CS 1622 – Homework 1

Due: Tuesday, January 30, 2018 at the start of class

Please submit a typewritten document. I'd prefer you draw your finite state machines on the computer, but if this is a challenge, you may hand draw them neatly on the paper by hand.

1.) Write the following regular expressions:

a.) Binary numbers that are multiples of eight

b.) Binary numbers that are an integer power of 2.

c.) Valid C/Java integer constants that can be negative or positive, in decimal, octal, or hexadecimal.

d.) A string literal without escape sequences

e.) A block comment without nesting (/* to */)

f.) A string of a's and b's with an odd number of b's.

2.) Using the Thompson's algorithm construction from lecture, convert the following regular expression to an NFA (alphabet is {a,b}):

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b?(ab)*bb+
```

3.) Using the Thompson's algorithm construction from lecture, convert the following regular expression to an NFA (alphabet is {a,b}):

```
a+bab?a
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