Regular Expressions – Basics
Kim – Exercises A – Gabor

Determine a regular expression which will match only on the indicated strings, or else will find the indicated matches. The form for the submission will be a command line script that takes a single integer as input from 31 to 40, inclusive, and outputs the corresponding regular expression pattern, as it was done in class: the pattern is to be delimited by forward slashes and any options should immediately follow the final slash.

31. Determine whether a string is either 0, 100, or 101.

32. Determine whether a given string is a binary string (ie. composed only of 0 and 1 characters).

33. An integer (sub)string refers to a non-empty (sub)string that will convert to an integer but has no leading 0. Zero is represented as the single digit 0. Given a binary integer string, what regular expression determines whether it is even?

34. What is a regular expression to determine (ie. match) those words in a text that have at least two vowels?

35. Given a string, determine whether it is an even binary integer string.

36. Determine whether a given string is a binary string containing 110 as a substring.

37. Match on all strings of length at least two, but at most four.

38. Validate a social security number entered into a field (ie. recognize ddd-dd-dddd where the d represents digits and where the dash indicates an arbitrary number of spaces with at most one dash). For example, 542786363, 542 786363, and 542 — 78-6263 are all considered valid.

39. Determine a regular expression to **help** you find the first word of each line of text with a d in it.

40. Determine whether a string is a binary string that has the same number of 01 substrings as 10 substrings.

Regular Expressions
Basics Summary Table

Basics	Explanation		Options	Explanation
/pattern/	Reg exp delimiters		i	CASELESS
.	Wild card – match any non newline character		s	DOTALL - . matches all characters
|	Or (alternation)		m	MULTILINE - ^ matches start of each line; $ matches end of each line
\	Quotes meta characters		/.../im	Example usage

Char types		Explanation		Char classes	Explanation
\w	(\W)	Alphanumeric char or _		[aeiou]	Character class
\s	(\S)	Whitespace char		[0-9A-Z_]	Ranges
\d	(\D)	Digit (ie. 0-9)		[^0-9]	Negation

Quantifiers	Explanation		Assertions	Explanation
?	0 or 1 of preceding item		^	Start of line (with MULTILINE)
*	0 or more of preceding item		$	End of line (with MULTILINE)
+	1 or more of preceding item		\b	Word boundary
?	*? +? and ?? are not greedy		\A	Start of string
{4} / {4,}	Exactly 4 / At least 4		\Z	End of string
{3,5}	3, 4, or 5 of preceding item			