

0x02. ES6 classes



JavaScript (/planning/me)



Weight: 1

Projects(/projects/current)



Project over - took place from Jun 27, 2024 6:00 AM to Jun 28, 2024 6:00 AM



An auto QA review will automatically make corrections(/to_review)



Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)

In a nutshell...

- **Auto QA review:** 31.0/33 mandatory & 3.0/3 optional

- **Altogether: 187.88%**



Curriculums(/dashboards/my_curriculums)

◦ Mandatory: 93.94%

◦ Optional: 100.0%

◦ Calculation: 93.94% + (93.94% * 100.0%) == **187.88%**

Concepts(/concepts)



Conference rooms(/dashboards/video_rooms)



Servers(/servers)



Sandboxes(/containers/current)



Tools(/dashboards/my_tools)



Video on demand(/dashboards/videos)

Resources

Read or watch:



- Classes (/rltoken/ke2dSL31JbpAUBW0qWE9WA)
- Peers(/users/peers)
- Metaprogramming (/rltoken/6OgF5QGbYclp_cwATfq-0g)



Learning Objectives

At the end of this project, you are expected to be able to explain to anyone (/rltoken/HZvBI09eHoGwvN8jqIYO-g), **without the help of Google:**

- How to define a Class
- How to add methods to a class
- Why and how to add a static method to a class



- How to extend a class from another
- Metaprogramming and symbols



(/)

Requirements



- All your files will be executed on Ubuntu 18.04 LTS using NodeJS 12.11.x
- Allowed editors: `vi`, `vim`, `emacs`, `Visual Studio Code`



- All your files should end with a new line
- A `README.md` file, at the root of the folder of the project, is mandatory
- Your code should use the `js` extension



- Your code will be tested using Jest and the command `npm run test`
- Your code will be verified against lint using ESLint



- Your code needs to pass all the tests and lint. You can verify the entire project running `npm run full-test`

QA Reviews I can make (/corrections/to_review)

Setup

Evaluation quizzes (/dashboards/my_current_evaluation_quizzes)

Install NodeJS 12.11.x



in your home directory:
Curriculums (/dashboards/my_curriculums)

```
curl -sL https://deb.nodesource.com/setup_12.x -o nodesource_setup.sh
sudo bash nodesource_setup.sh
sudo apt install nodejs -y
```



Conference rooms (/dashboards/video_rooms)

```
$ nodejs -v
```

```
v12.11.1
```

```
$ npm -v
```

```
6.11.3
```



Servers (/servers)

> Install Jest, Babel, and ESLint

Sandboxes (/users/containers/current)

in your project directory, install Jest, Babel and ESList by using the supplied `package.json` and run



```
npm install
```

Tools (/dashboards/my_tools)

Configuration files



Videos on demand (/dashboards/videos)

Add the files below to your project directory



package.json

Peers (/users/peers)

Click to show/hide file contents



babel.config.js

Discord (https://discord.com/app)

Click to show/hide file contents



.eslintrc.js

My Profile (/users/my_profile)

Click to show/hide file contents

and...

Don't forget to run `$ npm install` when you have the `package.json`



Home(/)

Tasks



My Planning(/planning/me)

0. You used to attend a place like this at some point

mandatory



Projects(/projects/current)

Score: 100.0% (Checks completed: 100.0%)



QA Reviews I can make(/corrections/to_review)

Implement a class named `ClassRoom` :



- Prototype: `export default class ClassRoom`
- Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)
- It should accept one attribute named `maxStudentsSize` (Number) and assigned to `_maxStudentsSize`



```
bob@dylan:~$ cat 0-main.js
import ClassRoom from './0-classroom.js';
```



```
const room = new ClassRoom(10);
console.log(room._maxStudentsSize)
```



```
bob@dylan:~$
bob@dylan:~$ npm run dev 0-main.js
10
```



```
bob@dylan:~$
Servers(/servers)
```



>Repo: Sandboxes(/user_containers/current)

- GitHub repository: `alx-backend-javascript`
- Directory: `0x02-ES6_classes`
- Tools(/dashboards/my_tools)
- File: `0-classroom.js`



Video on demand(/dashboards/videos)

Check submission

> Get a sandbox

View results



Peers(/users/peers)

1. Let's make some classrooms

mandatory



Discord(<https://discord.com/app>)

Score: 100.0% (Checks completed: 100.0%)



Import the `ClassRoom` class from `0-classroom.js`.

