

INFO / CSE 100
FINAL EXAM SOLUTIONS
March 19, 2009

1. (5 points) You have a PowerPoint file on your computer called `presentation.ppt`. You change the filename to `presentation.txt` and open the file in a text editor (NotePad in Windows; TextEdit on Macs). What will you see and why?

Data in files are just 1's and 0's. Bits have no inherent meaning. Different programs interpret the data in their own way. When you change the name of a file, the data in the file does not change. When you open a PowerPoint file in a text editor, you will see gibberish, because the text editor is trying to interpret the bits as text, but the data is in a format that is only understood by PowerPoint.

2. (5 points) Explain the general idea (not the specific details of transistors) of Moore's Law.

Technology is improving at a very rapid rate, specifically exponentially. Technological capability doubles roughly every 2 years.

3. (5 points) You are downloading a file onto your computer. Halfway through, the downloading suddenly aborts. Which is more likely: (a) your computer ran out of memory, or (b) your computer ran out of hard drive space? Why? (In your answer, explain the difference between memory and hard drive.)

Memory is for storing data needed by programs that are currently in use. If your computer crashes, anything in memory is lost. Hard drive is for long-term storage that survives after turning the computer off.

When you download a file, you are saving it to your computer for future use. The file you are downloading is not running. You are not using the file right then and there. So if the download suddenly stops, it's probably because you ran out of hard drive storage space.

If you thought that the file was stored in memory first before being saved to the hard drive, you would get 4 points. What if you wanted to download really big files that exceed your computer's memory?

If you assumed that too many programs were running and that's why the downloading stopped, you would not get full credit, because you made an extra assumption that was not in the problem statement.

4. (5 points) You want to find out which mountain has the grandest height in Europe. What would you type into Yahoo's search box?

For full credit, you wrote something like:

- tallest mountain Europe
- highest mountain Europe

We accepted quoted answers if they could reasonably be found in a phrase like:

- "Europe's highest mountain" (vs. "mountain highest Europe")

Answers that used "grandest" got partial credit, because no one refers to the tallest / highest mountain as one of "grandest height".

5. (5 points) State what the computer "knows" at every line after the line has been executed:

