Unit 0 Python Lab 1: CodingBat Level 1

Part I: Solve the first 8 problems under each of the level 1 tasks in the Python tab at CodingBat.

1. Go to www.codingbat.com. Make an ID with your personal or TJ webmail address.
2. Complete first 8 problems of Warmup-1, String-1, List-1, and Logic-1.

Specific problems:

Warmup-1		
sleep_in	monkey_trouble	sum_double
diff21	parrot_trouble	makes10
near_hundred	pos_neg	

String-1		
hello_name	make_abba	make_tags
make_out_word	extra_end	first_two
first_half	without_end	

List-1		
first_last6	same_first_last	make_pi
common_end	sum3	rotate_left3
reverse3	max_end3	

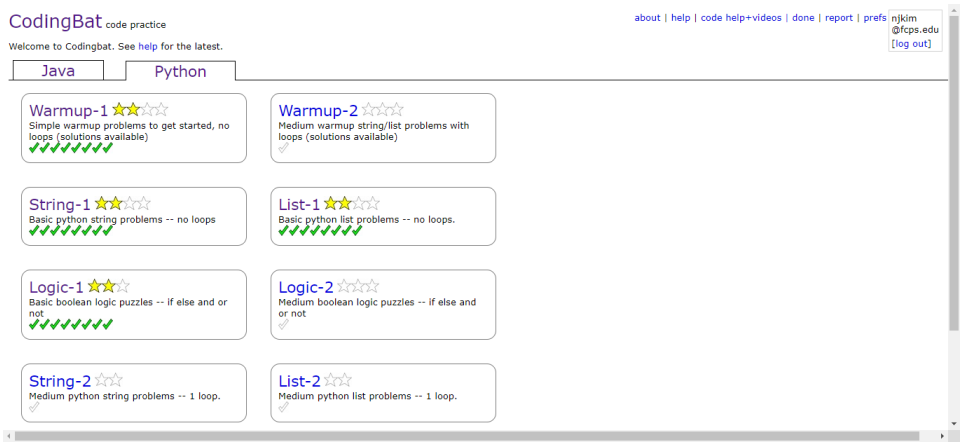
Logic-1		
cigar_party	date_fashion	squirrel_play
caught_speeding	sorta_sum	alarm_clock
love6	in1to10	

3. You will solve each problem with ONE LINE solution. You should not have any semicolons, tabs, and imports.

If you need help, study the ***Python Skills 1*** tutorial first. The following is a subset of Python constructs you can use for this assignment:

	= (assignment)	(grouping)	+= (in place add)	*= (in place multiply)	
mathy:	/ (divide)	* (multiply)	% (modulo)	+ (add / concatenate)	
	// (int divide)	** (power)	abs(…)		
	| (bitwise or, and set union)		& (bitwise and, and set intersection)		
	- (subtract, and set difference)		^ (bitwise xor, and disjoint set union)		
logical:	and	or	not		
comparisons:	==	< (less than)	> (more than)	<=	>=
set, list:	set(…)	{…}	list(…)	[…]	
ranges, slice:	range(…)	: (slice)			
flow-control:	if	elif	else	return	
strings:	"…"	'…'	startswith	endswith	format
info:	len	in	sum	max	min

Submit the screenshot of your CodingBat main page to Google Classroom:



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Part II: Create a python file with all methods you finished at CodingBat. The specific functions are listed below. In a few cases, indicated in gray, the problem has been slightly revised from the version on CodingBat.com.

File_Name: `LastName_FirstInitial_cb1.py` (e.g. `Kim_n_cb1.py`)

First Line comments: name and date

Example)

```
# Nicole Kim
# Aug 26, 2020

def sleep_in(weekday, vacation):
  return not weekday or vacation

def monkey_trouble(a_smile, b_smile):
  return a_smile == b_smile
…
```

Warmup 1:	
`sleep_in(weekday, vacation)`	The parameter weekday is True if it is a weekday, and the parameter vacation is True if we are on vacation. We sleep in if it is not a weekday or we're on vacation. Return True if we sleep in.
`monkey_trouble(a_smile, b_smile)`	We have two monkeys, a and b, and the parameters a_smile and b_smile indicate if each is smiling. We are in trouble if they are both smiling or if neither of them is smiling. Return True if we are in trouble.
`double(a, b)`	Given two int values, return their sum. Unless the two values are the same, then return double their sum.
`diff21(n)`	Given an int n, return the absolute difference between n and 21, except return double the absolute difference if n is over 21.
`parrot_trouble(talking, hour)`	We have a loud talking parrot. The "hour" parameter is the current hour time in the range 0..23. We are in trouble if the parrot is talking and the hour is before 7 or after 20. Return True if we are in trouble.
`makes10(a, b)`	Given 2 ints, a and b, return True if one if them is 10 or if their sum is 10.
`near_hundred(n)`	Given an int n, return True if it is within 10 of 100 or 200. Note: abs(num) computes the absolute value of a number.
`pos_neg(a, b, negative)`	Given 2 int values, return True if one is negative and one is positive. Except if the parameter "negative" is True, then return True only if both are negative.
String 1:	
`hello_name(name)`	Given a string name, e.g. "Bob", return a greeting of the form