Implement a function named `initializeRooms`. It should return an array of 3 `ClassRoom` objects with the sizes 10, 20, and 34 (in this order).

My Profile(/users/my-profile)

```
bob@dylan:~$ cat 1-main.js
import initializeRooms from './1-make_classrooms.js';
(
)
console.log(initializeRooms());
```

```
bob@dylan:~$
bob@dylan:~$ npm run dev 1-main.js
```

```
[
  Classroom { _maxStudentsSize: 19 },
  Classroom { _maxStudentsSize: 20 },
  Classroom { _maxStudentsSize: 34 }
]
Projects(/projects/current)
bob@dylan:~$
```

✓ QA Reviews I can make(/corrections/to_review)

Repo:

- ? • Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)
- Directory: 0x02-ES6_classes
- File: 1-make_classrooms.js

Curriculums(/dashboards/my_curriculums)

Check submission

> Get a sandbox

View results

Concepts(/concepts)

2. A Course, Getters, and Setters

mandatory

Score: 99.0% (Checks completed: 99.0%)

Conference rooms(/dashboards/video_rooms)

Implement a class named HolbertonCourse :

Servers(/servers)

- Constructor attributes:

> Sandboxes(/user_containers/current)

- name (String)
- length (Number)
- students (array of Strings)

- Make sure to verify the type of attributes during object creation
- Each attribute must be stored in an "underscore" attribute version (ex: name is stored in _name)
- Implement a getter and setter for each attribute.

Tools(/dashboards/my_tools)

Video on demand(/dashboards/videos)

Peers(/users/peers)

Discord(<https://discord.com/app>)



My Profile(/users/my_profile)

```


bob@dylan:~$ cat 2-main.js
import HolbertonCourse from './2-hbtn_course.js';

(
  const c1 = new HolbertonCourse("ES6", 1, ["Bob", "Jane"])
  console.log(c1.name);
  c1.name = "Python 101";
  console.log(c1);

  try { My Planning(/planning/me)
    c1.name = 12;
  }
  catch (err) { Projects(/projects/current)
    console.log(err);
  }
  QA Reviews I can make(/corrections/to_review)
  try {
    const c2 = new HolbertonCourse("ES6", "1", ["Bob", "Jane"]);
  }
  Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)
  catch(err) {
    console.log(err);
  }

  bob@dylan:~$
  bob@dylan:~$ npm run dev 2-main.js
  ES6
  HolbertonCourse {
    _name: 'Python 101',
    _length: 1,
    _students: ['Bob', 'Jane']
  }
  TypeError: Name must be a string
  .Servers(/servers)
  TypeError: Length must be a number
  ...
  bob@dylan:~$
  > _ bob@dylan:~$

```

-  **Repo:** Tools(/dashboards/my_tools)
- GitHub repository: alx-backend-javascript
 - Directory: 0x02-ES6_classes
 - File: 2-hbtn_course.js

 Check submissions / peers / **peer submission**  Get a sandbox View results

 **3 Methods, static methods, computed methods names..... MONEY** Discord(<https://discord.com/app>) mandatory

Score: 100.0% (Checks completed: 100.0%) 

Implement a class named Currency :

- - My Profile(/users/my_profile)
- - Constructor attributes



- code (String)
- name (String)

Each attribute must be stored in an "underscore" attribute version (ex: name is stored in `_name`)



