## L3 PROBLEM 9 (5 points possible)

In this problem, you'll create a program that guesses a secret number!

The program works as follows: you (the user) thinks of an integer between 0 (inclusive) and 100 (not inclusive). The computer makes guesses, and you give it input - is its guess too high or too low? Using bisection search, the computer will guess the user's secret number!

Here is a transcript of an example session:

```
Please think of a number between 0 and 100!
Is your secret number 50?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. l
Is your secret number 75?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. l
Is your secret number 87?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. h
Is your secret number 81?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. l
Is your secret number 84?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. h
Is your secret number 82?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. l
Is your secret number 83?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. c
Game over. Your secret number was: 83
```

Your program should use bisection search. So think carefully what that means. What will the first guess always be? How should you calculate subsequent guesses?

Hint: Endpoints

Python Trick: Printing on the same line

**Test Cases to Test Your Code With. Be sure to test these on your own machine - and that you get the same output! - before running your code on this webpage!**

Click to See Test Cases

Test case 1. Secret guess = 42

```
Please think of a number between 0 and 100!
Is your secret number 50?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. h
Is your secret number 25?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 37?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 43?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. h
Is your secret number 40?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 41?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 42?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. c
Game over. Your secret number was: 42
```

Test case 2. Secret guess = 91

```
Please think of a number between 0 and 100!
Is your secret number 50?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 75?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 87?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 93?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. h
Is your secret number 90?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. l
Is your secret number 91?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. y
Sorry, I did not understand your input.
Is your secret number 91?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c'
to indicate I guessed correctly. c
Game over. Your secret number was: 91
```

**Note:** your program should be using `raw_input` to obtain the user's input! Be sure to handle the case when the user's input is not one of `h`, `l`, or `c`.

When the user enters something invalid, you should print out a message to the user explaining you did not understand their input. Then, you should re-ask the question, and prompt again for input. For example:

```
Is your secret number 91?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. y
Sorry, I did not understand your input.
Is your secret number 91?
Enter 'h' to indicate the guess is too high. Enter 'l' to indicate the guess is too low. Enter 'c' to
indicate I guessed correctly. c
```

```
1 # Paste your code into this box
2
```

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