Intro to Programming Final

December 13th 2012

For this test you can assume there is a `show` function. The `show` function displays a string on the page (just like the one from the homework assignments).

There are a total of 115 possible points on the test. Your grade will be out of 100 however, so there is possibility of earning up to 15 bonus points.

#1 (5 points)

Write an object called `me`. The `me` object should have three properties:

- `firstName` - Your first name

- `lastName` - Your last name

- `birthdate` - a `Date` object that holds your fictitious birthdate.

#2 (2 points)

Display the `firstName` and `lastName` properties of the `me` object with a space in between.

#3 (2 Points)

What are the two situations in which you have to use [] instead of the . operator to access a property of an object?

#4 (5 points)

For each data value below, write the type of the value (i.e. what you'd get if you used the `typeof` operator) and whether the value is truthy or falsey.

```
2.3
```

```
true
```

```
"false"
```

```
0
```

```
{title: "Introduction to Programming"}
```

#5 (5 points)

Write a while loop (or a do..while loop) that generates random numbers between 0 and 10 until you hit the number 7. Display the number of times that your code generated a random number before it hit 7.

#6 (2 points)

List two reasons why you might write part of your program as a function.

#7 (2 points)

List the two things that a `return` statement does.

#8 (10 points)

Write a function called `hasSameBirthdate`. It should:

- Accept two `Date` objects as parameters.

- Return `true` if both dates share the same month and date and `false` otherwise. The year doesn't matter.

#9 (10 points)

Given this html write the code to add the values of `#num1` and `#num2` and place the result in `#result`. The solution should place 2.8 in `#result`. You may use jQuery if you'd like. You don't need to worry about any event listeners here.

```
<input type="text" id="num1" value="1.5" />
<input type="text" id="num2" value="1.3" />

<h1>Result:</h1>

<p id="result"></p>
```

#10 (10 points)

Write a function called `countdown` that accepts a number and prints all of the numbers from that number down to zero, separated by commas and a space, all on one line. For example, `countdown(5)` should output `5, 4, 3, 2, 1, 0`. This function has a "side effect" (displaying the numbers) so it doesn't need to return a value. (*Do your work on the back of this page.*)

#11 (2 points)

What does the following Javascript code print?

```
function doSomething() {
    var name = "Intro to Programming";

}
doSomething();

show( name );
```

#12 (3 points)

What does the following Javascript code print?

```
var who = 'Creative Circus students';
var what = 'love robots!';
function evil_stuff() {

    var who = 'Zero Wing';

    what = 'All your base are belong to us!!!';

}

evil_stuff();

show( who );

show( what );
```

#13 (6 points)

Given a variable named `grades` that holds an array of numbers,
write Javascript code that displays all of the grades on one line,
separated by a comma and a space. Also calculate and display
the average of the grades.

#14 (10 points)

Using the below HTML, write an event listener that pops up an
alert with the text entered in #message whenever the form is
submitted.

```
<form method="get" action="/" id="myForm">
    <input type="text" id="message" value="" />
    <input type="submit" value="Add" id="myFormSubmit" />

</form>
```

(Use jQuery if you wish. Do your work on the back of this page.)

#15 (2 points)

What is the DRY principle? Why is it important?

#16 (15 points)

Write a function called `timeAgo`. It should accept a single `Date` object as a parameter and return a string according to the following rules:

- If the date was less than 60 seconds ago, return `"just now"`

- If the date was less than 60 minutes ago, return `"X minutes ago"`, filling in X with the amount of minutes ago the date was.

- If the date was less than 24 hours ago, return `"X hours ago"`, filling in X with the amount of hours ago the date was.

- If the date was more than 24 hours ago, return `"X days ago"`, filling in X with the amount of days ago the date was.

- If you can't figure this out, just do as much of it as you can. I'll give partial credit.

(Do your work on the back of this page.)

Complete the next four problems using the following "tweet" object:

```
var tweet = {

    "created_at": "Wed Dec 05 18:17:16 +0000 2012",

    "id": 276389793724784640,

    "text": "I'm pretty sure Genevieve needs this.
@kaiticarp https:\/\/t.co\/tLVoSbVY via @scoutmob",

    "user": {

        "id": 23104052,

        "name": "Brandon Carpenter",

        "screen_name": "bhcarpenter",

        "location": "Atlanta, GA",

        "statuses_count": 549

    },

    "coordinates": null,

    "retweet_count": 0,

    "geo": {

        "type": "Point",

        "coordinates": [

            33.80940075,

            -84.43679675

        ]

    }

};
```

#17 (3 points)

Write Javascript code that displays the latitude and longitude of the tweet on separate lines (latitude is the first entry in the `coordinates` array, longitude is the second).

#18 (5 points)

Create a `Date` object that represents the date and time that the tweet was posted, by calling the `Date` constructor with the tweet object's `created_at` property. Then display the result of calling the `timeAgo` function with this date object as a parameter.

#19 (10 points)

Create a function called `renderTweet`. It should:

- Accept a single parameter, an object with the same property names as the `tweet` object above.

- Return a string of HTML code that display's the tweet's text, the `screen_name` of the `user` who posted it, and how long ago the tweet was posted (using `timeAgo`) in whatever HTML format you want.

(Do your work on the back of this page.)

#20 (4 points)

Call the `renderTweet` function with the tweet object from above as a parameter. Take the result and display it in a div with an id of "tweets" (using jQuery if you wish). You don't have to write the HTML, just the Javascript that would do this.

#21 (2 Points)

Write a comment (either single line style, or multi-line style) that says what helped you most in understanding programming during this class.