Regex

(*) indicates that the preceding character can occur 0 or more times.	meo*w	mew, meow, meooow, and meoooo-ooooooow
? - character can appear either 0 or 1 time	humou?r	humour humor
. and it can match any single character (letter, number, symbol or whitespace) in a piece of text	....	any 9-char-acter text
[] will match any of the characters included within the brackets	con[sc]en[sc]us	consensus, concensus, consencus, and concencus
{} contains the exact quantity	roa{3}r	roaaar
{}n. the quantity range of characters to be matched	roa{3,6}r	roaaar, roaaaar, roaaaaar, or roaaaaaar
|, allows for the matching of either of two subexpres-sions.	baboons|gorillas	will match the text baboons as well as the text gorillas.

Regex (cont)

Anchors (hat ^ and dollar sign $) are used in regular expressions to match text at the start and end of a string, respectively.	^Monkeys: my mortal enemy$	will completely match the text Monkeys: my mortal enemy but not match Spider Monkeys: my mortal enemy or Monkeys: my mortal enemy in the wild
[letter-letter] or [n-n]	a range of characters that can be matched	[A-Z]. : match any uppercase letter [a-z]. : match any lowercase letter [0-9]. : match any digit [A-Za-z] : match any uppercase or lowercase letter
Shorthand character classes simplify writing regular expressions	\w represents the regex range [A-Za-z0-9_], \d represents [0-9],	\W represents $[A-Za-z0-9\_]$ matching any character not included by \w, \D represents $[0-9]$ matching any character not included by \d

Regex (cont)

Negated character set	[^cdh]are	will match the m in mare.
+ ndicates that the preceding character can occur 1 or more times	meo+w	will match meow, meooow, and meoooo-ooo-ooooow, but not match mew

Text Preprocessing

Noise removal	import re result = re.sub(r'[\.\?-\!\,\:\;\"]', '', text)	Removes Punctu-ation
Tokenization is the text prepro-cessing task of breaking up text into smaller components of text	from nltk.t-okenize import word_t-okenize text = "This is a text to tokenize" tokenized = word_tokeniz-e(text)	print(tok-enized) # ["This", "-is", "a", "-text", "to", "tokeni-ze"]
In natural language processing, normalization encompasses many text prepro-cessing tasks including	stemming, lemmatiza-tion,	upper or lowerc-asing, and stopwords removal.

Text Preprocessing (cont)

Stemming In natural language processing, stemming is the text preprocessing normalization task concerned with bluntly removing word affixes (prefixes and suffixes).	from nltk.stem import PorterStemmer tokenized = ["So", "many", "squids", "are", "jumping"] stemmer = PorterStemmer() stemmed = [stemmer.stem(token) for token in tokenized]	# ['So', 'mani', 'squid', 'are', 'jump']
Lemmatization In natural language processing, lemmatization is the text preprocessing normalization task concerned with bringing words down to their root forms.	from nltk.stem import WordNetLemmatizer tokenized = ["So", "many", "squids", "are", "jumping"] lemmatizer = WordNetLemmatizer() lemmatized = [lemmatizer.lemmatize(token) for token in tokenized]	['So', 'many', 'squid', 'be', 'jump']

Text Preprocessing (cont)

stopword removal is the process of removing words from a string that don't provide any information about the tone of a statement.	from nltk.corpus import stopwords # define set of English stopwords stop_words = set(stopwords.words('english'))	# remove stopwords from tokens in dataset statement_no_stop = [word for word in word_tokens if word not in stop_words]
parser.chunk.RegexpParser	Uses a set of regular expression patterns to specify the behavior of the parser	{<DT|JJ>} # chunk determiners and adjectives

Token = Smaller Component of Text
Stem = Remove prefix and suffix
Lemmatization = Bring down to root
Stopword = Remove meaningless

Lists and Strings

z = 'Natural Language Processing'	z.replace(' ', '\n')	'Natural\nLanguage\nProcessing'
	list(z)	Split text into character tokens
	set(z)	Unique tokens
x = ['Natural', 'Language', 'Toolkit']	x.insert(0, 'Python')	['Language', 'Natural', 'Python', 'Toolkit']