Processing 1 - Introduction

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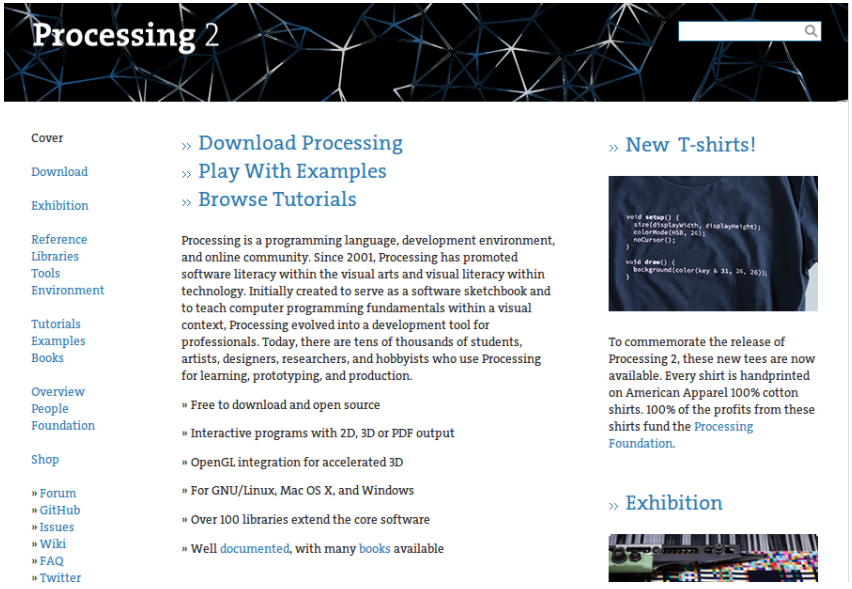
Processing

- Free/open source project
- Initiated by Casey Reas and Ben Fry in 2005
- For learning programming in visual context
- Based on Java, but simplified
- Sketchbook metaphor

