

Lab: Objects and Classes

Problems for exercise and homework for the ["JS Fundamentals" Course @ SoftUni](https://softuni.org/Courses/JS-Fundamentals).

Submit your solutions in the SoftUni judge system at: <https://judge.softuni.org/Contests/1323>

1. Person Info

Write a function that receives **3 parameters**, sets them to an **object**, and **returns** that object.

The input comes as **3 separate strings** in the following order: **firstName**, **lastName**, **age**.

Examples

| Input | Object Properties |
|-------------------------------|-------------------------------------------------|
| "Peter", "Pan", "20" | firstName: Peter lastName: Pan age: 20 |
| "George", "Smith", "18" | firstName: George lastName: Smith age: 18 |

Hints

```
function personInfo(firstName, lastName, age) {  
    //TODO: Create the person object and set the properties  
    return person;  
}
```

2. City

Write a function that receives a **single parameter** – an **object**, containing **five properties**:

{ name, area, population, country, postcode }

Loop through all the **keys** and **print** them with their **values** in format: **"{key} -> {value}"**

See the examples below.

Examples

| Input | Output |
|-----------------------------------|-------------------------------------------------------|
| { name: "Sofia", area: 492, | name -> Sofia area -> 492 population -> 1238438 |

| | |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <pre> population: 1238438, country: "Bulgaria", postCode: "1000" } </pre> | <pre> country -> Bulgaria postCode -> 1000 </pre> |
| <pre> { name: "Plovdiv", area: 389, population: 1162358, country: "Bulgaria", postCode: "4000" } </pre> | <pre> name -> Plovdiv area -> 389 population -> 1162358 country -> Bulgaria postCode -> 4000 </pre> |

3. Convert to Object

Write a function that receives a **string** in **JSON format** and converts it to an **object**.

Loop through all the keys and print them with their values in format: "{key}: {value}"

Examples

| Input | Output |
|---------------------------------------------------|------------------------------------------------|
| '{"name": "George", "age": 40, "town": "Sofia"}' | <pre> name: George age: 40 town: Sofia </pre> |
| '{"name": "Peter", "age": 35, "town": "Plovdiv"}' | <pre> name: Peter age: 35 town: Plovdiv </pre> |

Hints

- Use **JSON.parse()** method to parse JSON string to an object

```

function solve(jsonStr) {
  let person = JSON.parse(jsonStr);

  //TODO: Iterate through the properties and
  //TODO: print the result
}

solve('{"name": "George", "age": 40, "town": "Sofia"}');

```

4. Convert to JSON

Write a function that receives a **first name**, **last name**, **hair color** and sets them to an **object**.

Convert the **object** to **JSON string** and print it.

Input is provided as **3 single strings** in the order stated above.

Examples

| Input | Output |
|----------------------------|----------------------------------------------------------|
| 'George', 'Jones', 'Brown' | {"name":"George","lastName":"Jones","hairColor":"Brown"} |
| 'Peter', 'Smith', 'Blond' | {"name":"Peter","lastName":"Smith","hairColor":"Blond"} |

Hints

- Use `JSON.stringify()` to parse the object to JSON string

```
function solve(name, lastName, hairColor) {  
    //TODO: Create an object with the given input  
    console.log(JSON.stringify(person));  
}  
  
solve('George', 'Jones', 'Brown');
```

5. Cats

Write a function that receives **array** of strings in the following format '**{cat name} {age}**'.

Create a **Cat class** that receives in the **constructor** the **name** and the **age** parsed from the input.

It should also have a method named **"meow"** that will print **"{cat name}, age {age} says Meow"** on the console.

For each of the strings provided, you must **create a cat object** and invoke the **.meow ()** method.

Examples

| Input | Output |
|---------------------------------|--------------------------------------------------------------------------|
| ['Mellow 2', 'Tom 5'] | Mellow, age 2 says Meow Tom, age 5 says Meow |
| ['Candy 1', 'Poppy 3', 'Nyx 2'] | Candy, age 1 says Meow Poppy, age 3 says Meow Nyx, age 2 says Meow |

Hints

- Create a **Cat** class with properties and methods described above
- Parse the input data
- Create all objects using the class constructor and the parsed input data, store them in an array
- Loop through the array using **for...of** a cycle and **invoke .meow()** method

```
function solve(arr) {  
    let cats = [];  
    //TODO: Create class Cat  
  
    for (let i = 0; i < arr.length; i++) {  
        let catData = arr[i].split(' ');  
        let name, age;  
        [name, age] = [catData[0], catData[1]];  
        cats.push(new Cat(name, age));  
    }  
    //TODO: Iterate through cats[] and invoke .meow() using for...of loop  
}  
  
solve(['Mellow 2', 'Tom 5']);
```

6. Songs

Define a **class Song**, which holds the following information about songs: **typeList**, **name**, and **time**.

You will receive the input as an **array**.

The first element **n** will be the number of songs. Next **n** elements will be the songs data in the following format: **"{typeList}_{name}_{time}"**, and the last element will be **typeList** / **"all"**.

Print only the **names of the songs**, which have the same **typeList** (obtained as the last parameter). If the value of the last element is **"all"**, print the names of all the songs.

Examples

| Input | Output |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| [3, 'favourite_DownTown_3:14', 'favourite_Kiss_4:16', 'favourite_Smooth Criminal_4:01', 'favourite'] | DownTown Kiss Smooth Criminal |
| [4, 'favourite_DownTown_3:14', 'listenLater_Andalouse_3:24', 'favourite_In To The Night_3:58', 'favourite_Live It Up_3:48', 'listenLater'] | Andalouse |

| | |
|---------------------------------------------------------------|---------------------|
| [2, 'like_Replay_3:15', 'ban_Photoshop_3:48', 'all'] | Replay Photoshop |
|---------------------------------------------------------------|---------------------|

Solution:

Create a **Song** class with properties described above

```
class Song {
  constructor(type, name, time) {
    this.type = type;
    this.name = name;
    this.time = time;
  }
}
```

Create a new array, where you will store songs

```
let songs = [];
let numberOfSongs = input.shift();
let typeSong = input.pop();
```

Iterate over the songs:

```
for (let i = 0; i < numberOfSongs; i++) {
  let [type, name, time] = input[i].split('_');
  let song = new Song(type, name, time);
  songs.push(song);
}
```

```
if (typeSong === 'all') {
  songs.forEach((i) => console.log(i.name));
} else {
  let filtered = songs.filter((i) => i.type === typeSong);
  filtered.forEach((i) => console.log(i.name));
}
```