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FAST DRAW



This program tests your reaction speed: press **ENTER** as soon as you see the word **DRAW**. But careful, though. Press it before **DRAW** appears, and you lose. Are you the fastest keyboard in the west?

The Program in Action

When you run *fastdraw.py*, the output will look like this:

```
Fast Draw, by Al Sweigart al@inventwithpython.com
```

```
Time to test your reflexes and see if you are the fastest
draw in the west!
When you see "DRAW", you have 0.3 seconds to press Enter.
But you lose if you press Enter before "DRAW" appears.
```

```
Press Enter to begin...
```

```
It is high noon...
DRAW!
```

```
You took 0.3485 seconds to draw. Too slow!
Enter QUIT to stop, or press Enter to play again.
> quit
Thanks for playing!
```

How It Works

The `input()` function pauses the program while waiting for the user to enter a string. This simple behavior means that we can't create real-time games with just `input()`. However, your programs will *buffer* keyboard input, meaning that if you pressed the C, A, and T keys before `input()` is called, those characters will be saved, and they'll appear immediately once `input()` executes.

By recording the time just before the `input()` call on line 22 and the time just after the `input()` call on line 24, we can determine how long the player took to press ENTER. However, if they pressed ENTER before `input()` was called, the buffered ENTER press causes `input()` to return immediately (usually in about 3 milliseconds). This is why line 26 checks if the time was less than 0.01 seconds, or 10 milliseconds, to determine that the player pressed ENTER too soon.

1. `"""Fast Draw, by Al Sweigart al@inventwithpython.com`
2. `Test your reflexes to see if you're the fastest draw in the west.`
3. `View this code at https://nostarch.com/big-book-small-python-projects`
4. `Tags: tiny, beginner, game"""`
5.
6. `import random, sys, time`
7.
8. `print('Fast Draw, by Al Sweigart al@inventwithpython.com')`
9. `print()`
10. `print('Time to test your reflexes and see if you are the fastest')`
11. `print('draw in the west!')`
12. `print('When you see "DRAW", you have 0.3 seconds to press Enter.')`
13. `print('But you lose if you press Enter before "DRAW" appears.')`
14. `print()`
15. `input('Press Enter to begin...')`

```

16.
17. while True:
18.     print()
19.     print('It is high noon...')
20.     time.sleep(random.randint(20, 50) / 10.0)
21.     print('DRAW!')
22.     drawTime = time.time()
23.     input() # This function call doesn't return until Enter is pressed.
24.     timeElapsed = time.time() - drawTime
25.
26.     if timeElapsed < 0.01:
27.         # If the player pressed Enter before DRAW! appeared, the input()
28.         # call returns almost instantly.
29.         print('You drew before "DRAW" appeared! You lose.')
30.     elif timeElapsed > 0.3:
31.         timeElapsed = round(timeElapsed, 4)
32.         print('You took', timeElapsed, 'seconds to draw. Too slow!')
33.     else:
34.         timeElapsed = round(timeElapsed, 4)
35.         print('You took', timeElapsed, 'seconds to draw.')
36.         print('You are the fastest draw in the west! You win!')
37.
38.     print('Enter QUIT to stop, or press Enter to play again.')
39.     response = input('> ').upper()
40.     if response == 'QUIT':
41.         print('Thanks for playing!')
42.         sys.exit()

```

Exploring the Program

Try to find the answers to the following questions. Experiment with some modifications to the code and rerun the program to see what effect the changes have.

1. What happens if you change `drawTime = time.time()` on line 22 to `drawTime = 0`?
2. What happens if you change `timeElapsed > 0.3` on line 30 to `timeElapsed < 0.3`?
3. What happens if you change `time.time() - drawTime` on line 24 to `time.time() + drawTime`?
4. What happens if you delete or comment out `input('Press Enter to begin...')` on line 15?