

Hand in a printed, stapled copy with your answers.

Homework: /SI110/The Cyber Battlefield/Programming Part 3

For this assignment you are expected and encouraged to make use of:

<http://rona.cs.usna.edu/~si110/resources/interpreter.html> the line-at-a-time Javascript interpreter

<http://rona.cs.usna.edu/~si110/resources/batchInterpreter.html> the batch Javascript interpreter

1. The link below pulls up a program in the batch interpreter. Assume that this is the actual code used by a simple ATM that allows you to withdraw money from your bank account. Find some input that breaks this program! I.e. that makes it behave incorrectly.

<http://rona.cs.usna.edu/~si110/lec/l07/hw/bankHW.html>

- a. What input did you enter to break the program?

- b. What incorrect program behavior resulted from that input?

- c. What would have to change in the code to fix this problem?

2. Consider the following program that displays a message:

```
alert( "I think Santa is real" );
```

Show how to modify it as follows: Collect two numbers from the user between 1 and 20. Have the program tell (output) the secret only if the two numbers are 7 and 13.

You must actually try your modifications in the batch interpreter (URL above)!

- Check one: I didn't try in interpreter
 I tried in the interpreter and it didn't work right
 I tried in the interpreter and it worked right

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3. Consider the following program:

```
var a = prompt("enter a");
var res;
if (a < 5)
{
  if (a > 1)
  {
    res = 'cat';
  }
  else
  {
    res = 'dog';
  }
}
else
{
  res = 'dog';
}
alert(res);
```

- a. What is the output when the user enters
- i. 7
 - ii. 4
 - iii. -3
 - iv. 5
 - v. 1

b. Which of the following programs is equivalent to the above program? (circle it!)

```
var a = prompt("enter a");
var res;
if (a < 5 && a > 1)
{
  res = 'cat';
}
else
{
  res = 'dog';
}
alert(res);
```

```
var a = prompt("enter a");
var res;
if (a > 5 || a < 10)
{
  res = 'cat';
}
else
{
  res = 'dog';
}
alert(res);
```

```
var a = prompt("enter a");
var res;
if (a > 5 ! a < 10)
{
  res = 'cat';
}
else
{
  res = 'dog';
}
alert(res);
```

4. You have a list of all 50 states in alphabetical order. You number the list, and use the numbers to refer to each state. Fill in the "if" condition below so that the program works properly. Make sure you account for all invalid inputs. Your condition should make this program behave properly NO MATTER WHAT THE USER ENTERS! That takes some thinking! You must actually try your modified version in the batch interpreter (URL above).

```
var state = prompt("Enter state number");
```

```
if ( _____ )
{
  alert(state + " is a valid state number");
}
else
{
  alert(state + " is an invalid state number");
}
```

- Check one: I didn't try in interpreter
 I tried in the interpreter and it didn't work right
 I tried in the interpreter and it worked right