

Outline for June 4, 2007

1. Greetings and felicitations!
2. Building a program: how to guess a number between 1 and 100
 - a. One guess
 - i. Ask user if she is thinking of a number between 1 and 100
 - ii. Guess the midpoint of this interval; if correct, stop
 - iii. If this guess is not right, ask if the number is more; if it is in which case look in 51 to 100
 - iv. Otherwise, number is less, so look in 1 to 49
 - v. Keep repeating ii, iii, and iv until you guess the number
 - b. Many guesses
 - i. Create an outer loop asking the user if she is thinking of a number
 - ii. If yes, do what's in (a), above
 - iii. Continue looping until user says to quit

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#
# Computer guesses a number
#
print "Please pick a number between 1 and 100. I will try to guess it."
print "Please answer 'yes' or 'no' when asked a question; if your answer is not 'yes',"
print "I will assume you mean 'no'! Also, if you're on, you will confuse me."
print ""
while raw_input("Are you thinking of a number between 1 and 100 (yes/no)? ") == "yes":
    #
    # outer loop: initialize counter, high, low and computer first guess
    #
    count = 0
    low = 1
    high = 100
    guess = (high - low) / 2 + low
    #
    # construct prompt
    #
    ask = "Is your number " + str(guess) + "? "
    #
    # ask if guess is right; enter inner loop if not
    #
    while raw_input(ask) == "no":
        #
        # inner loop
        #
        # ask whether guess was too high or too low, and adjust next guess appropriately
        #
        if raw_input("Is your number more than that (yes/no)? ") == "yes" :
            low = guess + 1
        else :
            high = guess - 1
        #
        # compute next guess
        #
        guess = (high - low) / 2 + low
        #
        # construct prompt to ask if guess is right
        #
        count = count + 1
        ask = "Is your number " + str(guess) + "? "
    #
    # back to outer loop
    # announce how long it took to guess the number, and tell user how to quit
    #
    print "Aha! Got it in", count, "guesses!"
    print "If you want to quit, just say no to the next question"
#
# say goodbye
#
print "Goodbye!"
```