

# First taste of abstraction with arrays

## Import libraries

```
• import Pkg
```

```
• begin
•     Pkg.add("ImageMagick")
•     using Images
• end
```

## Arrays

```
element = 2×2 Array{Int64,2}:
  1  3
  2  4
```

```
• element = [1 3
•           2 4]
```

```
5×7 Array{Array{Int64,2},2}:
 [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4]
 [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4]
 [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4]
 [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4]
 [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4] [1 3; 2 4]
```

```
• fill(element, 5, 7)
```

```
Array{Int64,2}
```

```
• typeof(element)
```

```
keeptrack = 1×6 Array{DataType,2}:
  Int64  Float64  String  Rational{Int64}  ...  Array{RGB{Normed{UInt8,8}},2}
```

```
• keeptrack = [typeof(1) typeof(1.0) typeof("one") typeof(1 // 1) typeof([1 3; 2 4])
  typeof(one_plus)]
```

```
one_plus =
```

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- `one_plus =`  
`load(download("https://upload.wikimedia.org/wikipedia/commons/thumb/7/75/Oneplus_Bullets_Wireless_Earphones.jpg/330px-Oneplus_Bullets_Wireless_Earphones.jpg"))`

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