- Implement a getter and setter for each attribute.
- Implement a method named `displayFullCurrency` that will return the attributes in the following format `name (code)` .



```
bob@dylan:~$ cat 3-main.js
import Currency from './3-currency.js';
```



```
const dollar = new Currency('$', 'Dollars');
console.log(dollar.displayFullCurrency());
```



```
bob@dylan:~$
bob@dylan:~$ npm run dev 3-main.js
Dollars ($)
```



```
bob@dylan:~$
Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)
```

Repo:



Curriculums(/dashboards/my_curriculums)

- Directory: `0x02-ES6_classes`



File: `3-currency.js`
Concepts(/concepts)



Check submission



Get a sandbox

View results

Conference rooms(/dashboards/video_rooms)

4. Pricing

mandatory



Servers(/servers)

Score: 100.0% (Checks completed: 100.0%)



Sandboxes(/user_containers/current)

Import the class `Currency` from `3-currency.js`



Implement a class named `Pricing` :

- Constructor attributes:



amount (Number)
currency (Currency)

- Each attribute must be stored in an "underscore" attribute version (ex: name is stored in `_name`)
- Implement a getter and setter for each attribute.
- Implement a method named `displayFullPrice` that returns the attributes in the following format `amount currency_name (currency_code)` .



Peers(/users/peers)

- Implement a static method named `convertPrice` . It should accept two arguments: `amount`



(Number), `conversionRate` (Number). The function should return the amount multiplied by the conversion rate.



My Profile(/users/my_profile)

```
bob@dylan:~$ cat 4-main.js
import Pricing from './4-pricing.js';
import Currency from './3-currency.js';

const p = new Pricing(100, new Currency("EUR", "Euro"))
console.log(p);
console.log(p.displayFullPrice());

bob@dylan:~$ npm run dev 4-main.js
Pricing {
  _amount: 100,
  _currency: Currency { _code: 'EUR', _name: 'Euro' }
}
100 EUR (EUR)
QA Reviews I can make(/corrections/to_review)
bob@dylan:~$
```

? Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)

Repo:

- GitHub repository: alx-backend-javascript
- Directory: 0x02-ES6-classes
- File: 4-pricing.js

Concepts(/concepts)

Check submission

> Get a sandbox

View results

Conference rooms(/dashboards/video_rooms)

mandatory

Score: 100.0% (checks completed: 100.0%)

Implement a class named Building :
Sandboxes(/user_containers/current)

- Constructor attributes:

- sqft (Number)

- Each attribute must be stored in an "underscore" attribute version (ex: name is stored in _name)
- Implement a getter for each attribute.

- Consider this class as an abstract class. And make sure that any class that extends from it should implement a method named evacuationWarningMessage .

- If a class that extends from it does not have a evacuationWarningMessage method, throw an error with the message Class extending Building must override

Peers(/users/peers)

Discord(<https://discord.com/app>)



My Profile(/users/my_profile)

```

bob@dylan:~$ cat 5-main.js
import Building from './5-building.js';
(
const b = new Building(100);
console.log(b);
Home()
class TestBuilding extends Building {}

try { My Planning(/planning/me)
      new TestBuilding(200)
}
catch (err) { Projects(/projects/current)
              console.log(err);
}
}
QA Reviews I can make(/corrections/to_review)
bob@dylan:~$
bob@dylan:~$ npm run dev 5-main.js
Building Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)
Error: Class extending Building must override evacuationWarningMessage
...
bob@dylan:~$

```

Curriculums(/dashboards/my_curriculums)

Repo:

- Concepts(/concepts)
- GitHub repository: alx-backend-javascript
- Directory: 0x02-ES6_classes
- File: 5-building.js
- Conferences(/dashboards/video_rooms)

Check submission Servers(/servers) Get a sandbox View results

6. Inheritance

mandatory

Sandboxes(/user_containers/current)

Score: 100.0% (Checks completed: 100.0%)

Tools(/dashboards/my_tools)

Import Building from 5-building.js.

