CSE 115
Introduction to Computer Science I
Announcements

Anyone can do lab exam make-up.

We will take the higher of the two grades.
Announcements

UTAs will provide a blank sheet of paper* to those who request it during lab exams.

UTAs will NOT provide pens/pencils.

You may NOT bring your own paper.

*but not for lab exam 1, to be fair to those who already took it.
Announcements

Prof. Alphonce goofed.

Each lab exam question is worth 1/3.

The weighting should have been 1/2, 1/4, 1/4.

Most students are scoring 80/80: no impact.

We will fix this, but after last lab: we avoid changing the grading code when live unless necessary.
Road map

▶︎ Review ◀

miscellaneous (type names, questions from Monday)

control flow

JavaScript on codenvy.io
JavaScript
expressions/variables/assignment

Simple expressions:

Literals (null, true, false, 17.375, 'foo', "bar", undefined)

All numbers are floating point.

Boolean literals are written all lowercase (true and false) in JavaScript, unlike Python which uses True and False.
JavaScript
expressions/variables/assignment

Compound expressions:

binary: expression operator expression

unary: operator expression or expression operator

Also: a function call is a compound expression: name(expression, expression, …)
Some binary operators:

- arithmetic: +, -, *, /, %, **
- string: +
- relational: <, <=, >, >=, ==, !=

Boolean (short circuiting): &&, ||

Python: and, or
JavaScript: &&, ||
Some unary operators:

- arithmetic: +, -
- Boolean: !

Python: not
JavaScript: !
Variables must be declared before use, and statements end with ';'

```
var x;

x = 13;

var y = 17;
```
def area(w, h):
    return w * h

function area(w, h) {
    return w * h;
}
Printing

print( 3 * 5 )

console.log( 3 * 5 );
Road map

Review

▶ miscellaneous (type names, questions from Monday) ⬅

control flow

JavaScript on codenvy.io
Extra slide: this came up during class

Delimiter names

( ) are parentheses (singular: parenthesis)

[ ] are brackets

{ } are braces

The first of each pair is an opening or left delimiter, the second is a closing or right delimiter.
Extra slide: this came up during class

Comments

# This is a Python single-line comment

// This is a JavaScript single-line comment

/*
This is a JavaScript comment that spans many lines.
*/
Extra slide: this came up during class

Additional Operators

= assignment
== equality under type conversion ("loose" equality)
=== equality without type conversion ("strict" equality)

&& logical AND
|| logical OR
! logical NOT

& bitwise AND
| bitwise OR
~ bitwise NOT

We'll explain these operators (and what we mean by type conversion) later.
Type names

The types we've seen (there are more!)

Python

bool
str
int
float

JavaScript

Boolean
String
Number
Type names

A few more
(we'll see even more later)

bool  Boolean
str   String
int   Number
float
None  Null
      Undefined
Road map

Review

miscellaneous (type names, questions from Monday)

▶ control flow ◀

JavaScript on codenvy.io
Type names

A few more
(we'll see even more later)

bool  Boolean
str   String
int   Number
float
None  Null
Undefined
Sequence

As in Python, statements in Javascript are executed in sequence, unless control flow is altered.

```javascript
{
    var x = 4;
    var y = 5;
    console.log("x + y has value " + (x+y));
}
```

Good order: variables are declared and initialized before use.
As in Python, statements in Javascript are executed in sequence, unless control flow is altered.

```
{
    console.log("x + y has value " + (x+y));
    var x = 4;
    var y = 5;
}
```

Bad order: variables are used before declaration/initialization.
As in Python, control flow can be altered based on the outcome of a decision.

JavaScript if / if-else statement
Selection

if statement

```java
if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
```
Selection

if statement

if is a keyword

```java
if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
```
Selection

if statement

parentheses are required

if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
Selection

if statement

expression must have a Boolean value

if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
Selection

if statement

a code block ('then' clause)

if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}

Selection

if-else statement

```java
if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
else {
    statement ;
    statement ;
    ...
    statement ;
}
```
Selection

if-else statement

else is a keyword

if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
else {
    statement ;
    statement ;
    ...
    statement ;
}
Selection
if-else statement

else does not take an expression

```java
if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
else {
    statement ;
    statement ;
    ...
    statement ;
}
```
Selection

if-else statement

a code block ('else' clause)

if ( expression ) {
    statement ;
    statement ;
    ...
    statement ;
}
else {
    statement ;
    statement ;
    ...
    statement ;
}
Selection

nesting

there is no elif keyword

if ( expression ) {
  ...
}
else if ( expression ) {
  ...
}
else if ( expression ) {
  ...
}
else {
  ...
}
JavaScript

on codenvy.io

To code along:

1. Create a workspace with 'node-default' stack

2. Create custom run command:

   cd ${current.project.path} && node hello.js

3. You should have only two workspaces (one for Python, one for JavaScript)

4. Organize your work using multiple projects within your workspace
Small group interactive exercise in Prof. Alphonce's sections

Define a function in JavaScript that takes a temperature as input and returns "cold" if the input is less than 65, "hot" if it is greater than 85, and "comfortable" otherwise.