Computer knows

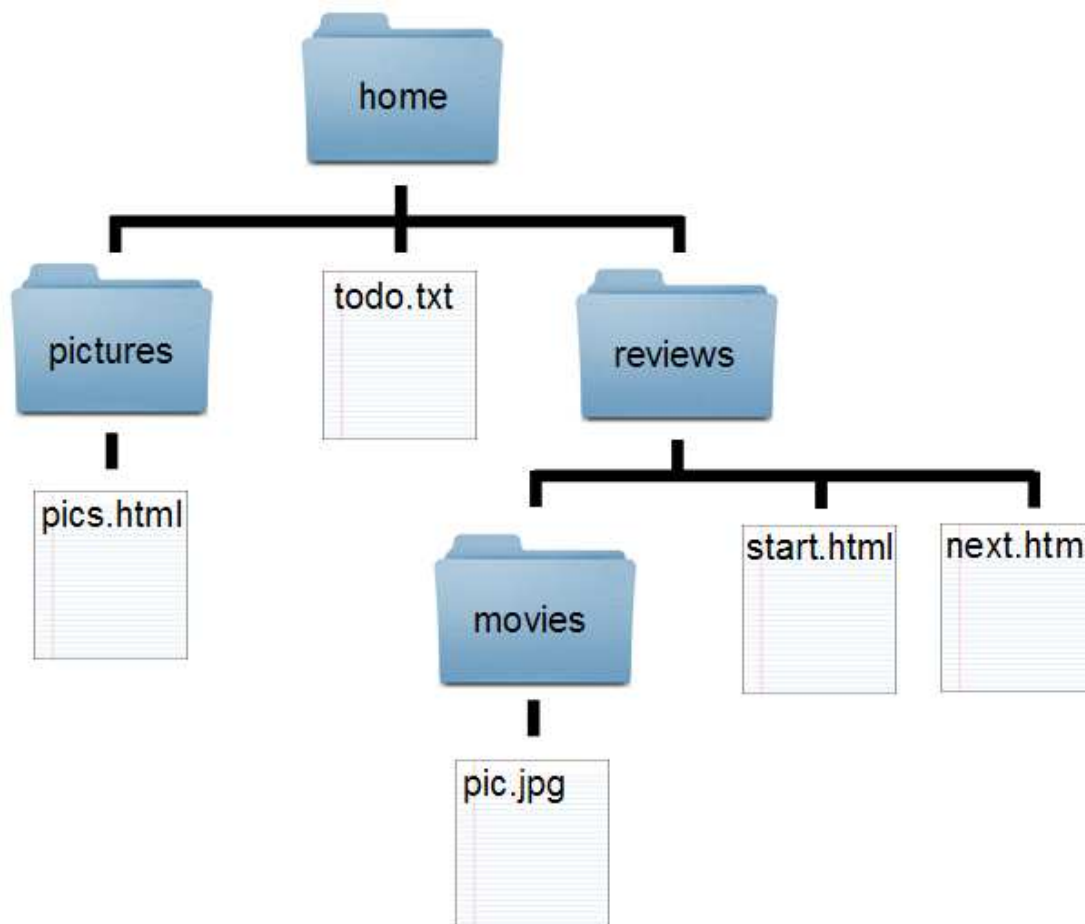
<code>var x = 1;</code>	<code>x = 1</code>
<code>var y = 2;</code>	<code>x = 1, y = 2</code>
<code>x = y;</code>	<code>x = 2, y = 2</code>
<code>y = 3;</code>	<code>x = 2, y = 3</code>

6. (5 points) What does having more memory on a computer allow you to do?

Having more memory lets you run more programs simultaneously. You can also run bigger programs that process more data faster.

7. (5 points) What are cookies? Where do they come from? What are they for?

Cookies are small chunks of text that you initially get from the web server of a web site that you visited. They are used by the server to keep track of your user information. Every time you revisit the web site, the web browser sends whatever cookies it got from the server back to it.



8. (10 points)

a) FROM `start.html`, you want to link TO `next.html`, fill in the blank:

In `start.html`:

```
<a href="next.html">
```

b) FROM `pics.html`, you want to show `pic.jpg`, fill in the blank:

In `pics.html`:

```

```

c) FROM `next.html`, you want to link TO `todo.txt`, fill in the blank:

In `next.html`:

```
<a href="../../todo.txt">
```

Exam Problem Page - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Things to do today:

- Take this exam.
- Take a nap.
- Party *until dawn!*

Go to [MyUW](#)