Implement a class named `Skyscraper` that extends from `Building`:

- Constructor attributes:
 - `sqft` (Number) (must be assigned to the parent class `Building`)
 - `floors` (Number)
- Each attribute must be stored in an "underscore" attribute version (ex: `name` is stored in `_name`)
- Implement a getter for each attribute.
- Override the method named `evacuationWarningMessage` and return the following string
Evacuate slowly the `NUMBER_OF_FLOORS` floors.



My Profile(/users/my_profile)

bob@dylan:~\$ cat 6-main.js
import SkyHighBuilding from './6-sky_high.js';
(/)
const building = new SkyHighBuilding(140, 60);
console.log(building.sqft);
Home(/)
console.log(building.floors);
console.log(building.evacuationWarningMessage());
bob@dylan:~\$ npm run dev 6-main.js
140
60 Projects(/projects/current)
Evacuate slowly the 60 floors
bob@dylan:~\$
✓ QA Reviews I can make(/corrections/to_review)

Repo: Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)

- GitHub repository: alx-backend-javascript
- Directory: 0x02-ES6_classes
- File: 6-sky_high.js

Curriculums(/dashboards/my_curriculums)

Check submission

> Get a sandbox

View results

Concepts(/concepts)

7. Airport

mandatory

Conference rooms(/dashboards/video_rooms)

Score: 100.0% (Checks completed: 100.0%)

Servers(/servers)
Implement a class named Airport :

- Constructor attributes:
 - name (String)
 - code (String)
- Each attribute must be stored in an "underscore" attribute version (ex: name is stored in _name)
- The default string description of the class should return the airport code (example below).

bob@dylan:~\$ cat 7-main.js
import Airport from './7-airport.js';

```
const airportSF = new Airport('San Francisco Airport', 'SF0');  
console.log(airportSF);  
Peers(/users/peers)  
console.log(airportSF.toString());
```

bob@dylan:~\$
Discord(<https://discord.com/app>)
Airport [SF0] { _name: 'San Francisco Airport', _code: 'SF0' }
[object SF0]
bob@dylan:~\$



Repo: My Profile(/users/my_profile)

- GitHub repository: alx-backend-javascript
- Directory: 0x02-ES6_classes
- File: 7-airport.js



Home(/)

Check submission

>_ Get a sandbox

View results



8. Primitive Holberton Class

My Planning(/planning/me)

mandatory



Score: 100.0% (Checks completed: 100.0%)
Projects(/projects/current)

Implement a class named HolbertonClass :



- QA Reviews I can make(/corrections/to_review)
- Constructor attributes:
 - size (Number)



- location (String)
- Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)
- Each attribute must be stored in an "underscore" attribute version (ex: name is stored in _name)
- When the class is cast into a Number , it should return the size.
- When the class is cast into a String , it should return the location.



Curriculums(/dashboards/my_curriculums)

bob@dylan:~\$ cat 8-main.js

```
import HolbertonClass from "../8-hbtn_class.js";
```



Concepts(/concepts)

```
const hc = new HolbertonClass(12, "Mezzanine")
```

```
console.log(Number(hc));
```



```
console.log(String(hc));
```

Conference rooms(/dashboards/video_rooms)

bob@dylan:~\$



```
bob@dylan:~$ npm run dev 8-main.js
```

```
12
```

```
Mezzanine
```

bob@dylan:~\$



Sandboxes(/user_containers/current)



Repo: Tools(/dashboards/my_tools)

- GitHub repository: alx-backend-javascript
- Directory: 0x02-ES6_classes
- File: 8-hbtn_class.js



Video on demand(/dashboards/videos)



Check submission

Peers(/users/peers)

>_ Get a sandbox

View results



Discord(<https://discord.com/app>)

9. Hoisting

mandatory

Score: 75.0% (Checks completed: 75.0%)

My Profile(/users/my_profile)

