CCLab Example Codes | F23

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| --- | --- |
| **Class** | **Link** |
| **1.R Drawing with Code** | [VertexShape](https://editor.p5js.org/MOQN/sketches/Jxki_C_BF)  [Arc](https://editor.p5js.org/MOQN/sketches/iwuSPEDEV)  [Leon's Bezier Examples & Explanation](https://editor.p5js.org/leon-eckert/collections/zEd5hIjPL) (+ [Mouse Interaction](https://editor.p5js.org/stavrosdidakis/sketches/tj1HAoZWJ)) |
| **2.1 Variables** | [Use environment variables: width and height](https://editor.p5js.org/MOQN/sketches/NR-8RMY9-)  [Use a variable for alignment (circles)](https://editor.p5js.org/MOQN/sketches/_Ccm1AyVG)  [Use a variable for alignment (lines)](https://editor.p5js.org/MOQN/sketches/5HsIDdh1Z)  [Reuse variables to place two ellipses at the same position](https://editor.p5js.org/MOQN/sketches/myNpVX5mV)  [console.log() and String Concatenation](https://editor.p5js.org/MOQN/sketches/ktjfOmm0r) |
| **2.2 Comparisons and Interaction** | [Change the diameter based on the mouse position](https://editor.p5js.org/MOQN/sketches/iAg4A80pv)  [Change the fill color based on the mouse position](https://editor.p5js.org/MOQN/sketches/XMIqXk8wW)  [Draw a circle when mouse is pressed](https://editor.p5js.org/MOQN/sketches/dx6AQICgl)  [Clear background by pressing the spacebar](https://editor.p5js.org/MOQN/sketches/jIdi_vZXg) |
| **2.R Interactive Drawing** | [Draw a line with pmouseXY and mouseXY](https://editor.p5js.org/MOQN/sketches/4KueUgb5_)  [Generate random color by key input](https://editor.p5js.org/MOQN/sketches/o_JpTDSlh)  [Select a Color by key input](https://editor.p5js.org/MOQN/sketches/pPnQ-dlaV)  [Use a variable and if-statements to select a shape](https://editor.p5js.org/MOQN/sketches/SOPMdYTVI) (i.e. change a brush type)  [Select a Color by mouse input](https://editor.p5js.org/MOQN/sketches/AXAtaqUHG) (+ [variables for the "buttons"](https://editor.p5js.org/MOQN/sketches/isy2Qojxz))  Develop a color palette with variables  [R, G, B variables (+ randomness)](https://editor.p5js.org/MOQN/sketches/hqjKYr5RY)  [color()](https://editor.p5js.org/MOQN/sketches/IU6nzxZY1)  [Color Names](https://editor.p5js.org/MOQN/sketches/qwc9A9d92)  [Hex Color](https://editor.p5js.org/MOQN/sketches/Z3yyyc0Xb) |
| **2. In-Class and Extra Examples** | Extra Examples from Prof. Stavros  [variables example](https://editor.p5js.org/stavrosdidakis/sketches/ibzlA9EdG)  [variables](https://editor.p5js.org/stavrosdidakis/sketches/ibzlA9EdG)  [conditionals(mouseXY)](https://editor.p5js.org/stavrosdidakis/sketches/O2ROJ3hZY)  [conditionals(mousePressed)](https://editor.p5js.org/stavrosdidakis/sketches/oJgKYgP50)  [conditionals(mouse+keyboard)](https://editor.p5js.org/stavrosdidakis/sketches/cjv39yXS9)  [conditionals(random)](https://editor.p5js.org/stavrosdidakis/sketches/TQpXD44En) |
