# JS Advanced: Exam 13 November 2016

Problems for exam preparation for the [“JavaScript Advanced” course @ SoftUni](https://softuni.bg/courses/javascript-advanced). Submit your solutions in the SoftUni judge system at <https://judge.softuni.bg/Contests/699/>.

# Problem 3. Task (Simple Class)

Write a **JavaScript class** Task that has a **title**, a **deadline** and a **status**.

|  |
| --- |
| **class** Task {  *//* ***TODO: implement this class*** } |

The class **constructor** should receive two parameters – **title** (string), and **deadline** (JS Date object) and initialize the instance with **status** "Open". Implement the following features:

* Property title
* Property deadline
* Property status
* Property isOverdue – holds **true** if the **deadline** has been exceeded (the value is in the **past**); completed tasks are **never** overdue
* **Static** function comparator(a, b) for **sorting** – see bellow for sorting instructions
* Function toString() – returns a string representation of a task in the following format:

[<status icon>] <title> <(deadline: <deadline>)|(overdue)>

Print all **deadlines** in their **default format** (no additional formatting is required). If a task is **overdue**, print "**(overdue)**" instead of a deadline, and if a task is **complete**, do not print anything after the title. A task’s **status icon** depends on its **status and deadline**:

|  |  |  |
| --- | --- | --- |
| **Status** | **Icon** | **UTF Code** |
| "Open" | ✱ | "*\u2731"* |
| "In Progress" | ↝ | "*\u219D* " |
| "Complete" | ✔ | "*\u2714*" |
| Overdue tasks (except "Complete") | ⚠ | "*\u26A0*" |

See the examples for more formatting details.

Additionally, each instance must meet some **requirements**. A task should **not** **be created**, if its **deadline** is set to a **past date** – it should **throw an Error**. After creation, if the deadline is **changed** to a past date, an Error should be thrown. To determine whether a date is in the past, compare it with Date.now().

When printing, sorting, or returning isOverdue, consider the task’s status – "Completed" task are **not** overdue.

The **comparator** is function that **takes** **two** task instances as **parameters** and **returns a number**, depending on how they compare. If a should sort higher than b, return a **negative number**, if they are **equal**, return **zero**, and if b should sort higher than a, return a **positive number**. Overdue tasks are sorted highest, "In progress" tasks come second, "Open" tasks come third and "Complete” tasks sort lowest. If two tasks have the same status, sort them by **deadline** in ascending order (see the examples for details).

### Examples

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

|  |
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| Sample code usage |
| **let *date1*** = **new** Date(); ***date1***.setDate(***date1***.getDate() + 7); *// Set date 7 days from now* **let *task1*** = **new** Task(**'JS Homework'**, ***date1***); **let *date2*** = **new** Date(); ***date2***.setFullYear(***date2***.getFullYear() + 1); *// Set date 1 year from now* **let *task2*** = **new** Task(**'Start career'**, ***date2***); ***console***.log(***task1*** + **'\n'** + ***task2***); **let *date3*** = **new** Date(); ***date3***.setDate(***date3***.getDate() + 3); *// Set date 3 days from now* **let *task3*** = **new** Task(**'football'**, ***date3***); *// Create two tasks with deadline set to current time* **let *task4*** = **new** Task(**'Task 4'**, **new** Date());  **let *task5*** = **new** Task(**'Task 5'**, **new** Date()); ***task1***.**status** = **'In Progress'**; ***task3***.**status** = **'In Progress'**; ***task5***.**status** = **"Complete"**; **let *tasks*** = [***task1***, ***task2***, ***task3***, ***task4***, ***task5***]; *setTimeout*(() => {  ***tasks***.sort(Task.*comparator*);  ***console***.log(***tasks***.join(**'\n'**)); }, 1000); *// Sort and print one second later*  *// should throw an Error*  **let *overdueTask*** = **new** Task(**'Overdue Task'**, **new** Date(**2005**, **'4'**, **'20'**));  *// should throw an Error*  ***task1***.**deadline** = **new** Date(**2005**, **'4'**, **'20'**); |
| Corresponding output |
| [✱] JS Homework (deadline: Wed Jul 26 2017 11:52:23 GMT+0300 (FLE Daylight Time))  [✱] Start career (deadline: Thu Jul 19 2018 11:52:23 GMT+0300 (FLE Daylight Time))  [⚠] Task 4 (overdue)  [↝] football (deadline: Sat Jul 22 2017 11:52:23 GMT+0300 (FLE Daylight Time))  [↝] JS Homework (deadline: Wed Jul 26 2017 11:52:23 GMT+0300 (FLE Daylight Time))  [✱] Start career (deadline: Thu Jul 19 2018 11:52:23 GMT+0300 (FLE Daylight Time))  [✔] Task 5 |

Task 5 is overdue, but it’s status is "Complete". Tasks "football" and "JS Homework" has the same status and are sorted by deadline. Note that date **formatting is not considered** in the Judge and may differ in your solution!

### Constraints

* Your class will be tested with both **valid and invalid deadlines** and should throw and Error for invalid values
* Your class will be tested with **only valid statuses** – "Open", "In Progress" and "Complete"

### Submission

Submit **only** your class Task.