Guess the Number

Difficulty: Easy

This exercise uses the concepts of printing, input and loops. It introduces using functions in other modules (the “random” module).

# Introduction

We’re going to implement a very simple game in Python: “Guess the Number”. The program is going to “think” of a number and the user must guess what that number is.

At the end of the first task, the program will end when the user successfully guesses the number. The later tasks add more features to your program.

# Task 1: Create the Basic Program

Create a Python program called GuessTheNumber.py.

Think about the things you’ll need to do in your program and what Python features you’re going to need to achieve them. You program will need to:

1. Pick a number that the user will guess and *remember* it in a variable.
2. Collect *input* from the user to take a guess at the *number*, remembering to convert the input string to a number.
3. *Compare* the guess with the number then print a success message *if* they guessed right, *else* print a failure message telling they guessed wrong.
4. *While* the user hasn’t guessed correctly, repeat steps 2 and 3.

Create your program and test it out.

# Task 2: Pick a number at random

People can cheat your game by looking at the Python source code to see what number you selected. Let’s stop them (and you!) from doing that by using a new function to generate a *random* number. Also, once you’ve played the game once, you know the number so there’s no point playing more than once!

Picking a number at random means that we want the program to select the number to guess rather than us hard coding it.

1. To generate a random number, you’ll need to *import* a module called random, like this:

import random

A module in Python is a way of grouping together common functions. There’s millions of functions out there that do everything on a computer you could imagine, modules provide a way of bundling them together in to logical, re-usable groups of functions.

So import random is saying to Python “Go get my all the functions related to creating random numbers, strings and everything else, and make them available to my program.”

1. To create a random number, we’re going to use the randint function of the random module. randint takes two parameters: the lowest and highest numbers that can be generated.
2. Change your program so that it selects a random number to guess each time the program is run.

# Task 3: Only allow 5 guesses at the number

Let’s make the user think carefully about their guesses by only allowing them 5 (or as many as you want) attempts to guess the number before the game ends. Change your program so that it:

1. Remembers the number of guesses that the user has made.
2. Ends when the number of guesses exceeds 5 with a message saying “Sorry, you took too many tries, but the right number was…”
3. Change the message printed when the user wins to tell them how many attempts they took to correctly guess the number.

# Task 4: Give the user better clues

Instead of just telling the user that the number is “higher” or “lower”, tell them it’s “much higher” or “much lower” if a guess is more than 5 away.