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Homework: /SI110/The Cyber Battlefield/Programs 4

0. The URL <http://rona.cs.usna.edu/~si110/lec/108/hw/number.html> pulls up the following program in the batch interpreter. Experiment with it a bit.

```
var input1 = prompt("Enter a number between 0 and 10.");
var n = Number(input1);

while(input1 == "" || isNaN(n) || n < 0 || n > 10)
{
  input1 = prompt("Try again! Enter a number between 0 and 10.");
  n = Number(input1);
}

alert("You entered the number: " + n + ", like we asked.");
```

- a. Suppose the user enters -12 and presses the OK button. 10/6/6/0
 Circle and mark with an A the condition that detects that this input is bad.
- b. Suppose the user enters USMA and presses the OK button. 10/6/6/0
 Circle and mark with a B the condition that detects that this input is bad.
- c. Suppose the user enters nothing and simply presses the OK button. 10/6/6/0
 Circle and mark with a C the condition that detects that this input is bad.
- d. Suppose the user enters 42 and simply presses the OK button. 10/6/6/0
 Circle and mark with a D the condition that detects that this input is bad.
- e. What can you as a user can do to trick this program into thinking you entered a 10/6/6/0
 number between 0 and 10 without actually having typed in a number between 0 and 10?
 This may take some trial-and-error and playing around with the program!

1. We have two different versions of a website that uses Javascript to protect a really important secret with a pin number. Below we give links to the two versions, and for each we show the snippet of Javascript code that gets the pin from the user and checks it. The only difference is the call to **eval()** in the second version (sensitive2).

<http://rona.cs.usna.edu/~si110/lec/108/hw/sensitive1.html> a. What is the secret? 5/0/0/0

```
var tmp = prompt("Enter pin number");
if (tmp == spin)
{
  -- CODE THAT SHOWS THE SECRET --
}
```

b. Which version did you trick to find out the above, and how did you do it? 5/4/3/0

<http://rona.cs.usna.edu/~si110/lec/108/hw/sensitive2.html>

```
var tmp = eval(prompt("Enter pin number"));
if (tmp == spin)
{
  -- CODE THAT SHOWS THE SECRET --
}
```

c. What is the pin? 5/0/0/0
NOTE: This a bit trickier!

2. How many coin flips would I have to make to get 20 heads? I'd expect it to take about 40, but the exact number would be up to chance, sometimes taking more than 40, sometimes less. The program below simulates the process of continually flipping a coin until 20 heads have appeared, and then it reports the number of flips made. **Show how to modify the program so that the target number of heads is input by the user, rather than fixed at 20.** You must test your changes in the batch interpreter. To help make that easy, the following link automatically pulls up the code below in the batch interpreter:

<http://rona.cs.usna.edu/~si110/lec/108/hw/flipsHW.html>

15/12/8/0

```
var numFlips = 0;
var numHeads = 0;
while(numHeads < 20)
{
  if (Math.random() < 0.5)
  {
    numHeads = numHeads + 1;
  }
  numFlips = numFlips + 1;
}
alert("It took " + numFlips + " coin tosses to get 20 heads!");
```

2. Check one:

- I did not test my answer to Question #2 in the batch interpreter.
- I tested my answer to Question #2 in the batch interpreter: it did not work.
- I tested my answer to Question #2 in the batch interpreter: it worked.

10/6/0/0

3. Explain why replacing the line **while(numHeads < 20)** with the line

while(numHeads < prompt("enter target number of heads"))

10/8/6/0

would not be a good way to do Question 1 (Hint: Try it in the batch interpreter!).