Done

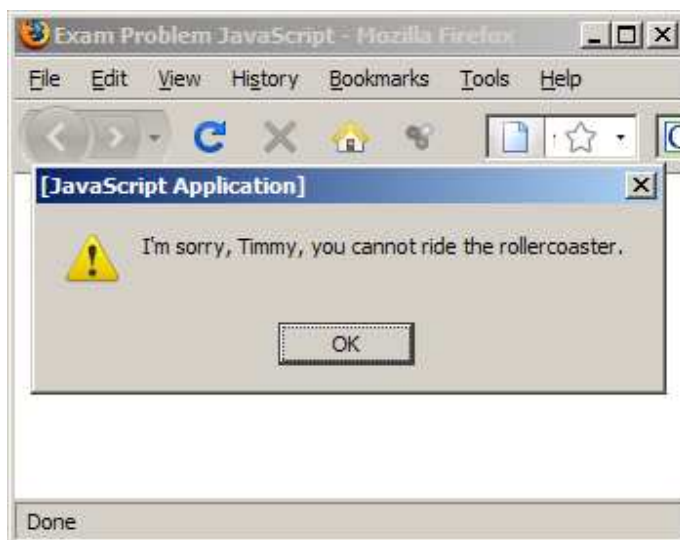
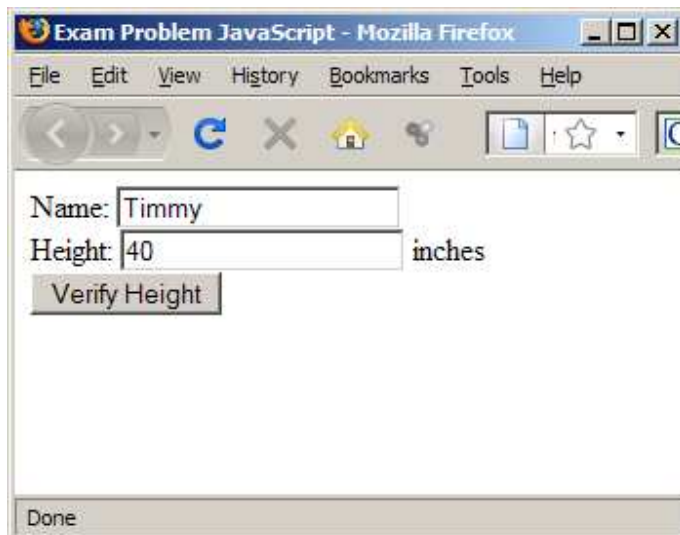
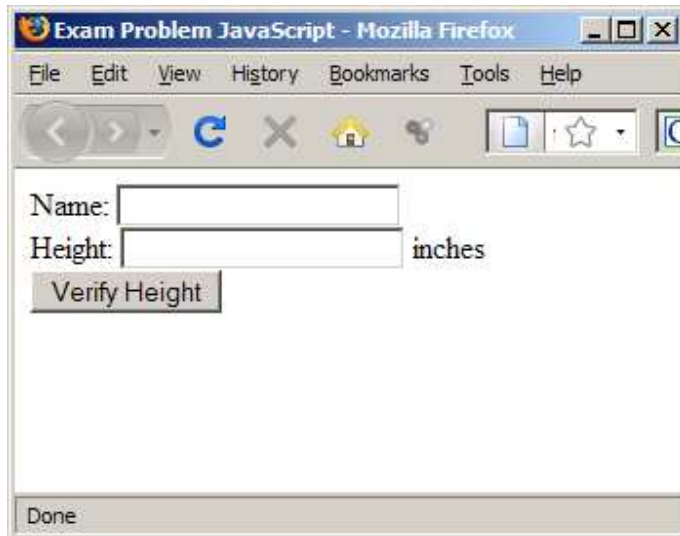
The image shows a screenshot of a Mozilla Firefox browser window. The title bar reads "Exam Problem Page - Mozilla Firefox". The menu bar includes "File", "Edit", "View", "History", "Bookmarks", "Tools", and "Help". The address bar contains navigation icons (back, forward, refresh, home, stop) and a search icon. The main content area displays the heading "Things to do today:" followed by a bulleted list: "Take this exam.", "Take a nap.", and "Party *until dawn!*". Below the list is a blue hyperlink "Go to MyUW". A large image of Cookie Monster, a blue furry Muppet character with large eyes and a wide open mouth, is shown eating a cookie. The status bar at the bottom of the browser window displays the word "Done".

