**Code conversation full solution - Slider Snake**

**Code link: https://tinyurl.com/cvcvzr7y**

**Describe what the whole program is doing in a couple of sentences:**

This program uses the Slider to make a wiggly snake animation when you move the slider. It takes a reading from the slider, puts it into a list and then lights up the LEDS as the slider is moved about. The scroll\_up function (which is running forever, due to the while loop) first shuffles all the dot positions up one place using a for loop. It then clears the display and then sets the position of the bottom most dot to be determined by the slider position. It then draws all the dots. The time.sleep(0.1) just

slow things down so you can see what is happening.

**Fill in the blanks**

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|  | ***Code*** | ***What is this line doing?*** |
| 1 | from microbit import | imports the micro:bit module to give you access to all the hardware that is built-in into your board |
| 2 | Import time | Imports the time module to enable a sleep pause to be inserted before another reading is taken |
| 3 | positions = [2, 2, 2, 2, 2] | creates a list called positions |
|  | This function will determine the progression of the snake animation on the micro:bit |  |
| 4 | def scroll\_up(): | defines a Python function called scroll\_up () |
| 5 | for y in range(4): | starts a for loop. Iterating through from 0 to 3 |
| 6 | positions[y] = positions[y + 1] | Changes the value in index [0][1][2][3] to become the value in the position above them e.g. the value in position [0] is overwritten by the value in position [1] (the element in position 4 is unaltered by this process) |
|  |  |  |
| 7 | while True: | forever |
| 8 | display.clear() | calls the micro:bit display.clear() function which sets the brightness of all of the LEDs to 0, i.e. off. It clears the LED display screen |
| 9 | scroll\_up() | calls the user defined function scroll\_up |
| 10 | positions[4] = int(pin2.read\_analog() / 240) | The function pin2.read\_analog gives a number between 0 and 1023 depending on the voltage at pin2, which depends on the position of the slider. This is then divided by 240 which once it has been cast as an integer gives a maximum reading of 4. So the element in index [4] in the positions list takes on this value. |
| 11 | for y2 in range(5): | Starts another for loop, iterating through from 0 to 5 |
| 12 | display.set\_pixel(positions[y2], y2, 9)\* | ...call the inbuilt function display.set\_pixel() so that the LEDs are lit.  The x value here is taken by identifying the value in the index position determined by the y2 for loop.  The y value here is taken from the y2 for loop so it is iterating the value from 0 to 4. |
| 13 | time.sleep(0.1) | Puts a tiny pause (0.1 is a tenth of a second) in between each trip round the while loop. Just to enable humans to watch the snake. |

\*display.set\_pixel(x,y,value) - this inbuilt function sets the brightness of the LED at row x and column y to value, which has to be an integer between 0 and 9. In this case the brightness is always set to the maximum 9.