

Homework: JavaScript Development Introduction

This document defines the homework assignments from the [“JavaScript Basics” Course @ Software University](#). Please submit as homework a single **zip** / **rar** / **7z** archive holding the solutions (source code) of all below described problems.

Problem 1. Home Town

Write a JavaScript code **hometown.js** that shows your hometown in a popup browser window (alert). Create a HTML page **hometown.html** that executes your JavaScript code. A sample result (when you open the HTML page in Chrome Web browser) might be the following:



Problem 2. Numbers 1...10

Write a JavaScript program **numbers1to10.js** that prints on the console the numbers from 1 to 10 (each at a separate line). Run the program through **Node.js**. Example:

Command	Output
node numbers1to10.js	1 2 3 4 5 6 7 8 9 10

Problem 3. Current Time

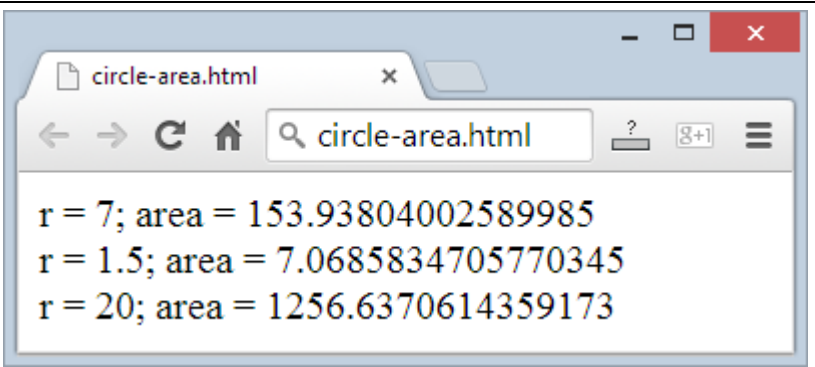
Write a JavaScript program **current-time.js** that prints on the console the current time in format **hours:minutes**. The hours should be printed without leading zeroes. The minutes should be printed as two-digit number with a leading zero when needed. Execute your program through **Node.js**. A few sample outputs are given below:

Input	Output
(no input)	21:03
(no input)	9:57
(no input)	16:30
(no input)	6:00
(no input)	23:59

Problem 4. Circle Area

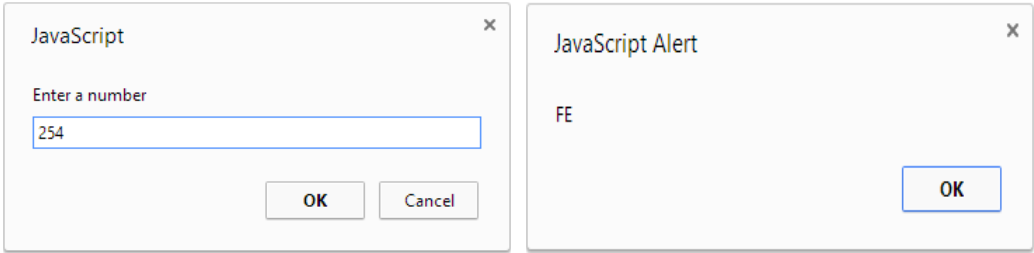
Write a JavaScript function **calcCircleArea(r)** that takes as a parameter the **radius of a rectangle** and calculates and returns its area. Put the function in a file named **circle-area.js**. Write a HTML page **circle-area.html** that includes the script **circle-area.js** and calculates and prints in the page body the area of circles of size $r=7$, $r=1.5$ and $r=20$.

Examples:

Input	Output	
7	153.93804002589985	
1.5	7.0685834705770345	
20	1256.6370614359173	

Problem 5. Decimal to Hexadecimal

Write a JavaScript code in a Web page **dec2hex.html** that enters a positive integer number **num** and converts and converts it to a hexadecimal form. The input should be entered as JavaScript **prompt** window. The output should be shown as browser popup window (**alert**). Examples:

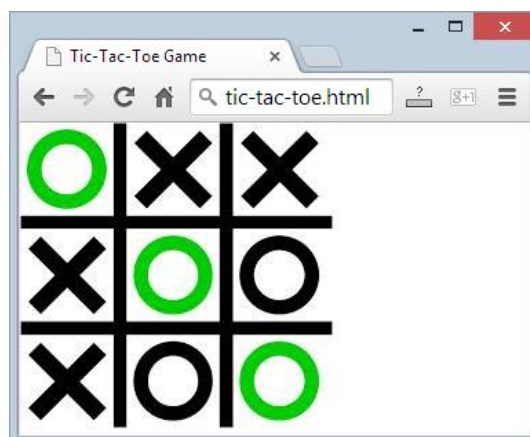
Input	Output	
254	FE	
6779	1A7B	
10941298	A6F372	
65535	FFFF	
0	0	

Problems for Champions

The next few problems are not mandatory. Implement them to challenge your skills.

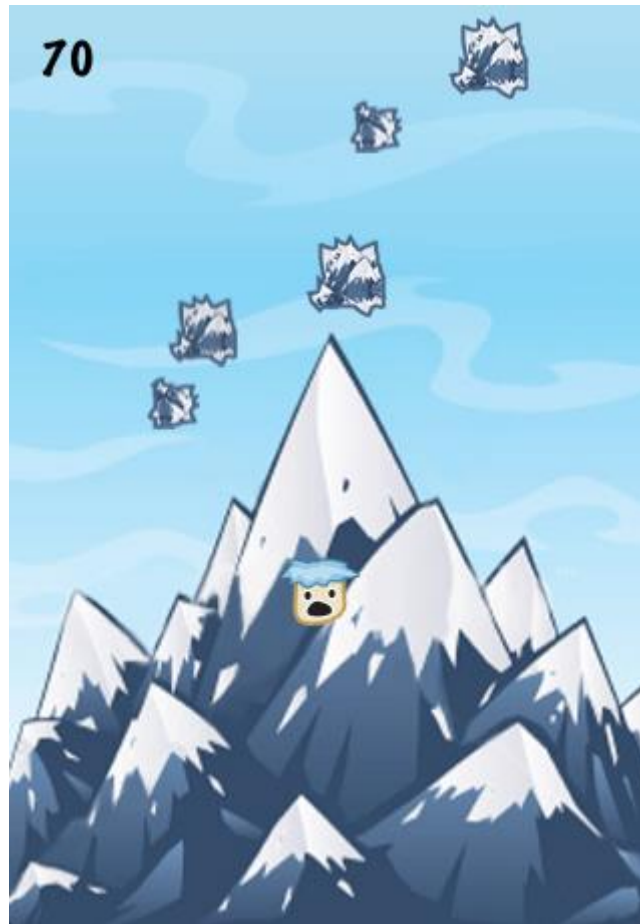
Problem 6. ** Tic-Tac-Toe

Implement the classical [Tic-Tac-Toe game](#) in JavaScript. Players play one after another. Use HTML to display the play field and JavaScript to implement the game logic. The screenshot below shown how your game might look like:



Problem 7. *** Falling Rocks Game

Implement the "Falling Rocks" game in **JavaScript**. The player stays at the bottom of the screen and can move left and right (by the arrows keys). A number of rocks of different sizes and forms constantly fall down and the player needs to avoid a crash. An example how the game might look like is show below:



You are free to implement your own graphics, as well to add more game objects to make the game play more interesting.