Micro:bit Simon Says Game

In this activity, you will create a Simon Says game on the micro:bit. The micro:bit will describe a random pattern that the player reproduces using the micro:bit's buttons.

Import the random library, set variables to zero and create empty arrays to store the patterns

Use selection inside a conditional while loop to create random patterns and to play the game

Use selection and iteration to compare the contents of the arrays

```python
1   # Imports go at the top
2   from microbit import *
3   import random
4   microGo = []
5   playerGo = []
6   guessCount = 0
7   guessCorrect = 0
8   randomNum = 0
9
10  # Code in a 'while True:' loop repeats forever
11  while True:
12      #If A is pressed, collect 1 and add to playerGo array
13      if button_a.was_pressed():
14          display.scroll('1')
15          playerGo.append(1)
16          #Increase guessCount variable
17          guessCount = guessCount + 1
18      #If B is pressed, collect 2 and add to playerGo array
19      elif button_b.was_pressed():
20          display.scroll('2')
21          playerGo.append(2)
22          #Increase guessCount variable
23          guessCount = guessCount + 1
24      #If A+B is pressed, collect 3 and add to playerGo array
25      elif button_a.is_pressed() and button_b.is_pressed():
26          display.scroll('3')
27          playerGo.append(3)
28          #Increase guessCount variable
29          guessCount = guessCount + 1
30      #If shaken, have micro:bit generate a random pattern
31      #and show on the LED display
32      if accelerometer.was_gesture('shake'):
33          for i in range(3):
34              randomNum = random.randint(1,3)
35              microGo.append(randomNum)
36          for i in range(3):
37              display.scroll(microGo[i])
38      #If three guesses have been made, run the array check
39      #and display well done, or try again, based on the result.
40      if guessCount == 3:
41          for i in range(3):
42              if microGo[i] == playerGo[i]:
43                  guessCorrect = guessCorrect + 1
44          if guessCorrect == 3:
45              display.scroll("Well Done!")
46          else:
47              display.scroll("Try again!")
48          #Now reset the variables and clear the arrays for another go
49          guessCount = 0
50          guessCorrect = 0
51          microGo.clear()
52          playerGo.clear()
```

Explorer Task Ideas

- Add a start up logo to make the player know they are playing a guessing game
- Add sounds and gestures that the player has to repeat
- Improve the code and make playing the game fun

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