| **3.1 Animation and Motion** | Linear Motion  [Linear Motion](https://editor.p5js.org/MOQN/sketches/swaop2iOH)  [Linear Motion with Speed](https://editor.p5js.org/MOQN/sketches/swaop2iOH)  [Linear Motion with Speed X and Y](https://editor.p5js.org/MOQN/sketches/4_rbioBG7)  [Reappearing](https://editor.p5js.org/MOQN/sketches/KqADmirh5)  [Bouncing](https://editor.p5js.org/MOQN/sketches/ZY8mqYc9I)  [Random Speed](https://editor.p5js.org/MOQN/sketches/2s7KvCVfA)  [Random Movement](https://editor.p5js.org/MOQN/sketches/4t98LnVBk)  Extra: [Random Walker Tutorial](https://www.youtube.com/watch?v=l__fEY1xanY)  Acceleration  [Acceleration on X](https://editor.p5js.org/MOQN/sketches/4-xAfK-jf)  [Acceleration on X and Y](https://editor.p5js.org/MOQN/sketches/lnHOiIEKz)  [Modify based on “if”](https://editor.p5js.org/MOQN/sketches/BoCjc4mEc)  [Flip acc based on mouse input](https://editor.p5js.org/MOQN/sketches/hPBvGoZG6)  [Adjust with arrow keys](https://editor.p5js.org/MOQN/sketches/JMPVulhVC)  Other Applications  [Change color value gradually](https://editor.p5js.org/MOQN/sketches/x5-XVReJj)  [Change size value gradually](https://editor.p5js.org/MOQN/sketches/v6LpMTmGo) |
| **3.2 Oscillation, Sine and Cosine** | Oscillation  [sin() & x](https://editor.p5js.org/MOQN/sketches/VYT2eN19f)  [sin() & frameCount](https://editor.p5js.org/MOQN/sketches/1fLICwiyH)  [Map](https://editor.p5js.org/MOQN/sketches/xNAmuG9d2)  Angular Motion  [Example1](https://editor.p5js.org/MOQN/sketches/DjvlZ7YOS)  [Example2](https://editor.p5js.org/MOQN/sketches/DjvlZ7YOS)  [Oscillation](https://editor.p5js.org/MOQN/sketches/5VF5TU7wW)  [Angular Motion](https://editor.p5js.org/MOQN/sketches/9tt43DeDY)  Sine Graph  [time](https://editor.p5js.org/MOQN/sketches/h5aPOzQhA)  [position](https://editor.p5js.org/MOQN/sketches/oF6hvq3NU)  [time + pos](https://editor.p5js.org/MOQN/sketches/zJV5axZ_k) |
| **3.1&2 Math Functions** | random()  [Example: three ways of using the random() function](https://editor.p5js.org/MOQN/sketches/mFTi1zcPm)  [Example: random speed generated in setup()](https://editor.p5js.org/MOQN/sketches/2s7KvCVfA)  [Example: random speed generated in draw()](https://editor.p5js.org/MOQN/sketches/4t98LnVBk) - [Random Walker](https://www.google.com/search?q=random+walker&newwindow=1&rlz=1C5CHFA_enCA959CA959&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiXvdDm-Yf2AhUihcYKHVoxBygQ_AUoAXoECAIQAw&biw=1296&bih=739&dpr=2)  [Example: random color generated by key input](https://editor.p5js.org/MOQN/sketches/o_JpTDSlh)  constrain()  [Example: limit color value](https://editor.p5js.org/MOQN/sketches/x5-XVReJj)  [Example: limit size value](https://editor.p5js.org/MOQN/sketches/v6LpMTmGo)  [Example: limit speed of movement](https://editor.p5js.org/MOQN/sketches/JMPVulhVC)  Modulo %  [Example: repeat numbers between 0 and 10](https://editor.p5js.org/MOQN/sketches/bx5r9bR7n) [using](https://editor.p5js.org/gohai/sketches/HPqkrZu1V) [modulo](https://editor.p5js.org/MOQN/sketches/bx5r9bR7n)  [Example: periodic change using modulo](https://editor.p5js.org/gohai/sketches/HPqkrZu1V)  [Example: keep the x and y values in the canvas](https://editor.p5js.org/MOQN/sketches/agEYs6ayJ) [using](https://editor.p5js.org/gohai/sketches/HPqkrZu1V) [modulo](https://editor.p5js.org/MOQN/sketches/agEYs6ayJ)  map()  [Example: Change background color based on mouseX](https://editor.p5js.org/MOQN/sketches/9IM552eRN)  [Example: Change the width