Lab Sheet 4

Operating Systems

C Programming

In Linux

Guidelines to run a c application in Linux

In order to compile and run a c application on linux, you will need to follow the below guidelines:

- Open the terminal

- Write your code using the nano editor with the command : nano file.c

- Compile your file using the command gcc file.c -o myapp

- Execute your compiled application using “./myapp”

Temperature Converter Challenge

Write a program that takes in three arguments, a start temperature (in Celsius), an end temperature (in Celsius) and a step size. Print out a table that goes from the start temperature to the end temperature, in steps of the step size; you do not actually need to print the final end temperature if the step size does not exactly match. You should perform input validation: do not accept start temperatures less than a lower limit (which your code should specify as a constant) or higher than an upper limit (which your code should also specify). You should not allow a step size greater than the difference in temperatures. (This exercise was based on a problem from C Programming Language).

Sample run:

```
Please give in a lower limit, limit >= 0: 10
Please give in a higher limit, 10 > limit <= 50000: 20
Please give in a step, 0 < step <= 10: 4

Celsius         Fahrenheit
-------         ----------
10.000000       50.000000
14.000000       57.200000
18.000000       64.400000
```

Converting Decimal to Binary

Write a program that accepts a base ten (non-fractional) number at the command line and outputs the binary representation of that number. Sample input is

Sample run:

```
Please enter a number: 25
The Binary representation is: 11001
```

Self-Printing Program

Write a program that, when run, will print out its source code. This source code, in turn, should compile and print out itself. (Fun fact: a program that prints itself is called a quine.)