



## Python – Random, If & Functions



Remember, save each program with the task number.

### Task 25

Start a new program at this point. To get our squares to be random colours, you need to use the **random** function. We will generate a random number, and then assign each number a colour. This is done for a simple case below (lines starting with a # are comments for humans to read – they are ignored in Python):

```
import random
import turtle

colnum = random.randint(1, 2)
#colnum will contain either a 1 or a 2

if colnum == 1:
    pc = "Red"
elif colnum == 2:
    pc = "Blue"
# == means 'is the same as'
# = means 'becomes equal to'

turtle.pencolor(pc)
for i in range(4):
    turtle.forward(50)
    turtle.right(90)
```

Create the program above and run it to check that it works. (Have you worked out what it should do?)

### Task 26

Extend the program above so that the pen colour is one of 5 colours of your choice – run it to check it works.

### Task 27

We will need to run the code that chooses the colours many times in our program, so we will create a function to do this. (This is similar to subroutines you created last lesson.)

The function will:

- Get a random number
- Get the colour that corresponds to that random number
- Send that colour back to the main program (uses the **return** command)

```
import random
import turtle

def getcolour():
    colnum = random.randint(1, 2)
    if colnum == 1:
        colour = "Red"
    elif colnum == 2:
        colour = "Blue"
    return colour

pc = getcolour()
turtle.pencolor(pc)
for i in range(4):
    turtle.forward(50)
    turtle.right(90)
```

Create the program above and run it to check that it works. (Your version might have the 5 colours you used in Task 26.)

## Task 28

Extend the above program so that it now also fills the square with a random colour. You should be able to do this by adding 4 lines of code. (You might need to check back at one of your earlier programs that filled a shape.)

## Task 29

Add the **getcolour()** function to your program from last week – copy and paste it in. You should now be able to get your row of squares to be drawn in a range of colours. Change your program so that:

- The pen colour is a random colour
- The fill colour is a random colour

If you have not managed it already, extend your program so that it draws a 10 x 10 grid of colours squares – see tasks 22 and 23.

## Task 30

The next (final?) stage is to work out how to get the grid of shapes to be random shapes rather than just squares. There is more than one way to do this – how might you do it?