and height of an ellipse based on mouse](https://editor.p5js.org/MOQN/sketches/KnU3Bftcw)  [Example: flip a value using map()](https://editor.p5js.org/MOQN/sketches/u4A2fiL1t)  [Example: Change color gradually based on mouse position](https://editor.p5js.org/MOQN/sketches/JVOuhTtU3)  sin()  [Sine - Visualization of Fluctuation](https://editor.p5js.org/MOQN/sketches/5VF5TU7wW)  [Sine + Cosine - Visualization of Fluctuation and Circular Movement](https://editor.p5js.org/MOQN/sketches/9tt43DeDY)  [Sine Graph - Time](https://editor.p5js.org/MOQN/sketches/h5aPOzQhA)  [Sine Graph - Position](https://editor.p5js.org/MOQN/sketches/oF6hvq3NU)  [Sine Graph - Time + Position](https://editor.p5js.org/MOQN/sketches/zJV5axZ_k)  [Sine values are mapped to grayscale values](https://editor.p5js.org/MOQN/sketches/zGVvcdshk)  Extra: noise  [Sine vs Noise](https://editor.p5js.org/MOQN/sketches/ZoWUJmGqh)  [Sine values](https://editor.p5js.org/MOQN/sketches/zGVvcdshk)  [Noise 2D](https://editor.p5js.org/MOQN/sketches/5xSKrot5S) |
| **3. In-class and extra example codes** | S22  [01 map()](https://editor.p5js.org/MOQN/sketches/u4A2fiL1t)  [02 map() position to color/size](https://editor.p5js.org/MOQN/sketches/ZyJEmFQ_B)  [03 map() position to colors (gradient)](https://editor.p5js.org/MOQN/sketches/YHvBqWEo8)  [04 sin()](https://editor.p5js.org/MOQN/sketches/9ck8VPz8K)  [05 sine graph](https://editor.p5js.org/MOQN/sketches/VdzWYDAG2)  [06 uses of sin()](https://editor.p5js.org/MOQN/sketches/8_ko8tso4)  [01 circular movement](https://editor.p5js.org/MOQN/sketches/Z8KkuE-8Q)  [02 radial distance](https://editor.p5js.org/MOQN/sketches/hXu6NQ2Iq)  [03 sine on radial distance](https://editor.p5js.org/MOQN/sketches/tyYjIblef)  [Repetition by Prof. Gottfried](https://editor.p5js.org/MOQN/sketches/L3ayf_pYN)  [sin(), cos() and noise() by Phyllis & Sam](https://editor.p5js.org/MOQN/sketches/N_WzKw7ck)  [cclab3.R - 02](https://editor.p5js.org/MOQN/sketches/-_zqy-kpg) [sin(), cos() and noise() by Phyllis & Sam](https://editor.p5js.org/MOQN/sketches/N_WzKw7ck)  F22  [CCLab3.1 01 FrameCount](https://editor.p5js.org/MOQN/sketches/u0-4byBtY)  [CCLab3.1 02 Linear Motion](https://editor.p5js.org/MOQN/sketches/NV3I1tw8j)  [CCLab3.1 03 Random Movement + Linear Color Change](https://editor.p5js.org/MOQN/sketches/UcsDz72ha)  [CCLab3.2 01 map()](https://editor.p5js.org/MOQN/sketches/jVH9DzLuJ)  [CCLab3.2 02 sin()](https://editor.p5js.org/MOQN/sketches/trLknCnED)  [CCLab3.2 03 sin() + frameCount + map()](https://editor.p5js.org/MOQN/sketches/3TOzAqj7N)  [CCLab3.2 04 sin() n cos()](https://editor.p5js.org/MOQN/sketches/zhtVz7bKd)  [CCLab3.2 05 sin() n cos() + angle](https://editor.p5js.org/MOQN/sketches/9oBxzrCiB)  [CCLab3.2 06 sin() n cos() application1](https://editor.p5js.org/MOQN/sketches/2PbjwCPgX)  [CCLab3.2 07 sin() n cos() application2](https://editor.p5js.org/MOQN/sketches/qwKWSQmER) |
