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## Task 1: bill 2.5xp

Often I go to lunch with my friends and we split the bill. I would like a function that will take 3 arguments: the total of the bill, the percent tip we want to give, and the total number of people in the group and output what each person in the group should pay. For example:

```
pay(50, 20, 5)
```

Should print 12.

(The bill is \$50 and we are giving a 20% tip. So the total is \$60 divided by 5 people)

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## Task 2: pigify 5xp

I would like a function that takes a word as an argument and returns the Pig Latin version of that word. The rules for Pig Latin are as follows:

1. For words that start with a vowel, just add *way* to the end:
  - 1.1. *egg* → *eggway*
  - 1.2. *and* → *andway*
2. For words that start with a consonant or consonant cluster move it to the end of the word and add *ay*
  - 2.1. *dog* → *ogday*
  - 2.2. *kids* → *idskay*
  - 2.3. *frog* → *ogfray*

```
pigify("egg")  
should print eggway
```

```
pigify("and")  
should print andway
```

```
pigify("frog")  
should print ogfray
```

```
pigify("dog")  
should print ogday
```

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### Task 3: Overtime: 2.5 xp

For some jobs, when you work over 40 hours in one week you get what is called “time and a half” meaning the employee gets paid 1.5 times their usual rate for any hours over 40. Suppose a person gets paid \$10/hr and works 50 hours in a week. That person gets paid \$10/hr for the first 40 hours and then \$15/hr for 10 hours for a total of \$550.

Write a function that takes 2 integer arguments, the wage, and the number of hours worked, and returns the total pay.

```
pay(10, 0)
should print
```

0

```
pay(36, 10)
360
```

```
pay(10, 50)
550
```

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### Task 4: Change: 5xp

I want a function that takes as an integer argument the number of cents change I should give a person, and returns the minimal number of coins that are required to make that amount (using the standard quarter, dime, nickel, and penny coins). For example, the minimal number of coins to make 76 cents of change is 4 (3 quarters and 1 penny).

```
coins(0)
0
coins(76)
4
coins(73)
7
```

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## Task 5: Fibonacci: 5 xp

Recall that a Fibonacci number is defined as

$$F_0 = 0$$

$$F_1 = 1$$

$$F_n = F_{n-1} + F_{n-2}$$

Write a function that takes an integer argument,  $n$ , and returns (or prints)  $F_n$ .

For example

```
fib(0)
0
fib(4)
3
```

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## Task 6: vowels: 2.5 xp

I would like you to write a function that takes a string argument and returns the number of vowels (including  $y$ ) in that string.

For example,

```
vowels("thrzt!!")
0
vowels("Mississippi!!")
4
vowels("e i e i o")
5
vowels("That was crazy stuff")
5
```

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## Task 7: remove: 2.5 xp

Write a function that takes a string as input and returns a string that is a copy of the input string minus the vowels.

```
removed("This is a test!!")
Ths s tst!!
removed("Write a function that takes a string as
input")
}
```

Wrt fnctn tht tks strng s npt

## team: \_\_\_\_ Task 8: online games: 5xp

In an online game I play I have acquired a pet gerbil who I send into crevices to acquire precious metal nuggets. Sadly, she can only carry 10 ounces. In the game, there are 4 possible metals and the value of these in order are:

Rhodium Platinum Gold Ruthenium

When I send my little gerbil into a crevice I want her to return with the most valuable haul. For example, if the crevice contains 5 ounces of Rhodium, 6 of Platinum, 4 of Gold, and 7 of Ruthenium, I want her to return with 5 ounces of Rhodium and 5 of Platinum.

I want you to write a function whose arguments are the amounts of Rhodium, Platinum, Gold, and Ruthenium and prints what my gerbil should take. For example:

```
found(5, 6, 4, 7)
prints
5 Rhodium
5 Platinum
```

```
found(10, 10, 10, 10)
prints
10 Rhodium
```

```
found(3, 0, 0, 1)

3 Rhodium
0 Platinum
0 Gold
1 Ruthenium
```

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## Task 9: potato: 2.5 xp

I would like you to write a procedure, `potato`, that takes a number as an argument and does the following:

```
potato(3)
```

```
1 potato
```

```
2 potato
```

```
3 potato
```

```
potato(0)
```

```
prints nothing
```

```
potato(50)
```

```
1 potato
```

```
2 potato
```

```
3 potato
```

```
...
```

```
49 potato
```

```
50 potato
```

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## Task 10: blastoff: 2.5 xp

I would like you to write a procedure that takes a number as an argument and counts down from that number. For example:

```
countdown(10)
```

```
10
```

```
9
```

```
8
```

```
7
```

```
6
```

```
5
```

```
4
```

```
3
```

```
2
```

```
1
```

```
Blastoff!
```

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## Task 11: acronym: 5 xp

I would like you to write a function that takes a string as input and outputs the acronym of that string. For example,

```
acronymtize('laughing out loud')  
lol
```

```
acronymtize('keep it simple stupid')  
kiss
```

```
acronymtize('light amplification stimulated  
emission radiation')  
laser
```

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## Task 12: largest: 2.5 xp

I would like you to write a function that takes exactly 4 numbers as arguments and prints the largest of those 4:

```
largest(20, 50, 10, 5)  
50
```

```
largest(10, 9, 8, 7)  
10
```

### **hacker edition:**

instead, can you write a function that takes a list of numbers as an argument and returns the largest (3.5xp)?

```
largest([20, 50, 10, 5])  
50
```

```
largest([19, 27, 20, 50, 153, 52, 23])  
153
```

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## Task 13: average: 2.5 xp

I would like you to write a function that takes exactly 4 numbers as arguments and prints the average of those 4:

```
average(20, 50, 10, 20)
25
```

### **hacker edition:**

instead, can you write a function that takes a list of numbers as an argument and returns the average (**5xp**)?

```
average([20, 50, 10, 20])
25
```

```
average([19, 27, 20, 50, 153, 52, 23])
49.1428
```

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## Task 14: Motorcycle trip: 5 xp

This summer I took a motorcycle trip. I have gas stations on my route represented in a Python list with the following format:

```
route = [("Mesilla", 5), ("Leasburg", 25),
          ("Hatch", 37),
          ("Truth or Consequences", 33),
          ("Winston", 40), ("Datil", 120), ...
```

meaning it is 5 miles from my house to Mesilla, 25 miles from Mesilla to Leasburg, etc. Sadly, my motorcycle only holds 2 gallons and I get 75 miles to the gallon. I would like you to write a program that processes this route and prints the cities where I should stop and get gas and the distance between those stops. For example, the first city & distance it should print is

Winston 140

since Winston is 140 miles from the start but if I tried to get to the next city I would run out of gas.

The file containing the route is available on our website. The correct output should be

Winston	140
Datil	120
Dzilth	148
Shiprock	100
Chinle	120
Gallup	112

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## Task 15: Palindrome: 5xp

A palindrome is a sequence of symbols that is identical forward or backward. Please write a function that takes a string as an argument and returns 1 if that string is a palindrome and 0 if it is not.

For example,

```
palindromeP("aba")
1
palindromeP("abbccbbaa")
1
palindromeP("aabbccba")
0
palindromeP("a")
1
```