Fix this code and make it work.

```

const class2019 = new HolbertonClass(2019, 'San Francisco');
const class2020 = new HolbertonClass(2020, 'San Francisco');
()
export class HolbertonClass {
  constructor(year, location) {
    Home(/)
    this._year = year;
    this._location = location;
  }
  My Planning(/planning/me)
  get year() {
    return this._year;
  } Projects(/projects/current)

  get location() {
    QA Reviews (/challenges/corrections/to_review)
    return this._location;
  }
  ? Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)
  const student1 = new StudentHolberton('Guillaume', 'Salva', class2020);
  const student2 = new StudentHolberton('John', 'Doe', class2020);
  const student3 = new StudentHolberton('Albert', 'Clinton', class2019);
  const student4 = new StudentHolberton('Donald', 'Bush', class2019);
  Curriculum (/dashboards/my_curriculums)
  const student5 = new StudentHolberton('Jason', 'Sandler', class2019);

  export class StudentHolberton {
    Concepts (/concepts)
    constructor(firstName, lastName) {
      this._firstName = firstName;
      this._lastName = lastName;
    } Conference rooms (/dashboards/video_rooms)
    this._holbertonClass = holbertonClass;

    get Server (/servers)
    return `${this._firstName} ${this._lastName}`;
  } Sandboxes (/user_containers/current)
  get holbertonClass() {
    return this.holbertonClass;
  } Tools (/dashboards/my_tools)

  get fullStudentDescription() {
    Video on Demand (/dashboards/videos)
    return `${self._firstName} ${self._lastName} - ${self._holbertonClass.year} - ${self._holbertonClass.location}`;
  }
}

Peers (/users/peers)
export const listOfStudents = [student1, student2, student3, student4, student5];

Discord (https://discord.com/app)
Result:

```



```

bob@dylan:~$ cat 9-main.js
import listOfStudents from './9-hoisting.js';
(
  console.log(listOfStudents);

  Home()
const listPrinted = listOfStudents.map(
  student => student.fullStudentDescription
);
  My Planning(/planning/me)
  console.log(listPrinted)

  Projects(/projects/current)
bob@dylan:~$ npm run dev 9-main.js
[
  StudentHolberton { make(/corrections/to_review)
    _firstName: 'Guillaume',
    _lastName: 'Salva',
    _evaluationClasses: HolbertonClass { _year: 2020, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'John',
    _lastName: 'Doe',
    _Curriculums(/dashboards/my_curriculums)
    _holbertonClass: HolbertonClass { _year: 2020, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'Albert',
    _lastName: 'Clinton',
    _holbertonClass: HolbertonClass { _year: 2019, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'Donald',
    _lastName: 'Bush',
    _holbertonClass: HolbertonClass { _year: 2019, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'Jason',
    _lastName: 'Sandler',
    _holbertonClass: HolbertonClass { _year: 2019, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'John',
    _lastName: 'Doe',
    _holbertonClass: HolbertonClass { _year: 2020, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'Albert',
    _lastName: 'Clinton',
    _holbertonClass: HolbertonClass { _year: 2019, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'Donald',
    _lastName: 'Bush',
    _holbertonClass: HolbertonClass { _year: 2019, _location: 'San Francisco' } },
  StudentHolberton {
    _firstName: 'Jason',
    _lastName: 'Sandler',
    _holbertonClass: HolbertonClass { _year: 2019, _location: 'San Francisco' } }
]
  Video on demand(/dashboards/videos)
  'Guillaume Salva - 2020 - San Francisco',
  'John Doe - 2020 - San Francisco',
  'Albert Clinton - 2019 - San Francisco',
  'Donald Bush - 2019 - San Francisco',
  'Jason Sandler - 2019 - San Francisco'
]
bob@dylan:~$
Discord(https://discord.com/app)

```



Repo:

- GitHub repository: alx-backend-javascript
- Directory: 0x02-ES6_classes

- File: 9-hoisting.js



(/)

Check submission

Mark submission

> Get a sandbox

View results



Home(/)

mandatory



Score: 100.0% (100.0%)



Implement a class named Car :

Projects(/projects/current)

- Constructor attributes:

- brand (String)

- motor (String)

- color (String)



- Each attribute must be stored in an "underscore" attribute version (ex: name is stored in _name)
- Add a method named cloneCar . This method should return a new object of the class.