| **4.1 Loops** | [For Loop - Step 1](https://editor.p5js.org/MOQN/sketches/tPsBIxyY9)  [For Loop - Step 2](https://editor.p5js.org/MOQN/sketches/-Sh4d4G1E7)  [For Loop - Step 3](https://editor.p5js.org/MOQN/sketches/Hl8UTtUpU)  [For Loop - Step 4](https://editor.p5js.org/MOQN/sketches/DnMcKrx2_)  [For Loop - Grid Step 1 (Horizontal)](https://editor.p5js.org/MOQN/sketches/aAQDJb4d5)  [For Loop - Grid Step 2 (Vertical)](https://editor.p5js.org/MOQN/sketches/fIisJ_6ay)  [For Loop - Grid Step 3 (Nested Loop)](https://editor.p5js.org/MOQN/sketches/oN_RPUlwY)  [For Loop - Grid Step 3 (Nested Loop + custom function)](https://editor.p5js.org/MOQN/sketches/HVJe4LExo)  [Loops 01 number of iterations](https://editor.p5js.org/MOQN/sketches/5Pabo19OO)  [Loops 02 range and increment](https://editor.p5js.org/MOQN/sketches/peYPzKzT-)  [Loops 03 angles](https://editor.p5js.org/MOQN/sketches/gAx_ib-h8)  [Loops 04 angles + distance from center](https://editor.p5js.org/MOQN/sketches/iNxR7rvmd)  Extra: [Getting Distance](https://editor.p5js.org/MOQN/sketches/YKmhoa2-a) |
| **4.2 Transformations** | [mouseX & mouseY](https://editor.p5js.org/MOQN/sketches/x581e5pyt)  [translate with mouseX & mouseY](https://editor.p5js.org/MOQN/sketches/RlWa3Hm72)  [Good vs Bad Example - Good](https://editor.p5js.org/MOQN/sketches/y-cAIeue5)  [Good vs Bad Example - Bad](https://editor.p5js.org/MOQN/sketches/OOaqqOvH5)  [push() and pop()](https://editor.p5js.org/MOQN/sketches/baBm8Ga9m)  [push() and pop() with translate()](https://editor.p5js.org/MOQN/sketches/Udjuvvyn8) |
| **4. In-class and extra example codes** | S22  [For Loop 1 - number of iterations](https://editor.p5js.org/MOQN/sketches/ipsDdkYsX)  [For Loop 2 - range and increment](https://editor.p5js.org/MOQN/sketches/So9Bg5s8O)  [For Loop 3 - Use of a vertex shape](https://editor.p5js.org/MOQN/sketches/L_Ri_tdUt)  [For Loop 4 - Use of transformations](https://editor.p5js.org/MOQN/sketches/u8fUeSdax)  [For Loop 5 - Use of mapping values](https://editor.p5js.org/MOQN/sketches/VCzcfvvyB)  [For Loop 6 - Use of a user-defined function](https://editor.p5js.org/MOQN/sketches/CLl6gQsb1)  Prof. Gottfried's  [Number of iteration based on sin() and frameCount](https://editor.p5js.org/gohai/sketches/7LACNl5d_)  [Number of iteration based on mouseX](https://editor.p5js.org/gohai/sketches/nK7sgHdyb)  [Nested Loops: Grid with modulo](https://editor.p5js.org/gohai/sketches/e_enWHv4E)  F22  [CCLab4.1 01 Loop Explanation](https://editor.p5js.org/MOQN/sketches/xWd2p3cQO)  [CCLab4.1 03 For Loop](https://editor.p5js.org/MOQN/sketches/c16t_Vz1Q)  [CCLab4.1 04 For Loop](https://editor.p5js.org/MOQN/sketches/EP402ftNl)  [CCLab4.1 05 For Loop - Use 1: number of iterations](https://editor.p5js.org/MOQN/sketches/zof0dGt-4)  [CCLab4.1 06 For Loop - Use 2: Range (Nested Loops)](https://editor.p5js.org/MOQN/sketches/yz51Vpi_x)  [CCLab4.1 07 For Loop - Use 3: Range - Angle](https://editor.p5js.org/MOQN/sketches/YESkO2qcH) |
| **5.1 Functions** | [Function drawPinwheel() step 1](https://editor.p5js.org/MOQN/sketches/YSWaCDB6f)  [Function drawPinwheel() step 2](https://editor.p5js.org/MOQN/sketches/vY0s-mh7h)  [Function drawPinwheel() step 3](https://editor.p5js.org/MOQN/sketches/72p8Dv1a5)  [Function drawPinwheel() step 4](https://editor.p5js.org/MOQN/sketches/Lzq_T8r4g)  [Function drawPinwheel() step 5](https://editor.p5js.org/MOQN/sketches/cOVHTX1QG)  [Function, return](https://editor.p5js.org/MOQN/sketches/J9aBgVicQ)  [checkMouseX()](https://editor.p5js.org/MOQN/sketches/dAbwN0XPv)  [checkMousePosition()](https://editor.p5js.org/MOQN/sketches/ghM0NUHsO)  [checkOutOfCanvas()](https://editor.p5js.org/MOQN/sketches/7TK_9zsqk) |
