GUESS THE NUMBER

Below is the python code for a "Guess the number" game, extracted from a very good book, *Invent Your Own Computer Games with Python* from Al Sweigart[1]. Please download the code and test it.

```python
1   # This is a Guess the Number game.
2   import random
3
4   guessesTaken = 0
5
6   print('Hello! What is your name?')
7   myName = input()
8
9   number = random.randint(1, 20)
10  print('Well, ' + myName + ', I am thinking of a number between 1 and 20.')
11
12  for guessesTaken in range(6):
13      print('Take a guess.') # Four spaces for one level of indentation
14      guess = input()
15      guess = int(guess)
16
17      if guess < number:
18          print('Your guess is too low.') # Eight spaces for two levels of
                indentation
19
20      if guess > number:
21          print('Your guess is too high.')
22
23      if guess == number:
24          break
25
26  if guess == number:
27      guessesTaken = str(guessesTaken + 1)
28      print('Good job, ' + myName + '! You guessed my number in ' +
            guessesTaken + ' guesses!')
29
30  if guess != number:
31      number = str(number)
32      print('Too bad! The number I was thinking of was ' + number + '.')
```

Listing 1: Sample implementation of the "Guess the number" game. Download it at: http://www.barsamian.am/2023-2024/S6ICTA/TP4_Guess_the_number.py

1. What is the purpose of the # sign?

2. What is `input()` doing?

3. Explain the error you get if you remove the 2nd line `import random` (and put this line back!)

4. How many tries do you get in maximum before the programs stops?

5. What are the values taken by the variable `guessesTaken` across time? Why do you need to print `guessesTaken + 1` on line 27, and not just `guessesTaken`?

6. What happens if you don't type an integer when you're asked to give a number?

If you're already familiar with programming... try other questions at the back. Those additional questions are independent, if you don't see how to do one, please try others!

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[1]See https://inventwithpython.com/invent4thed/ if you're interested

7. How to change the code so that the program does not crash when you give something that is not an integer when you're asked to guess a number?

8. How to change the code so that you don't have a limit to your number of tries?

9. How to change the code so that you're given a message when you are giving a number that you already tried?

10. How to change the code so that you're given a message when your guess is inconsistent with the last indication given by the computer? (e.g. if you give a number below 1 or above 20 ; if you try a number, the computer tells you that it's more, but you still test a lesser number...)