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	"Hello Bob!".
`make_abba(a, b)`	Given two strings, a and b, return the result of putting them together in the order abba, e.g. "Hi" and "Bye" returns "HiByeByeHi".
`make_tags(tag, word)`	The web is built with HTML strings like "Yay" which draws Yay as italic text. In this example, the "i" tag makes and which surround the word "Yay". Given tag and word strings, create the HTML string with tags around the word, e.g. "Yay".
`make_out_word(out, word)`	Given an "out" string, such as "<<>>", and a word, return a new string where the word is in the middle of the out string, e.g. "<<word>>".
`extra_end(str)`	Given a string, return a new string made of 3 copies of the last 2 chars of the original string. The string length will be at least 2.
`first_two(str)`	Given a string, return the string made of its first two chars, so the String "Hello" yields "He". If the string is shorter than length 2, return whatever there is, so "X" yields "X", and the empty string "" yields the empty string "".
`first_half(str)`	Given a string, return the first half. So the string "WooHoo" yields "Woo"
`without_end(str)`	Given a string, return a version without the first and last char, so "Hello" yields "ell". The string length will be at least 2.
List 1:	
`first_last6(nums)`	Given an array of ints and/or strings, return True if 6 appears as either the first or last element in the array. The array will be length 1 or more.
`same_first_last(nums)`	Given an array of ints and/or strings, return True if the array is length 1 or more, and the first element and the last element are equal.
`make_pi(n)`	Given n in range(1,14), return a list of the first n digits of pi in order.
`common_end(a, b)`	Given 2 arrays of ints and/or strings, a and b, return True if they have the same first element or they have the same last element. Both arrays will be length 1 or more.
`sum3(nums)`	Given an array of ints, length ≥ 1, return the sum of all the elements.
`rotate_left3(nums)`	Given an array of ints and/or strings, length ≥ 1, return an array with the elements "rotated left" so [1, 2, 3] yields [2, 3, 1].
`reverse3(nums)`	Given an array of ints and/or strings, length ≥ 1, return a new array with the elements in reverse order, so [1, 2, 3] becomes [3, 2, 1].
`max_end3(nums)`	Given an array of ints, length ≥ 1, figure out which is larger, the first or last element in the array, and set all the other elements to be that value. Return the changed array.

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Logic 1:	
`cigar_party(cigars, is_weekend)`	When squirrels get together for a party, they like to have cigars. A squirrel party is successful when the number of cigars is between 40 and 60, inclusive. Unless it is the weekend, in which case there is no upper bound on the number of cigars. Return True if the party with the given values is successful, or False otherwise.
`date_fashion(you, date)`	You and your date are trying to get a table at a restaurant. The parameter "you" is the stylishness of your clothes, in the range 0..10, and "date" is the stylishness of your date's clothes. The result getting the table is encoded as an int value with 0=no, 1=maybe, 2=yes. If either of you is very stylish, 8 or more, then the result is 2 (yes). With the exception that if either of you has style of 2 or less, then the result is 0 (no). Otherwise the result is 1 (maybe).
`squirrel_play(temp, is_summer)`	The squirrels in Palo Alto spend most of the day playing. In particular, they play if the temperature is between 60 and 90 (inclusive). Unless it is summer, then the upper limit is 100 instead of 90. Given an int temperature and a Boolean is_summer, return True if the squirrels play and False otherwise.
`caught_speeding(speed, is_birthday)`	You are driving a little too fast, and a police officer stops you. Write code to compute the result, encoded as an int value: 0=no ticket, 1=small ticket, 2=big ticket. If speed is 60 or less, the result is 0. If speed is between 61 and 80 inclusive, the result is 1. If speed is 81 or more, the result is 2. Unless it is your birthday -- on that day, your speed can be 5 higher in all cases.
`sorta_sum(a, b)`	Given 2 ints, a and b, return their sum. However, sums in the range 10..19 inclusive, are forbidden, so in that case just return 20.
`alarm_clock(day, vacation)`	Given a day of the week encoded as 0=Sun, 1=Mon, 2=Tue, ...6=Sat, and a boolean indicating if we are on vacation, return a string of the form "7:00" indicating when the alarm clock should ring. Weekdays, the alarm should be "7:00" and on the weekend it should be "10:00". Unless we are on vacation -- then on weekdays it should be "10:00" and weekends it should be "off".
`love6(a, b)`	The number 6 is a truly great number. Given two int values, a and b, return True if either one is 6. Or if their sum or difference is 6. Note: the function abs(num) computes the absolute value of a number.
`in1to10(n, outside_mode)`	Given a number n, return True if n is in the range 1..10, inclusive. Unless outside_mode is True, in which case return True if the number is less or equal to 1, or greater or equal to 10.

Submit your program into Google Classroom.