| **5.2 Arrays** | [First index, last index, array.length and assign/use values in an array](https://editor.p5js.org/MOQN/sketches/MmBIlujLm)  [Push() ans Splice()](https://editor.p5js.org/MOQN/sketches/BCYjGRbFB)  [Arrays + Loops - Greetings](https://editor.p5js.org/MOQN/sketches/5UtykhEmY)  [Arrays + Loops - Text (poem)](https://editor.p5js.org/MOQN/sketches/eOTLwmPLx)  [Arrays + Loops - ColorNames](https://editor.p5js.org/MOQN/sketches/4nLyrfSMC)  [Arrays + Loops - HexColor](https://editor.p5js.org/MOQN/sketches/dt9xzU3S6)  [Arrays + Loops - circles](https://editor.p5js.org/MOQN/sketches/EVLc7uWD2)  [Arrays + Loops - circles + push()](https://editor.p5js.org/MOQN/sketches/2HauDb-1d) |
| **5.R Imaginary Creature** | [Step1](https://editor.p5js.org/MOQN/sketches/yc4pRP7Wn)  [Step2](https://editor.p5js.org/MOQN/sketches/ARxJA2xsd)  [Step3](https://editor.p5js.org/MOQN/sketches/whcJQEW3r)  Extra: [Step4](https://editor.p5js.org/MOQN/sketches/QHseT7aki) (apply sine wave or interaction to the rotation of a limb)  [Example: Array for Color Palette](https://editor.p5js.org/MOQN/sketches/aeYMFxFAB) with Array  [Example: Add Randomness](https://editor.p5js.org/MOQN/sketches/C8qNJTmEu) with Array |
| **5. In-class & extra example codes** | [cclab4.2 - 01 roll a dice](https://editor.p5js.org/MOQN/sketches/OFkUUtpV1)  [cclab4.2 - 02 buttonState](https://editor.p5js.org/MOQN/sketches/lfooxBSdl)  [cclab4.2 - 03 random sentence generator](https://editor.p5js.org/MOQN/sketches/aXyfRi6M4)  [Prof. Leon's Yellow Cab Example](https://editor.p5js.org/leon-eckert/sketches/xulw0uspC) 🚕  [Prof. Gottfried's Mirroring Arms with a Boolean Argument](https://editor.p5js.org/gohai/sketches/XGafzzFDj) 👐  S22  [06 patterns from transformations](https://editor.p5js.org/MOQN/sketches/Yad5EAISm)  F22  [CCLab5.1 01 Transformation and angleMode()](https://editor.p5js.org/MOQN/sketches/4Dz6x-VHR)  [CCLab5.1 02 Transformation functions](https://editor.p5js.org/MOQN/sketches/3cXRqiq0H)  [CCLab5.1 03 Transformation applications](https://editor.p5js.org/MOQN/sketches/RCPGyjsHD)  [CCLab5.1 05 Transformation push() n pop()](https://editor.p5js.org/MOQN/sketches/zPv4iHZ0f)  [CCLab5.1 05 Transformation multiple uses](https://editor.p5js.org/MOQN/sketches/k6B5MWJou)  [CCLab5.1 06 Transformation nestedLoops](https://editor.p5js.org/MOQN/sketches/jvhy6DKVd)  [CCLab5.2 01 functions - mousePressed() vs mouseIsPressed (boolean)](https://editor.p5js.org/MOQN/sketches/hi21HMse6)  [CCLab5.2 02 functions - event functions in p5.js](https://editor.p5js.org/MOQN/sketches/d0_vfTWWD)  [CCLab5.2 03 functions - usages and return](https://editor.p5js.org/MOQN/sketches/WBe2aYM0H)  [CCLab5.2 04 functions - define your own function](https://editor.p5js.org/MOQN/sketches/LYChBujwu)  [CCLab5.2 05 functions - organize your code with functions](https://editor.p5js.org/MOQN/sketches/vYChoL60-)  [CCLab5.2 06 functions - add more parameter(s)](https://editor.p5js.org/MOQN/sketches/jFQBDMkE7) |