Hint: Symbols in ES6



```
bob@dylan:~$ cat 10-car.js
import Car from './10-car.js';
```



```
class TestCar extends Car {}
```

```
const tc1 = new TestCar("Nissan", "Turbo", "Pink");
```



```
const tc2 = tc1.cloneCar();
```

```
console.log(tc1);
```



```
console.log(tc1 instanceof TestCar);
```

```
console.log(tc2);
```



```
console.log(tc2 instanceof TestCar);
```

```
console.log(tc1 == tc2);
```



Tools(/dashboards/my_tools)

```
bob@dylan:~$
```

```
bob@dylan:~$ npm run dev 10-main.js
```



```
TestCar { brand: 'Nissan', motor: 'Turbo', _color: 'Pink' }
```

```
true
```

```
TestCar { _brand: undefined, _motor: undefined, _color: undefined }
```

```
true
```

```
false
```



bob@dylan:~\$



Repo: Discord(<https://discord.com/app>)

- GitHub repository: alx-backend-javascript
- Directory: 0x02-ES6_classes
- File: 10-car.js

My Profile(/users/my_profile)



[Check submission](#)[Get a sandbox](#)[View results](#)[\(\)](#)

11. EVCAR

#advanced

[Home\(/\)](#)

Score: 100.0% (Checks completed: 100.0%)

[My Planning\(/planning/me\)](#)

Implement a class named `EVCAR` that extends the `Car` class:

[Projects\(/projects/current\)](#)

- Constructor attributes:

- `brand` (String)

- `motor` (String)

- `color` (String)

- `range` (String)



- Each attribute must be stored in an underscore attribute version (ex: name is stored in `_name`)
- For privacy reasons, when `cloneCar` is called on a `EVCAR` object, the object returned should be an instance of `Car` instead of `EVCAR`.

[bob@dylan:~/curriculums/dashboards/my_curriculums\)](#)

```
import EVCAR from './100-evcar.js';
```



```
const ec1 = new Concept('Tesla', 'Turbo', 'Red', '250');
```

```
console.log(ec1);
```

[bob@dylan:~/conference_rooms/dashboards/video_rooms\)](#)

```
console.log(ec2);
```

[bob@dylan:~/servers\)](#)

```
bob@dylan:~$ npm run dev 100-main.js
```

```
EVCAR {
```



```
  _brand: 'Tesla',
```

```
  _motor: 'Turbo',
```

```
  _color: 'Red',
```



```
  _range: '250'
```

```
}
```

```
Car { _brand: undefined, _motor: undefined, _color: undefined }
```

[bob@dylan:~\\$](#)

```
Video on demand(/dashboards/videos)
```

Repo:

[Peers\(/users/peers\)](#)

- GitHub repository: `alex-backend-javascript`
- Directory: `0x02-ES6_classes`



- File: `100-evcar.js`

[Discord\(https://discord.com/app\)](https://discord.com/app)[Check submission](#)[Get a sandbox](#)[View results](#)[My Profile\(/users/my_profile\)](#)



(/)

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Home(/)



My Planning(/planning/me)



Projects(/projects/current)



QA Reviews I can make(/corrections/to_review)



Evaluation quizzes(/dashboards/my_current_evaluation_quizzes)



Curriculums(/dashboards/my_curriculums)



Concepts(/concepts)



Conference rooms(/dashboards/video_rooms)



Servers(/servers)



Sandboxes(/user_containers/current)



Tools(/dashboards/my_tools)



Video on demand(/dashboards/videos)



Peers(/users/peers)



Discord(<https://discord.com/app>)



My Profile(/users/my_profile)