkdir Introduction
```

Now move to your folder Introduction using the UNIX command `cd` which changes directory

```
cd Introduction
```

Now check to see what directory you are in by typing

```
pwd
```

This checks the present working directory and should say Introduction as the last item in string.

2. **Open an f90 file**

Open up a blank file titled, for example, `hello_world.f90`. Recall that all Fortran 90 files should have the extension ".f90" I have named the program "hello_world" but you can choose a different (but descriptive) name. To do this, type the following:

```
emacs   hello_world.f90
```

3. **Writing the program**

Copy the three lines below into your blank file. Note that it does not matter if you put spaces before you start typing or more than one space in between words. Also note that the name you gave the program on the first and last lines must match. However, it does not have to match the name of the file itself but usually it does.

```
program   hello_world
print *, "Hello  World!"
end   program  hello_world
```

The first and last lines tell the compiler where the program starts and ends. We will have these two lines in all of our programs. In between is a line of code which prints (in the simplest possible way) the words "Hello World!". Whatever characters you want to print must be enclosed in double quotation marks.

Save your file.

4. **Compiling**

For this class we will use the **gfortran** compiler. Recall that a compiler is a computer program that translates your source code in the fortran language to assembly or machine language for the purpose of making an executable file. To compile your program use the command

```
gfortran hello_world.f90
```

Note that this must be the name of the file you opened in #2. This will produce an executable that is called "a.out". After you have done this, if you type the UNIX command `ls` it will list the files you have in the directory Introduction – you should have your source code and the a.out file.

5. **Executing**

To execute the executable a.out file type

```
./a.out
```

If you did everything carefully, then it should print Hello World! to the screen.