| **8.2 Objects, Classes** | [Making an Instance - Usage](https://editor.p5js.org/MOQN/sketches/-dcvBJyA-)  [Multiple Instances - Individually](https://editor.p5js.org/MOQN/sketches/HQNuvUynq) |
| **9.1 OOP + Arrays** | [Multiple Instances - Array](https://editor.p5js.org/MOQN/sketches/5-Y5e7jmh) |
| **9.2 OOP + Dynamic Arrays** | [Add a new item 01](https://editor.p5js.org/MOQN/sketches/0YshklICO)  [Add a new item 02](https://editor.p5js.org/MOQN/sketches/evNRK2Eq0)  [Remove an item](https://editor.p5js.org/MOQN/sketches/IzgUM6B8A)  [Limit the number of objects](https://editor.p5js.org/MOQN/sketches/XJCII6BVu)  [Remove an object that is "done" based on a certain condition](https://editor.p5js.org/MOQN/sketches/DBVK02wOd) |
| **8&9. In-class & extra example codes** | F22  [CCLab6.1 Arrays 01](https://editor.p5js.org/MOQN/sketches/05JAsJD1K)  [CCLab6.1 Arrays 02 string (colors)](https://editor.p5js.org/MOQN/sketches/Uqy6ClCqR)  [CCLab6.1 Arrays 03 empty array + array.push()](https://editor.p5js.org/MOQN/sketches/dZCUBYwgF)  [CCLab6.1 Arrays 04 arrays of moving circles](https://editor.p5js.org/MOQN/sketches/ycUP_KosA)  [CCLab6.2 Class 01 Define a Class / Construct an Instance](https://editor.p5js.org/MOQN/sketches/uIM7WE4Lj)  [CCLab6.2 Class 02 Instance](https://editor.p5js.org/MOQN/sketches/VUthgbz_x)  [CCLab6.2 Class 03 Instances](https://editor.p5js.org/MOQN/sketches/Guu6xdK7l)  [CCLab6.2 Class 04 Example: a Dancer](https://editor.p5js.org/MOQN/sketches/OcWSspZtl)  [CCLab6.2 Class 05 Objects with an Array](https://editor.p5js.org/MOQN/sketches/dXBWf6gsa) |
| **9.R Particles** | [Particles - change the initial position](https://editor.p5js.org/MOQN/sketches/V52ZhK7o7)  [Particles - randomize the initial position](https://editor.p5js.org/MOQN/sketches/KH_6g7Mtl)  [Particles - move horizontally (left or right)](https://editor.p5js.org/MOQN/sketches/zxqSgPEN_)  [Particles - move vertically (up or down)](https://editor.p5js.org/MOQN/sketches/w9l55e4c6)  [Particles - randomize the speed and direction](https://editor.p5js.org/MOQN/sketches/hKrEuLpGP)  [Particles - bounce](https://editor.p5js.org/MOQN/sketches/ZUDpJjnhX)  [Particles - reappear](https://editor.p5js.org/MOQN/sketches/0WAH-CIkF)  [Particles - bounce + slowDown](https://editor.p5js.org/MOQN/sketches/6hQ9zvHpD)  [Particles - reappear + speedUp](https://editor.p5js.org/MOQN/sketches/LnPaFAG5Y)  [Particles - rectangular shapes](https://editor.p5js.org/MOQN/sketches/LWkvbQNcv)  [Particles - vertex shape](https://editor.p5js.org/MOQN/sketches/L9-moA6U4)  [Particles - multiple shapes](https://editor.p5js.org/MOQN/sketches/4ktIN2Kbl)  [Particles - enlarge](https://editor.p5js.org/MOQN/sketches/-n7bK5i7z)  [Particles - shrink](https://editor.p5js.org/MOQN/sketches/Iu2XeXt3_)  [Particles - rotate](https://editor.p5js.org/MOQN/sketches/yO5u_qmA9)  [Particles - adjust scale (enlarge or shrink a vertex shape)](https://editor.p5js.org/MOQN/sketches/jA0orfnZc)  [Particles - assign an initial color](https://editor.p5js.org/MOQN/sketches/0IvsAbwS2)  [Particles - assign a random color](https://editor.p5js.org/MOQN/sketches/C_WwEd8vm)  (Extra) [Particles - assign a random color from an array of color names](https://editor.p5js.org/MOQN/sketches/IJZaSd-k6)  [Particles - change the color by mouseIsPressed](https://editor.p5js.org/MOQN/sketches/3CZlwBi3z)  [Particles - change the color by mousePressed()](https://editor.p5js.org/MOQN/sketches/wwQaWP6e_)  [Particles - slowDown by mouseIsPressed](https://editor.p5js.org/MOQN/sketches/QtaHmY8-c)  [Particles - explode by mousePressed()](https://editor.p5js.org/MOQN/sketches/BPfSwiZ1r)  [Particles - generate at the center](https://editor.p5js.org/MOQN/sketches/AOmpW6z7E)  [Particles - generate on mouse position](https://editor.p5js.org/MOQN/sketches/-b-LsMQ-e)  [Particles - generate when mouse IS pressed](https://editor.p5js.org/MOQN/sketches/TC8YyHnwv)  [Particles - generate by mousePressed()](https://editor.p5js.org/MOQN/sketches/4un5Ahw0c)  [Particles - generate by keyPressed()](https://editor.p5js.org/MOQN/sketches/H-KtXRDWv)  [Particles - fall (gravity)](https://editor.p5js.org/MOQN/sketches/Q0XbWydGb)  [Particles - attractedTo](https://editor.p5js.org/MOQN/sketches/fGV4QxERh)  [Particles - repelledFrom](https://editor.p5js.org/MOQN/sketches/LR8PGkcgF) |
| **7. In-class & extra example codes** | F22  [CCLab7.1 OOP+Array 01 Arrays Only](https://editor.p5js.org/MOQN/sketches/k_rMOXgxH)  [CCLab7.1 OOP+Array 02 Objects](https://editor.p5js.org/MOQN/sketches/x-aJit_ls)  [CCLab7.1 OOP+Array 03 Bubbles](https://editor.p5js.org/MOQN/sketches/Y-71YqdnX)  [CCLab7.1 OOP+Array 04 Snow](https://editor.p5js.org/MOQN/sketches/OzC50RC34)  [CCLab7.1 OOP+Array 05 Something Falling Down](https://editor.p5js.org/MOQN/sketches/lGVlbC0Xo)  [CCLab7.1 OOP+Array 06 Explosion?](https://editor.p5js.org/MOQN/sketches/Ke7rXoUDI)  [CCLab7.1 OOP+Array 07 Bouncing Balls](https://editor.p5js.org/MOQN/sketches/j7RZDjsFb) |
| **10.1 Interactive Objects** | [Manipulating Objects](https://editor.p5js.org/MOQN/sketches/xMpBx-Vul)  [Rect Buttons Step 1](https://editor.p5js.org/MOQN/sketches/fHidX0VO-)  [Rect Buttons Step 2](https://editor.p5js.org/MOQN/sketches/OMgtDvDt1)  [Rect Buttons Step 3](https://editor.p5js.org/MOQN/sketches/tuS1CNCzq)  [Circle Button Step 1](https://editor.p5js.org/MOQN/sketches/AUJFb3Dy2)  [Circle Button Step 2](https://editor.p5js.org/MOQN/sketches/PJa8HCAC8)  [Circle Button Step 3](https://editor.p5js.org/MOQN/sketches/IST6rlzBo)  [Object + Mouse Interaction 01](https://editor.p5js.org/MOQN/sketches/BvQuTFOrN)  [Object + Mouse Interaction 02](https://editor.p5js.org/MOQN/sketches/3tCEneUsu)  ~~Object + Mouse Interaction 03 (image & sound)~~ |
| **8. In-class & extra example codes** | Objects interact with each other  [Interact w/ each other 01](https://editor.p5js.org/MOQN/sketches/H95uvGR8O)  [Interact w/ each other 02](https://editor.p5js.org/MOQN/sketches/9FJI71p0A)  [Interact w/ each other 03](https://editor.p5js.org/MOQN/sketches/lVabLXZjj)  Prof. Leon's  [Object with Simple Clock](https://editor.p5js.org/leon-eckert/sketches/EhEr8i55f)  [Object with Milliseconds Clock](https://editor.p5js.org/leon-eckert/sketches/fctV_hGDX)  [Array of Objects with Simple Clock](https://editor.p5js.org/leon-eckert/sketches/K6LpONh9j) |
