

Review

- Remember to take the quiz for assignment 06!
- String declarations and creations
 - `String s = "abc";`
 - `String s = new String("abc");`
- `length()`, `indexOf()`
- `equals()`

More String functions

- `indexOf` used with a substring
 - `String str = "abcdefghijklm";`
 - `println(str.indexOf("def"));`
 - `println(str.indexOf("bb"));`
- `substring(beginIndex, endIndex)`
 - `beginIndex` is inclusive, `endIndex` is exclusive
 - `String str1 = str.substring(3);`
 - `String str2 = str.substring(3, 6);`

Exercise

- `String msg = "The quick brown fox jumps over the lazy dog."`
- Write code to create substring "fox jumps"
- Write code to create substring "lazy dog"

2-parameter `indexOf`

- `String s = "a man, a plan, a canal Panama";`
- `int i = s.indexOf("an");`
- `int i = s.indexOf("an", 4));`
- `println(s.indexOf("an", i+1));`

`toString`

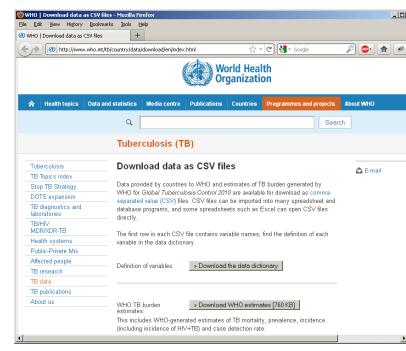
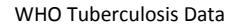
- `toString()` is a method defined to return a `String`, which is meant to be the string representation of an object
- It is what `println` and `print` will use when called on an object
- Every object/class inherits from a superclass `Object` which comes with a `toString()` method
- Overwrite the `toString` to how you want your object printed.

Array of String

- Declarations
 - `String[] strs = new String[10];`
 - `String[] strs = {"ab", "cde", "f"};`
- Write a function that takes an array of strings `strs` and another string `s` and return how many of the strings in the array contain the string `s` as a substring.

split() and splitTokens()

- String s = "a man, a plan, a canal Panama";
 - String[] strs = splitTokens(s, ",");
 - String[] strs = s.split(",");
 - What will be the length of strs?
 - What will be the value of strs[1]?
 - Write the expression that gives the number of elements in strs.



<http://www.who.int/tb/country/data/download/en/index.html>

The screenshot shows a Microsoft Excel spreadsheet titled "Sheet1" with data spanning from A1 to M100. The data includes columns for country, date, and various vaccination metrics like 'new' and 'm_plus'. The 'new' column contains values such as 4, 190, 1295412, 452, 196, 754, etc. The 'm_plus' column contains values such as 37000, 25000, 35000, etc. The 'date' column shows dates from 1990 to 1998. The 'country' column lists countries like Afghanistan, Azerbaijan, and Armenia. The 'new' column is highlighted in yellow.

