Stat 580 (Spring 2015): Homework 1

Due, in class, January 29, 2015

Please submit your homework with codes (hard copy) in class and upload the corresponding codes to the Blackboard. Problems marked with * will be graded in detail and they are worth 50% of the total score. Remaining problems, worth the remaining 50% of the total score, will be given full mark if reasonable amount of work is shown.

1. Similar to slide set 1 p.28, write a C program that prints the correspondence table of Fahrenheit temperatures and their Celsius equivalents using

   $$C = (5/9)(F - 32).$$

   Instead of specifying the step size, the program should allow the user to specify the number of rows (through a symbolic constant). For instance, if the number of rows is 11 with lower and upper limts set as 0 and 200, the rows of the table should correspond to 0F, 20F, 40F, 60F, 80F, 100F, 120F, 140F, 160F, 180F, 200F. Note that the program should allow any (reasonable) positive number of rows (and so the corresponding Fahrenheit temperatures may not be integer).

2. Similar to slide set 1 p.32, write a program that prints only the numeric input. Say, if the input is "I am 1not2 n34umber", the program should print "1234".

3. * Similar to slide set 1 p.32, write a program that shifts the lower case English characters by 2 characters. That means: "a" to "c", "b" to "d", ..., "x" to "z". Keep "y" and "z" unchanged. For instance, if the input is "amppcar ABC 123z", the program should print "correct ABC 123z".

4. Similar to slide set 1 p.33, write a program that counts the number of words.

5. * Using the precedence table, analyze the operator precedence and write down the value of the following expressions. For instance, the expression

   ```
   3+4/3==1==2
   ```

   is equivalent to

   ```
   (( 3+( 4/3 ) )==4)==0
   ```

   and its value is 0.

   (a) `1+2/5.0`

   (b) `1/2 + 3.0/4.0`

   (c) `3 < 10 && 2 * 8 < 2`

   (d) `j+=i++`

   Suppose i=0 and j=2. Also, write down the value of i.