



Micro Python

Hogwarts Sorting Hat

04

- Create a program which sorts users into Gryffindor, Hufflepuff, Ravenclaw or Slytherin
- Which House will you be in?



10 mins

1. Overview

As all good wizards and witches know, there are four Houses at *Hogwarts School of Witchcraft and Wizardry*.

You will write a program which will randomly select a House when you press the "A" button on the micro:bit.

Go to www.microbit.org/code

Scroll down to *Python Editor* and click the orange *Let's Code* button beneath it.

The code editor will open.

2. How our variables will work

We need to create two variables: *randomNumber* and *houses*. Initially, we set *randomNumber* to store a zero. It will eventually store a random number which will be generated when we press button A.

Houses is a type of variable called a list. A list can contain many items. We use square brackets to contain them. Our list will contain each of the four Hogwarts house names, separated by commas.

3. Beginning the code

Before adding the random number generator, let's have an experiment with using lists. Enter the code below:

This is our list. A list contains many different items, separated by commas. Be careful of your indents

Displays the item stored in position two of the houses list.

```
from microbit import *  
  
houses = ["Gryffindor",  
         "Hufflepuff",  
         "Ravenclaw",  
         "Slytherin"]  
  
display.scroll(str(houses[2]))
```

Your micro:bit will display "Ravenclaw". Experiment with different numbers, including zero, before moving on. This will help you to understand how to use lists.

4. Adding the random number generator

It wouldn't be much fun if the micro:bit always sorted us into Ravenclaw! We need to have a random selection. This is done by randomly selecting a number, which is then used as the position of the list item.

To allow the micro:bit to generate a random number, we need to import a new library called *random*.

To generate a random number, a library called *random* must be imported

Create a variable in which to store our random number

Picks a random number between zero and three, and stores it in *randomNumber*. The number will relate to items in the list. The first item in a list is always position zero

```
from microbit import *
import random

randomNumber = 0

houses = ["Gryffindor",
          "Hufflepuff",
          "Ravenclaw",
          "Slytherin"]

display.scroll("Press button A to be sorted into
your house")

while True:
    if button_a.is_pressed():
        randomNumber = random.randint(0,3)
        display.scroll(str(houses[randomNumber]))
```

Displays the item stored in the *houses* list at position *randomNumber*. So, if *randomNumber* contains the number 2, the item stored at position two will be shown (which is Ravenclaw)