9. (15 points) For the web page displayed on the previous page, finish the HTML below. Assume that the picture of Cookie Monster (the furry creature in the picture, for those not in the know) is in the same directory in a file called `cookie_monster.jpg`. The link goes to `http://myuw.washington.edu`. The HTML you write does NOT have to conform to the XHTML 1.0 Strict standard. However, your HTML should be indented properly and all tags must be closed properly.

```
<html>
  <head>
    <title>Exam Problem Page</title>
  </head>

  <body>
    <h1>Things to do today:</h1>
    <ul>
      <li>Take this exam.</li>
      <li>Take a nap.</li>
      <li>Party <em>until dawn</em>!</li>
    </ul>
    <div>
      Go to
      <a href="http://myuw.washington.edu">MyUW</a>
      <br />
      
    </div>
  </body>
</html>
```

As we did not require your HTML to conform to the XHTML 1.0 Strict standard, the `<div>` element is unnecessary. Almost everyone used `<p>` or nothing at all. One odd mistake was some people swapped `` with ``. That only cost 2 points.



10. (20 points) The previous page shows a web page that asks for a user's name and height (in inches). After the "Verify Height" button is clicked, if the given height is 48 or more, then the message "<name>, enjoy the ride!" will appear; otherwise, the message will be "I'm sorry, <name>, you cannot ride the rollercoaster." where <name> is the name the user entered.

You may have the message appear in an alert box (as pictured on the previous page) OR in the space below the button on the web page itself (similar to the lab with the movie tickets). Do whichever is easiest for you.

Finish the HTML and JavaScript below and on the back of this page. Use proper indentation in both files. In the JavaScript file, use meaningful variable names.

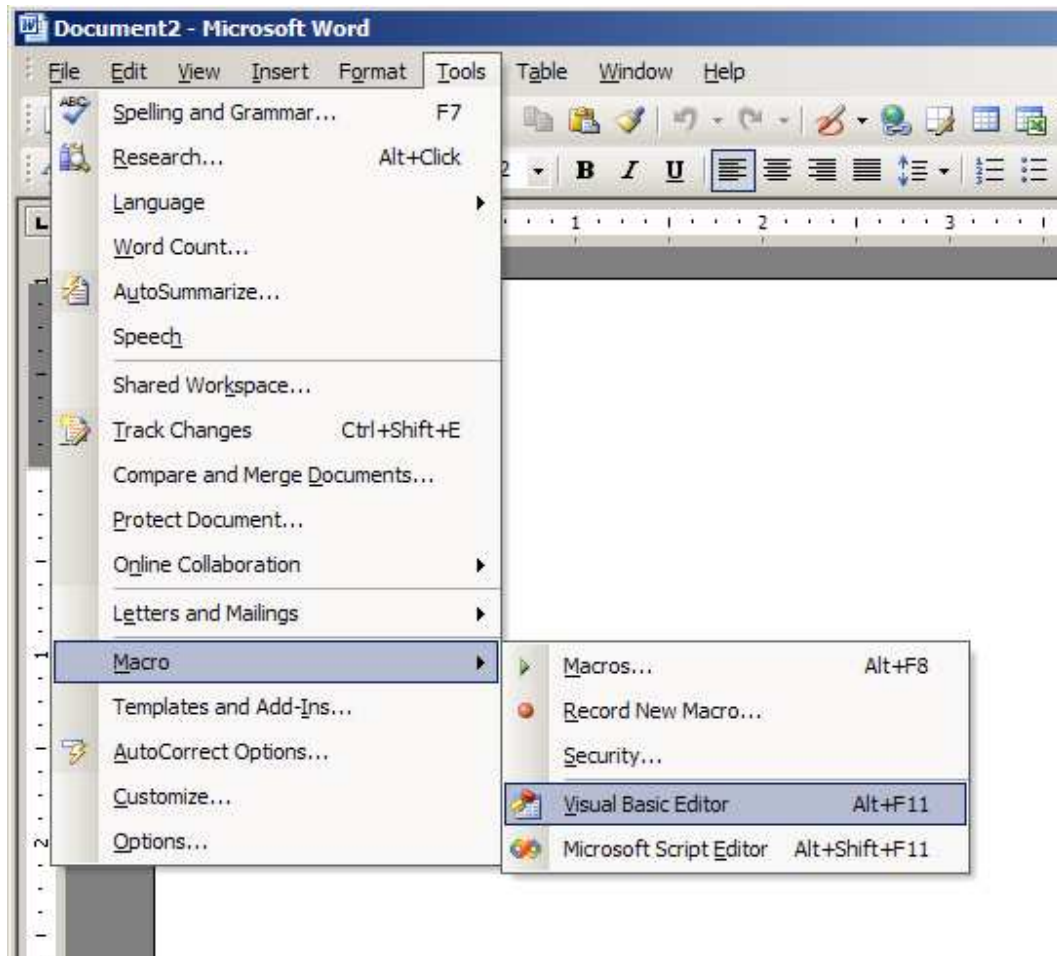
HTML:

```
<html>
  <head>
    <title>Exam Problem JavaScript</title>
    <script src="example2.js" type="text/javascript">
    </script>
  </head>

  <body>
    Name: <input type="text" id="name" /><br />
    Height: <input type="text" id="height" /> inches<br />
    <input type="button" value="Verify Height"
    onclick="verify();" />
  </body>
</html>
```

