Extra-extra final Review 2013: yet more questions to do on your own
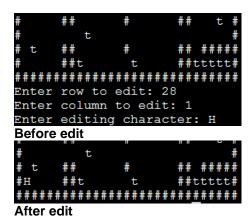
Multiple choice

1. The "agile" approach to programming can be best classified under which area of computer science?
   a. Human-Computer interaction
   b. Artificial Intelligence
   c. Software Engineering
   d. Computer security
   e. Flexible and athletic geek squads

2. Why was the invention of the microprocessor such a significant event?
   a) Computers now became so complex and specialized that only a select group of people ('geeks') could properly use them.
   b) The everyday person now had the ability to own/access a computer.
   c) It resulted in the birth of the Internet.
   d) It resulted in the birth of the World-Wide-Web.
   e) It resulted in the birth of James Tam.

3. Before Microsoft became prominent as the developer of the operating system running the IBM-PC, what was the former company (Microsoft) best known for?
   a) The BASIC programming language.
   b) The C# programming language.
   c) 'Bailing out' Apple computer with a $100 million dollar cash infusion that saved that company from going broke.
   d) Producing the Windows operating system and the Office software suite.
   e) Publishing the "Halo" video game

Short answer

4. Refer to your A5: the Hobbit game. Add the following capabilities to the program (if you didn't complete the assignment then you can just add them to the starting program in the A5 directory).
   a. Add in a 'cheat' capability to the game that allows any square to be edited. Write an 'edit()' function that will allow the player to change the contents of any square given the location and character to change the location to.
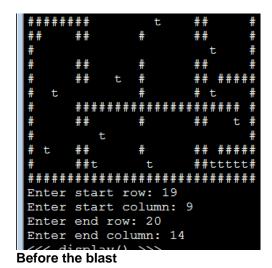
   ```
   # Assume these values are passed to the function
   # and generated elsewhere
   def edit(row,column,character,erebor):
       # You fill in the body
   ```

You can assume that error checking has been done elsewhere (valid location, valid character) before this function has been called, just write the code to change the square at a particular location. (JT: if you want extra-extra-extra practice write a couple of Boolean functions to check if the location is valid and if the character is valid). These functions will be called before the edit function is called and only if the location and character is valid will the edit function be called.

```
#      ##      #       ##    t #
#        t                     #
# t    ##       #      ## #####
#      ##t      t      ##ttttt#
##############################
Enter row to edit: 28
Enter column to edit: 1
Enter editing character: H
```
Before edit

```
#        t                     #
# t    ##       #      ## #####
#H     ##t      t      ##ttttt#
##############################
```
After edit

b. Write a 'blast()' function. The function will receive a starting coordinate and an end coordinate. It will then draw out a rectangle to blast out a rectangle from the start to the end coordinates.

```
# Start coordinate(sRow,sColumn)
# End coordinate(endRow,endColumn)
def blast(sRow,sColumn,endRow,endColumn,erebor):
    # Write the body to nuke the location with fire!
```

```
########           t      ##       #
##     ##        #         ##       #
#                              t    #
#       ##        #         ##      #
#       ##    t   #         ## #####
#  t              #         # t     #
#        #################### #
#       ##        #         ##    t #
#           t                       #
# t    ##         #         ## #####
#      ##t         t        ##ttttt#
##############################
Enter start row: 19
Enter start column: 9
Enter end row: 20
Enter end column: 14
```
Before the blast

After blast

Again you can assume that the locations are valid. (Extra-extra-extra practice: write Boolean functions to check validity). But the basic flast function must ensure that only empty spaces or the hobbit get blasted by fire.

5. Write two functions that perform file output.
    a. `File1(num)` takes an integer as a parameter. It will write to a file the values 1 to that integer (inclusive) to a file each number on a separate line.
    b. `File2(num)` takes an integer as a parameter. It will write to a file the values 0 to that integer (exclusive) to a file with all numbers on the same line and numbers will be separated by a comma.

6. What is the output of the following program:

```
# Program: file_trace.py
f = open("data.txt","r")
i = 1
for l in f:
    if ((i % 2) == 0):
        a = l.split(',')
    else:
        a = l.split()
    print(a)
    i = i + 1
f.close()


# Input file: input.txt
Blue sky to forever
The green grass blows in the wind, dancing
It would be a much better sight with you, with me
If you hadn't met me, I'd be fine on my own, baby
Never felt so lonely, then you came along
```

- **Akira Yamaoka (Silent Hill 3 lyrics)**

7. What is the output of the following program (assume that there is only one file in the same directory as the program which is called "`input.txt`" and the user doesn't enter a path) if the user enters: (a) `input.txt` (b) `dat.txt`

```
# Program
ok = False
while (ok == False):
    try:
        fn = input("Name of input file: ")
        fv = open(fn,"r")
    except IOError:
        print("Can't open ", fn)
    else:
        print("Opening ", fn)


for l in fv:
    print("%s\t" %(l))

fv.close()

# Input.txt
Nous sommes des dégourdis,
Nous sommes des lascars
Des types pas ordinaires.
Nous avons souvent notre cafard,
Nous sommes des légionnaires.
Au Tonkin, la Légion immortelle
À Tuyen-Quang illustra notre drapeau,
Héros de Camerone et frères modèles
```
- **Common marching cadence (French foreign legion)**