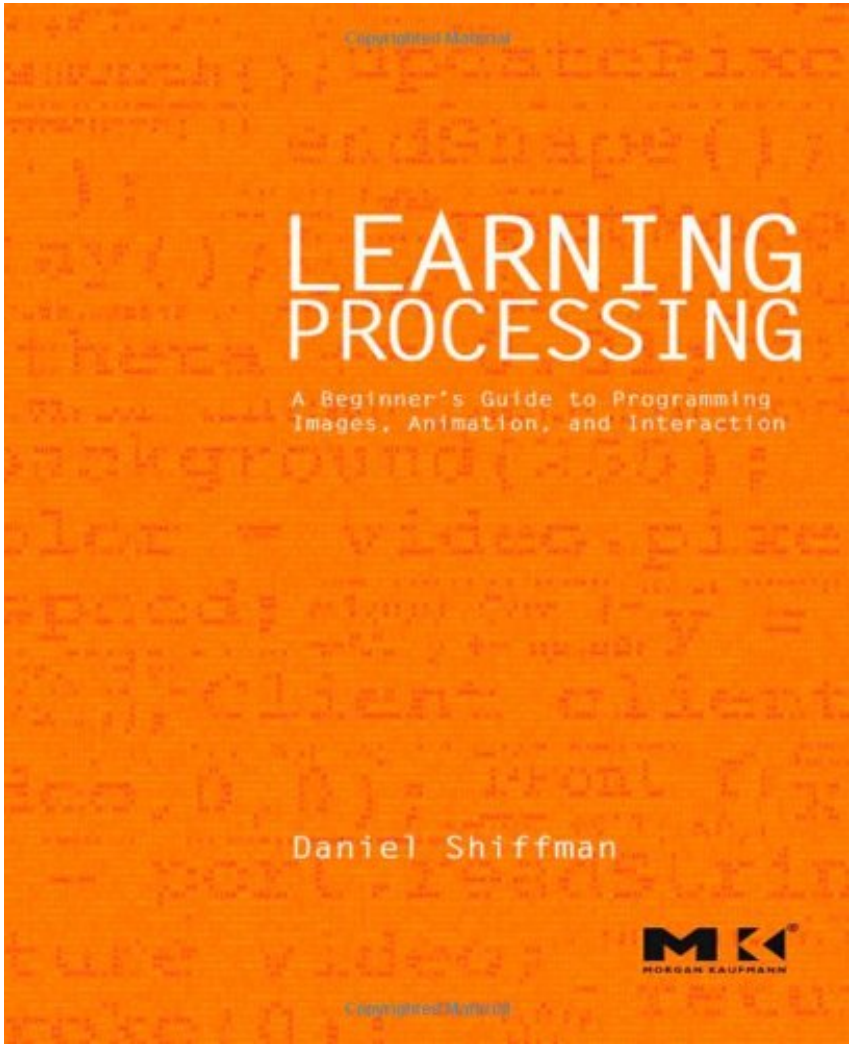
On-line documentation



`https://processing.org/`

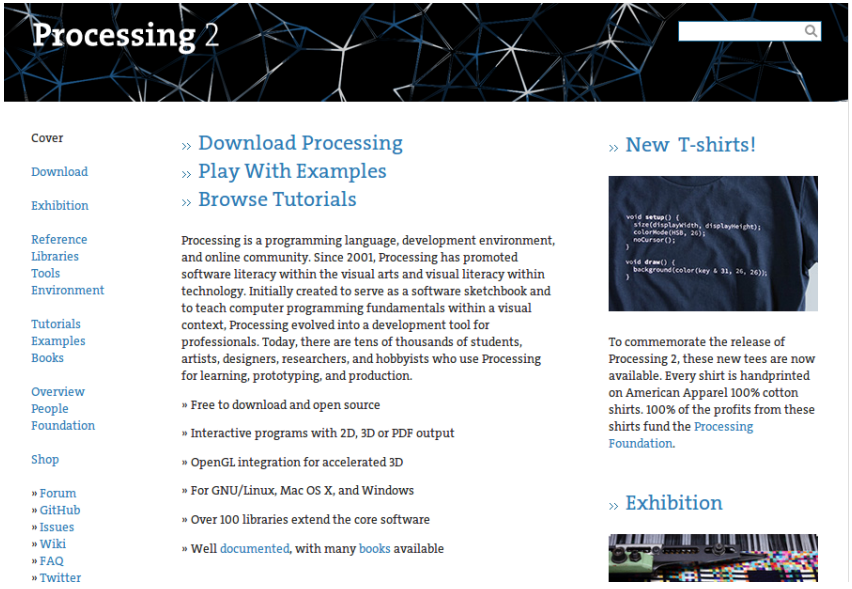
- Reference, Tutorials, Forum
- Off-line from UI:
  - Help -> reference
  - Right click on code -> find in reference

Further reading



Video lectures: `http://icm.shiffman.net/`

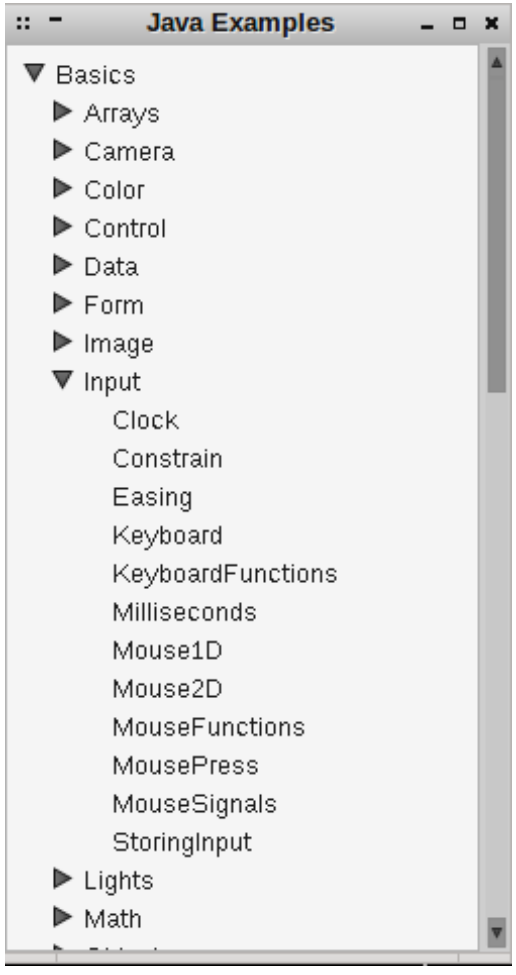
Open processing



https://openprocessing.org/

Examples

File -> Examples



Lets get programming

- Draw a circle
- Play a sound

Draw a circle

Use the `ellipse` function call

Reference: Ellipse

```
// x, y, width, height
ellipse(10,10,10,10);
```

Understand:

- Cartesian coordinates and origins
- `http://processing.org/tutorials/drawing/`

Make a sound

Add the minim library to your sketch.

Draw ten circles

In different positions, using copy and paste

```
ellipse(10,10,10,10);
ellipse(20,20,10,10);
ellipse(30,30,10,10);
```

and so on...

Draw a hundred circles

Time to use variables and loops.

```
// Initialise variable, this will be our loop counter
int i = 0;

// repeat until test fails
while (i < 100) {
  ellipse(i*10, i*10, 10, 10);
  // increment
  i = i + 1;
}
```

Draw a hundred circles

Alternative loop form, with `for` you initialise, test and increment in one line:

```
for (int i = 0; i < 100; i = i + 1) {
  line(i*10, i*10, 10, 10);
}
```

Shorthand for incrementing, this is the same as `i = i + 1`:

```
++i;
```

Draw infinite circles

Make the canvas a bit bigger in the setup phase

```
void setup() {
  size(400,400);
}
```

Draw a circle in a random position in the draw phase

```
void draw() {
  ellipse(random);
}
```

- Randomise position
- Randomise colour
- Repeat (draw phase)