JavaScript:

```
function verify() {
  var name = document.getElementById("name").value;
  var height = document.getElementById("height").value;
  if (height >= 48) {
    alert(name + ", enjoy the ride!");
  } else {
    alert("I'm sorry, " + name +
      ", you cannot ride the rollercoaster.");
  }
}
```



11. (5 points) The menu option “Visual Basic Editor” is highlighted in the above picture.

- a) Starting with all menus closed, how would you access that menu option using only mnemonics (the underlined letters)?

Alt-T, M, V

- b) Starting with all menus closed, how else can you access that menu item without using the mouse?

Alt+F11

Table Name: People

ID	UserName	Occupation	Age
2	Alice	Teacher	27
3	Bob	Student	20
4	Cynthia	Student	19
5	Dan	Secretary	36
6	Eve	Manager	48
7	Fred	Waiter	16
8	Gina	Student	27

Table Name: Jobs

ID	HasWorkedFor	PersonID
2	Costco	2
3	Gap	6
4	Gap	5
5	Comcast	6
6	WSU	8
7	QFC	5
8	Safeway	6
9	Gap	2
10	Costco	4
11	Microsoft	8
12	UW	6
13	UW	8
14	Google	3
15	QFC	8
16	Costco	6
17	Starbucks	2
18	Starbucks	7
19	Starbucks	3
20	Tully's	4
21	Safeway	7
22	QFC	3

12. (15 points) The previous page shows two tables in some database: *People* and *Jobs*. The *Jobs* table lists the companies that the people in the *People* table have worked for at some point in time.

- a) Write a query to answer “What are the names of the people who are students and what are their ages?” Running your query should give you the following:

UserName	Age
Bob	20
Cynthia	19
Gina	27

```
SELECT UserName, Age
FROM People
WHERE Occupation = 'Student'
```

- b) Write a query to answer “Where has everyone worked?” Running your query should give you the following:

UserName	HasWorkedFor
Alice	Costco
Alice	Gap
Alice	Starbucks
Bob	Google
Bob	Starbucks
Bob	QFC
Cynthia	Costco
Cynthia	Tully's
Dan	Gap
Dan	QFC
Eve	Gap
Eve	Comcast
Eve	Safeway
Eve	UW
Eve	Costco
Fred	Starbucks
Fred	Safeway
Gina	WSU
Gina	Microsoft
Gina	UW
Gina	QFC

```
SELECT UserName, HasWorkedFor
FROM People INNER JOIN Jobs
ON People.ID = Jobs.PersonID
```

- c) Write a query to answer “Where has Eve worked?” You must use a join. Running your query should give you the following:

HasWorkedFor ▾
Gap
Comcast
Safeway
UW
Costco

```
SELECT HasWorkedFor
FROM People INNER JOIN Jobs
ON People.ID = Jobs.PersonID
WHERE UserName = 'Eve'
```