

CECS 524
Assignment 3
Total: 36 Points

General Instruction

- I absolutely recommend that you type your answers to exercise questions by using \LaTeX .
 - If your programs could not be executed on a command line environment, **zero** grade will be given for the programs.
 - Submit PDF, java, cpp, py files via BeachBoard (Not email or in class).
-

1. (15 points) Write regular expression to capture the hexadecimal floating-point values. A hexadecimal floating-point value begins with 0x or 0X, may contain the digits 0–9 and a/A–f/F, and has an optional fractional portion (beginning with a dot) and a mandatory exponent (beginning with P or p). There may be digits to the left of the dot, the right of the dot, or both, and the exponent itself is given in decimal (contains only the digits 0-9), with an optional leading + or - sign. A hexadecimal floating-point value may end with an optional F or f (indicating “float”-single precision) or L or l (indicating “long”-double precision). With using the following expressions only;
 - i. A character
 - ii. The empty string
 - iii. Parenthesis
 - iv. Concatenation
 - v. ‘or’
 - vi. Kleene star. (Please use superscript star symbols, *)
2. (21 points) Write a Java, C++, and Python programs (without external library) that determines whether a given stream of characters is a hexadecimal floating-point value or not.
 - i. The file names of the source codes should be `Assn3.java`, `Assn3.cpp`, `Assn3.py`.
 - ii. The programs should read the input file name from the command-line arguments passed to the program. (`args[]`, `argv[]`, `sys.argv[]`).
 - iii. The program should read each line from an input file and print out its evaluation.
 - iv. You can use **any regular expression** which is allowed in the programming languages.
 - v. Execution commands should be:

```
javac Assn3.java; java Assn3 a3_input.txt  
g++ Assn3.cpp -o Assn3; ./Assn3 a3_input.txt  
python Assn3.py a3_input.txt
```

vi. Expected output for the provided `a3_input.txt`.

```
Matched: 0x1p+1  
Not Matched: 0x1p+8.8  
Not Matched: 1a.0p-6  
Matched: 0x1.b7p-1
```

Note. Your programs will be tested with a different test file.