CS350: Programming Language Paradigms
Homework Assignment
Javascript: Map and Filter

Follow the instructions to complete each *TASK* below (in order). Do everything in the same file.

TASK: Using arrow notation, write a function called **`poundstokg`** that will convert from pounds to kilogram. The function takes an argument (a value in pounds) and returns a value (the argument value converted to kilograms).

TASK: Using arrow notation, write a function called **`inchestometers`** that will convert from inches to meters. The function takes an argument (a value in inches) and returns a value (the argument value converted to meters).

The following is an array of ***person*** objects, each representing a person (name, weight in pounds, and height in inches).

```
let people = [
  {name: "Amy", pounds_weight: 152, inches_height: 63},
  {name: "Joe", pounds_weight: 120, inches_height: 64},
  {name: "Tom", pounds_weight: 210, inches_height: 78},
  {name: "Jim", pounds_weight: 180, inches_height: 68},
  {name: "Jen", pounds_weight: 120, inches_height: 62},
  {name: "Ann", pounds_weight: 252, inches_height: 63},
  {name: "Ben", pounds_weight: 240, inches_height: 72},
];
```

TASK: Copy the **`people`** array into your program.

TASK: Write a function called **`addbmi`** that will take a ***person*** object as argument and it will:

a) calculate his/her bmi (equation below);
b) add a **`bmi`** attribute to the ***person*** object (with his/her calculated bmi as value);
c) return the (changed) ***person*** object.

You should make use of your **`poundstokg`** and **`inchestometers`** functions.

The following equation can be used to calculate the BMI of a person:

BMI = (weight in kg) / (height in meters)^2

You could test your **`addbmi`** function with any of the items in the array. For example, if you try:

```
console.log(addbmi(people[0]));
```

you should see the following result. Notice how the ***bmi*** attribute has been added to the object:

```
{ name: 'Amy',
  pounds_weight: 152,
  inches_height: 63,
  bmi: 27.57369614512471 }
```

At this point you should be able to use ***map*** to apply the **`addbmi`** function to each person in the array. For testing purposes, try the following instructions:

```
people.map(addbmi);
console.log(people);
```

You should see the results below. Notice how the each *person* object now has a ***bmi*** attribute:

```
[ { name: 'Amy',
    pounds_weight: 152,
    inches_height: 63,
    bmi: 27.57369614512471 },
  { name: 'Joe',
    pounds_weight: 120,
    inches_height: 64,
    bmi: 21.093749999999996 },
  { name: 'Tom',
    pounds_weight: 210,
    inches_height: 78,
    bmi: 24.852071005917157 },
  { name: 'Jim',
    pounds_weight: 180,
    inches_height: 68,
    bmi: 28.02768166089965 },
  { name: 'Jen',
    pounds_weight: 120,
    inches_height: 62,
    bmi: 22.476586888657646 },
  { name: 'Ann',
    pounds_weight: 252,
    inches_height: 63,
    bmi: 45.7142857142857 },
  { name: 'Ben',
    pounds_weight: 240,
    inches_height: 72,
    bmi: 33.33333333333333 } ]
```

NOTE: After getting the correct result, make sure you remove the two instructions from your program.

A person is considered overweight if her/his bmi is 25.0 to <30.
TASK: Write a function called `isOverweight` that will take a ***person*** object as argument and it will return ***true*** if the person is overweight and ***false*** otherwise. Assume that the person object has the ***bmi*** attribute already.

You can test your function using:

```
console.log(isOverweight(people[0]));
```

which should display ***`true`***.

A person is considered obese if her/his bmi is 30 or above.
TASK: Write a function called `isObese` that will take a ***person*** object as argument and it will return ***true*** if the person is obese and ***false*** otherwise. Assume that the person object has the ***bmi*** attribute already.

You can test your function using:

```
console.log(isObese(people[0]));
```

which should display ***false***.

TASK: Use the **addbmi** and isOverweight functions to chain the ***map*** and ***filter*** functions on the ***people*** array to obtain an array of overweight people. Assign the results to a variable called **overweight_people**. Display the value of the variable to screen. You should see the following:

```
[ { name: 'Amy',
    pounds_weight: 152,
    inches_height: 63,
    bmi: 27.57369614512471 },
  { name: 'Jim',
    pounds_weight: 180,
    inches_height: 68,
    bmi: 28.02768166089965 } ]
```

TASK: Use the **addbmi** and isObese functions to chain the ***map*** and ***filter*** functions on the ***people*** array to obtain an array of obese people. Assign the results to a variable called **obese_people**. Display the value of the variable to screen. You should see the following:

```
[ { name: 'Max',
    pounds_weight: 188,
    inches_height: 61,
    bmi: 36.3773179252889 },
  { name: 'Ann',
    pounds_weight: 252,
    inches_height: 63,
    bmi: 45.7142857142857 },
  { name: 'Ben',
    pounds_weight: 240,
    inches_height: 72,
    bmi: 33.33333333333333 } ]
```