Entity	Year	e_pov_name	inc_100k
Afghanistan	1990	25286412	189
Angola	1990	25282516	98
Algeria	1990	47108	21
American Samoa	1990	47108	21
Angola	1990	10641400	205
Anguilla	1990	4020	24
Argentina	1990	10641400	419212
Argentina	1990	3249760	60
Argentina	1990	3544605	35
Argentina	1990	3544605	67
Austria	1990	7670519	5
Azerbaijan	1990	7211682	110
Bahrain	1990	4922500	16
Bahrain	1990	4922500	40
Bangladesh	1990	11681512	225
Barbados	1990	11681512	24
Belarus	1990	10285700	80
Belgium	1990	9933055	20
Belgium	1990	9933055	21
Benin	1990	4795088	77
Bermuda	1990	557962	1
Bhutan	1990	4795088	20
Bolivia (Plurinational State of)	1990	6670556	251
Bosnia and Herzegovina	1990	4300159	94
Bosnia and Herzegovina	1990	4300159	95
Bosnia and Herzegovina	1990	4300159	96
Brazil	1990	14987080	94
British Virgin Islands	1990	16505	19
Bulgaria	1990	8182515	999999970
Bulgaria	1990	8182515	95
Burkina Faso	1990	8131964	95
Burkina Faso	1990	8131964	95
Burkina Faso	1990	8131964	96
Burkina Faso	1990	12610252	177
Cambodia	1990	8980107	574
Cambodia	1990	8980107	575
Cameroon	1990	2223200	9
Canada	1990	10641400	95

```
// parseFile1

String[] data;

void setup() {
    // Load data from a file as array of strings
    data = loadStrings("reduced.csv");

    for (int i=0; i<data.length; i++) {
        println(data[i]);
    }
}
```

```

// parseFile2

String[] data;
Item[] items;
int count = 0;

void setup() {
  // Load data as array of strings
  data = loadStrings("reduced.csv");
}

// create object array
// /length-1 because we throw away line 0
item = new Item[data.length-1];
// fill object array
for (int i=1; i<data.length; i++) {
  // split by commas
  String[] pieces = data[i].split(",");
  String country = pieces[0];
  String[] pieces1 = pieces[1].split(",");
  items[i-1] = new Item(pieces[0],
    int(pieces1[1]),
    int(pieces2),
    int(pieces3));
}
}

class Item {
  String country; // Country name
  int year; // Year
  int pop; // Population
  int inc; // Incidence of TB
  // per 100,000
}

Item(String country, int year, int pop, int inc) {
  this.country = country;
  this.year = year;
  this.pop = pop;
  this.inc = inc;
}

String toString() {
  String msg = "In " + year + ", " + country;
  msg += " had population " + pop;
  msg += " and TB incidences per 100k of " + inc;
  return(msg);
}
}

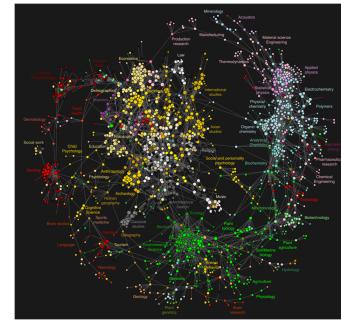
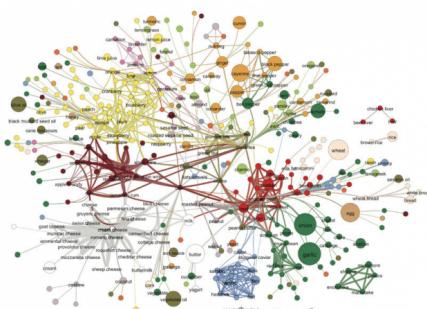
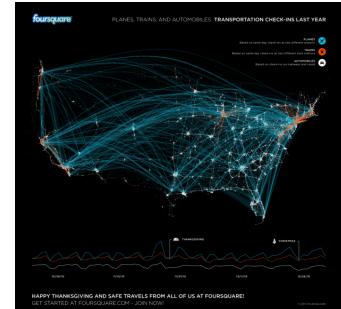
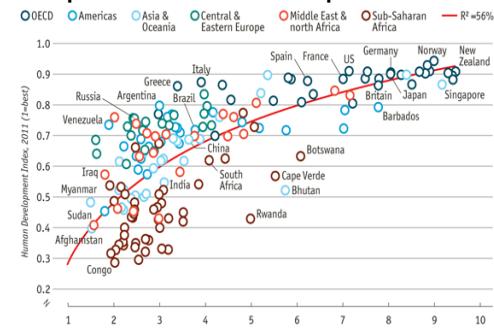
```

GapMinder<http://www.gapminder.org><http://www.gapminder.org/videos/hans-roesling-on-cnn-us-in-a-converging-world/>

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Map of Science**Flavors and Their Chemical Relationships****Transportation Check-ins****Corruption and Human Development****Every death on every road**

