Regular Expressions
Basics Summary Table

Basics	**Explanation**		**Options**	**Explanation**
/pattern/	Reg exp delimiters		i	CASELESS
.	Wild card – match any non newline (sans DOTALL)		s	DOTALL - . matches all
|	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			

 20 Nov ‘20

Regular Expressions – Basics
Lab RE1 – 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 30 to 39, inclusive, and outputs the corresponding regular expression pattern, as shown in class: the pattern is to be delimited by forward slashes and any options should immediately follow the final slash.

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

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

32. 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?

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

34. Given a string, determine whether it is a non-negative, even binary integer string.

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

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

37. 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.

38. Determine a regular expression to **help** you find the first word of each line of text with a `d` in it: Match through the end of the first word with a `d` on each line that has a `d`.

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

