Section 1: Regular Expressions

Symbol	Meaning	Example(s)
а	Literal character	a, any symbol in your alphabet Σ
ab	Concatenation of regex's (or literal	ab, (<i>abc</i>)(<i>def</i>)
	characters) a and b	
Е	Empty string	ε
a b	a or b	a, b
a*	0 or more a's	ε, a, aaaa, aaaaa
a+	1 or more a's: aa*	a, aaa, aaaaa
a?	0 or 1 a's: (a ε)	ε, α
[<i>a</i> -z]	1 character in range a - z : $(a \mid b \mid \mid z)$	a, b, c, d, e, f,, z
[skj]	1 of characters in bracket: $(s k j)$	s, k, j

Regular Expression Reference Table

1) Describe in English the set of strings generated by each of the following regular expressions and give two different strings it can produce:

- i) (1 | 0)* 0
- ii) ([A-Z][a-z]* | [0-9]+)
- iii) (ε | 4?0+1* X 3+)

2) Write a regular expression to generate each of the following sets of strings:

- i) All strings consisting of 0's and 1's (binary digits) with an even number of 0s
- ii) camelCase variable name in Java, where the alphabet contains is upper and lowercase letters no digits or underscores
- iii) Non-empty strings of binary digits where each 1 directly follows a 0 (challenge: only use symbols in table up until *)