# JS Advanced: Regular Exam - 07.07.19

Exam problems for the ["JavaScript Advanced" course @ SoftUni](https://softuni.bg/courses/js-advanced). Submit your solutions in the SoftUni Judge system at <https://judge.softuni.bg/Contests/Compete/Index/1715#0>.

# Problem 3. Computer

**class** Computer {  
 *//* ***TODO: implement this class...***  
}

### Your Task

### Write a Computer class which supports the described functionality below.

### Functionality

#### constructor()

Receives **3** parameters at initialization of the class (**ramMemory, cpuGHz, hddMemory**), where each of them is a **number.**

Should have these **5** properties:

* **ramMemory** - **number** (should be the same as the received **ramMemory**)
* **cpuGHz** - **number** (should be the same as the received **cpuGHz**)
* **hddMemory** - **number** (should be the same as the received **hddMemory**)
* **taskManager** – **empty** **array**
* **installedPrograms** - **empty** **array**

#### installAProgram({name}, {requiredSpace})

This **function** should **install a new program** on the computer and **save** it in the **installedPrograms** **property**.

* If the **total** **hddMemory** is **exceeded** while trying to install a new program, **new error** should be **thrown** with the following message:  
  "**There is not enough space on the hard drive**"
* If there is available space to install the given program, a **new object** with the given **name** and **requiredSpace** should be created and stored to the **installedPrograms** **array** **property.**

Keep in mind that when you successfully install a program you must **decrease** the total **hdd** **memory** on the computer with the **capacity** for the **currently installed** **program**!

The following function should **return** the **newly** **created** **object**.

#### uninstallAProgram({name})

This **function** should **uninstall** an **already** **installed** program on the computer (**remove** the **first** **program** with the **given** **name** from the **installedPrograms** **property**).

* If there **are no installed** programs with the **given name,** a **new error** should be **thrown** with the following message:  
  "**Control panel is not responding**"
* If **installedPrograms** **property** contains an object with the **given** **name**, that object should be **removed** from the array.

Also logically reversed move is to **increase** the total **hdd** **memory** with the **capacity** of the **currently** **uninstalled** **program**!

This function should **return** the **installedPrograms** **array** where the given program name is excluded.

#### openAProgram({name})

This **function** should **open** an already installed program on the computer.

Receives a **string** (name of that program)

* If the given **name** is **not** present in the **installedPrograms property**,a **new error** should be **thrown** with the following message:  
  "**The ${name} is not recognized**"
* If the given name is an installed program and it is already open, a new error should be thrown with the following message:  
  **The ${name} is already open**"

To open an installed program, you must **calculate** how much **RAM** **memory** and **CPU** **usage** the program will need.

To find out how much:

* **ram memory** the current program will need, use the following formula:  
  **(programRequiredSpace / totalRamMemory) \* 1.5**
* **cpu** **usage** the current program will need, use the following formula:  
  **( ( programRequiredSpace / CPU GHz ) / 500) \* 1.5**

Keep in mind the both formulas calculate a numbers in **percent** (%) for the current ram and cpu usage.

If the **total** **ram** **usage reaches or exceeds 100%** (the ram usage for all opened programs), the function should throw a **new error** with the following message:  
**"{programName} caused out of memory exception**"

If the **total cpu usage reaches or exceeds 100%** (the cpu usage for all opened programs), the function should throw a **new error** with the following message:  
"**{programName} caused out of cpu exception**"

If both (**ram usage and cpu usage**) **reaches** or **exceeds** **100**% return the ram memory exception case.

When **ram** and **cpu** **usages** is **calculated**, create a **new object** with:

* **name** (name of the program)
* **ramUsage** (current ram usage that the program uses in %)
* **cpuUsage** (current cpu usage that the program uses in %).

The properties must be exactly as they are mentioned! Also, you don’t have to round the numbers!

When the object is created, push it in the **taskManager** **array** **property.**

The function must **return** the **newly created object.**

#### taskManagerView()

This **function** prints all opened programs (the objects in the **taskManager array property**). Keep in mind that the percentages for (**cpu** and **ram** **usages**) must be shown **without** any **decimal** **part** (You can use the **.toFixed(0)**).

* If there is no opened program, the function **returns** a **string** with the following message:  
  "**All running smooth so far**"
* If there is at least one opened program, visualize it in the following format:  
  "**Name - {programName} | Usage - CPU: {cpuUsage}%, RAM: {ramUsage}%**"

If there is more than one opened program, each of them must be in **new line**.

This function **returns** a **string** in the format mentioned above.

### Submission

Submit only your **Computer class.**

### Examples

This is an example how the code is **intended to be used**:

|  |
| --- |
| Sample code usage |
| let computer = new Computer(4096, 7.5, 250000);  computer.installAProgram('Word', 7300);  computer.installAProgram('Excel', 10240);  computer.installAProgram('PowerPoint', 12288);  computer.uninstallAProgram('Word');  computer.installAProgram('Solitare', 1500);  computer.openAProgram('Excel');  computer.openAProgram('Solitare');  console.log(computer.installedPrograms);  console.log(('-').repeat(50)) // Separator  console.log(computer.taskManager); |
| Corresponding output |
| [ { name: 'Excel', requiredSpace: 10240 },  { name: 'PowerPoint', requiredSpace: 12288 },  { name: 'Solitare', requiredSpace: 1500 } ]  --------------------------------------------------  [ { name: 'Excel', ramUsage: 3.75, cpuUsage: 4.096 },  { name: 'Solitare',  ramUsage: 0.54931640625,  cpuUsage: 0.6000000000000001 } ] |

|  |
| --- |
| Sample code usage |
| let computer = new Computer(4096, 7.5, 250000);  computer.installAProgram('Word', 7300);  computer.installAProgram('Excel', 10240);  computer.installAProgram('PowerPoint', 12288);  computer.installAProgram('Solitare', 1500);  computer.openAProgram('Word');  computer.openAProgram('Excel');  computer.openAProgram('PowerPoint');  computer.openAProgram('Solitare');  console.log(computer.taskManagerView()); |
| Corresponding output |
| Name - Word | Usage - CPU: 3%, RAM: 3%  Name - Excel | Usage - CPU: 4%, RAM: 4%  Name - PowerPoint | Usage - CPU: 5%, RAM: 5%  Name - Solitare | Usage - CPU: 1%, RAM: 1% |

*GOOD LUCK!😊*