

## MIDTERM I

1. http is the protocol. [www.dartmouth.edu](http://www.dartmouth.edu) is the host. ~maps/directions/ is the path and car.html is the file.
2. `<strong>` lets the browser decide how to emphasize the text logically; on the other hand, `<b>` is simply boldface. The former is more of a logical construct, while the latter is more of a visual effect. I would prefer using the tag `<strong>`. It simplifies the job of content producer and the stylesheet designer, as this provides an abstraction so that they only need to be concerned about their own job.
3. `<a href="#Music">Music </a> | <a href="#Movies">Movies</a>`  
`<h1> <a name = "Music"> Music </a> </h1>`  
`<h1> <a name = "Movies"> Moviews </a> </h1>`
4. `<style type = "text/css">`  
`li.r { color:red;}`  
`<ul>`  
`<li class = "r" >Change me </li>`  
`<li class = "r" >Change me </li>`  
`<li >Do not change me </li>`
5. `<h1>` is not allowed in head  
`<li/>` is not a valid closing tag  
`<ul>` does not have an end tag  
`<strong>` is not closed  
`<strong>` will be taken as a really "`<strong>` tag" (it will not appear correctly as text)
6.

Day	Topic	Reading
Today	Midterm	
7. An algorithm is an ordered collection of unambiguous and effectively computable operations that, when followed produces an observable result, and completes (halts) in a finite amount of time.
8. We should use binary search when the array is already sorted. . The nice thing about binary search is that it saves a lot of computing time. It only needs roughly  $\log n$  comparisons (compared to the possibly  $n$  comparisons in the sequential search).
9. The algorithm returns the number of elements in A smaller than the variable v
10. The while loop may run forever. (Observe carefully what happens when the "if" statement is true?)
11. The single equal sign means "assignment"; the double equal sign means "comparison" (usually used in the conditional statements). They are logically different, so we use different notation to make things clear.

12. The first line assigns a numerical value to the variable v1; while the second line assigns a string "2" to the variable v2. The third line is OK. It is a legitimate arithmetic operation, while the last line is wrong. You cannot "divide" a string.
13. 

```
var music;
if (age > 70)
    music = "Tango";
else if (age > 30)
    music = "Rock";
else
    music = "pop";
```
14. 

```
for (i=0; i < A.length; i +=1) {
    if (A[i] < 0 ) {
        A[i] = A[i] * (-1);
    }
}
```
- 15.
- Round 1: ret = 0, counter = 0, stop = false, A[counter]=1
  - Round 2: ret = 0, counter = 1, stop = false, A[counter]=3
  - Round 3: ret = 0, counter = 2, stop = false, A[counter]=4
  - Round 4: ret = 1, counter = 3, stop = false, A[counter] = 6
  - Round 5: ret = 2, counter = 4, stop = false, A[counter] = 10
  - Round 6: ret = 2, counter = 4, stop = true, A[counter] = 10

This function counts how many even numbers are smaller than or equal to v in the given array A.