| **Useful Tips** | Sequencing  [01 Steps](https://editor.p5js.org/MOQN/sketches/uWH0Q42s4)  [02 Steps (Switch & Cases)](https://editor.p5js.org/MOQN/sketches/--DYbAezh)  [03 Based on Time (frames)](https://editor.p5js.org/MOQN/sketches/iGGdLu69X) |
| **Sound** | [Sound-01-load-and-play](https://editor.p5js.org/MOQN/sketches/Hesocgd-n)  [Sound-02-control](https://editor.p5js.org/MOQN/sketches/EOxQR65Ch)  [Sound-03-Amplitude](https://editor.p5js.org/MOQN/sketches/NqNbFV_or) (audio input from a sound file)  [Sound-04-AudioIn](https://editor.p5js.org/MOQN/sketches/DtHkaJdLG) (audio input from a microphone)  Applications  [Sound (Random Trigger)](https://editor.p5js.org/MOQN/sketches/2JU8kwd-m)  [Sound (Random Sound for Array)](https://editor.p5js.org/MOQN/sketches/N14ypLElM)  [Sound-05-utilizing-audio-volume-changes](https://editor.p5js.org/MOQN/sketches/Km1LNW9c9)  [Sound-06-applying-audio-volume-to-speed-of-motion](https://editor.p5js.org/MOQN/sketches/ThgU_qPuH) |
| **Image** | [Basic uses of the image() function](https://editor.p5js.org/MOQN/sketches/xl03ulUG7)  [Manipulating the RGB channels of the image using tint()](https://editor.p5js.org/MOQN/sketches/h9t_SXlIk)  [Applying various filters to the canvas](https://editor.p5js.org/MOQN/sketches/54sJJcNbL)  [Brush-like effect using an image, glowing effect by blendMode()](https://editor.p5js.org/MOQN/sketches/Vp0LmoPf4) ["Moving Image": creating an animated image using multiple images](https://editor.p5js.org/leon-eckert/sketches/2QM_dqj6g) |
| **Pixels** | [img.get()](https://editor.p5js.org/MOQN/sketches/ehf7yus3Z)  [img.set()](https://editor.p5js.org/MOQN/sketches/9HRihPsnc)  [Pixels array](https://editor.p5js.org/MOQN/sketches/gGTAiJMHY)  [Grid (Nest Loops)](https://editor.p5js.org/MOQN/sketches/piYc90AqN)  [Counting each grid number (index?)](https://editor.p5js.org/MOQN/sketches/p8pzi3bQ1)  [Pixel Manipulation with "x + y \* img.width"](https://editor.p5js.org/MOQN/sketches/3ZA9_uEpj)  [Pixels - Linear gradient color](https://editor.p5js.org/MOQN/sketches/PKQPMKfe5)  [Pixels - Radial gradient color](https://editor.p5js.org/MOQN/sketches/EAleCkuz3)  [Pixel Manipulation with Webcam - Tint](https://editor.p5js.org/MOQN/sketches/k28GHJlTS)  [Pixel Manipulation with Webcam - Grayscale](https://editor.p5js.org/MOQN/sketches/INqgZKHbu)  [Pixel Manipulation with Webcam - Threshold](https://editor.p5js.org/MOQN/sketches/YPLL5EsDe)  [Pixel Manipulation with Webcam - Spotlight-like effect](https://editor.p5js.org/MOQN/sketches/CjX0HF7aH)  [Pixel Iteration with Webcam - Drawing Shapes](https://editor.p5js.org/MOQN/sketches/7RRrCwWtB)  [Pixel Iteration with Webcam - Changing size based on pixel brightness](https://editor.p5js.org/MOQN/sketches/C-QRN1Jnk)  [Pixel Iteration with Webcam - Drawing text based on pixel brightness](https://editor.p5js.org/MOQN/sketches/c2oTHwVqd)  [Pixel Iteration with Webcam - Drawing lines using vertex() based on pixel brightness](https://editor.p5js.org/MOQN/sketches/tpFw3ZflX) |