ENEE 140 Lab 2

Lab instructions

This handout includes instructions for the recitation sessions on Wednesday and Friday. **Follow these instructions** to familiarize yourself with the GRACE environment, then **submit the homework** as indicated below. To prepare for the next lecture, complete the **reading assignment** and try to solve the **weekly challenge**.

1 UNIX tutorials

Read the introduction and tutorials 1 and 2 at `http://www.ee.surrey.ac.uk/Teaching/Unix/`. It is best to do this before the recitation and use these tutorials as a reference for the rest of the semester.

2 GRACE class public directory

We will post sample code that will be used in the lectures and recitations in a directory (GLUE class public directory) that you all can access. Create a short cut (or link) to that directory following the instructions below:

1. Go to the ENEE140 directory in your GLUE account
2. Type in the following command:

   ```
   ln -s /afs/glue.umd.edu/class/spring2025/enee/140/0101//public public
   ```

   This will create a symbolic link named "public" to the class public directory, which you can access as a regular directory by typing:

`cd public`	from your ENEE140 directory
`cd ~/ENEE140/public`	from any other directory

   Question 1: Think about how the working directory changes in the second case. Draw the hierarchical directory structure if that helps. What does `~` do?

3. You can copy files from the public directory to your own directory.

   For example, if you want to copy the solution to the previous week's challenge (located under `code/week02` in the class public directory) and store it at `ENEE140/Lab/Week02`, and assuming that you are in the `ENEE140/` directory of your GRACE account and want to remain at this directory after the file copying, you can do the following:

```
cd public/code/week02                                  go to class public directory
cp temperature_conversion.c ~/ENEE140/Lab/Week02/      copy file to another directory
cd ~/ENEE140                                           come back to ENEE140
```

If you want to rename the file at its new location—for example `myconverter.c`—add the new name after the destination directory:

```
cp temperature_conversion.c ~/ENEE140/Lab/Week02/myconverter.c
```

You can also use a single command to achieve the effect of the three commands above:

```
cp public/temperature_conversion.c Lab/Week02/
```
(remember that you are now in your own ENEE140 directory)

Question 2: think about how this works.

4. Exit the public directory

   From the public directory, the command `cd ..` will not take you back to your `ENEE140/` directory; instead, you have to do `cd ~/ENEE140`.

   Question 3: Why doesn't `cd ..` take you to your `ENEE140/` directory? Where does it take you to? Think about this and check using the `pwd` command (print working directory) after `cd ..`

Homework

Due: Friday at 11:59 pm.

Create a file called `temperature_conversion_header.c` by following the instructions below.

Log into Elms, click on Gradescope in the course menu, then go to the relevant assignment to submit your program.

1 Table header

Modify the Celsius - Fahrenheit conversion program to print a header above the table. For example, instead of:

```
Celsius: -100  Fahrenheit: -148.0
Celsius:  -90  Fahrenheit: -130.0
Celsius:  -80  Fahrenheit: -112.0
...
```

your program should output:

```
Celsius  Fahrenheit
   -100      -148.0
    -90      -130.0
    -80      -112.0
...
```

Pay attention to the alignment of the numbers with the header in each column.

Reading assignment

K&R Chapters 1.3, 1.5, 2.1, 2.6, 3.1, 3.2

Weekly challenge

Write a program that reads its input character-by-character (like the example on page 20 of the textbook) and that prints what it has read one word per line—without printing any empty lines. For example, if the input is

```
ENEE␣␣␣140␣␣is␣awesome!
```

the output should be:

```
ENEE
140
is
awesome!
```

You can start from the following template (also available in the GRACE class public directory, at `public/challenges/week02/`):

```c
//
// Print the input one word per line.
// K&R Exercise 1-12.
//

#include <stdio.h>
int
main()
{
    int c;
    return 0;
}
```

The weekly challenge will not be graded. However, if you manage to solve it, you may submit it for extra credit. The deadline for submitting your solution to the weekly challenge is **Monday at 11:59 pm**.

Submit it by going to the relevant assignment in Gradescope.