AP CSP Python with CodeX
From Code to Flowcharts Activity Guide

Name:

Review : Flowchart Symbols

Give a brief summary of what each flowchart shape is used for.

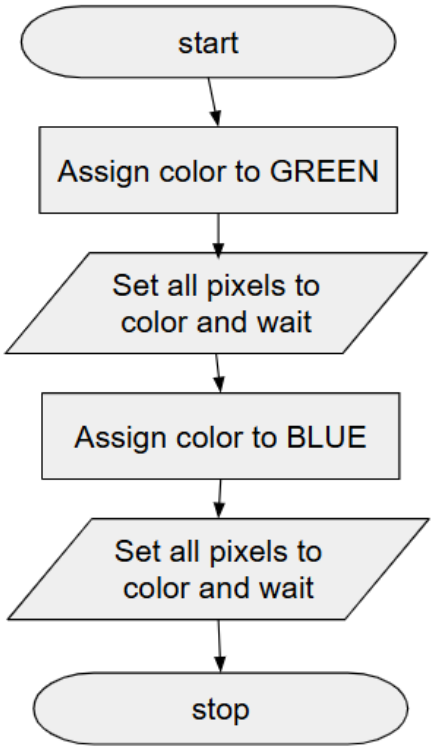
	Start or stop Use an oval to mark the beginning and end of the program.
	Action or process Use a rectangle to process an action. It could be used to assign a value to a variable, or increment a counter, or get a random number.
	Input or output Use a parallelogram to show input or output. **Input** could be the button pressed. **Output** could be text on the console panel, sound played, LEDs lit, or movement.
	Decision Use a diamond to make decisions. This shape will have two or more lines that come from it – one for each outcome. This step might ask a question or provide options. The result could be true or false, yes or no, or choices (which button is pressed).

Activity : From Code to Flowcharts

Create a flowchart for each Python program.

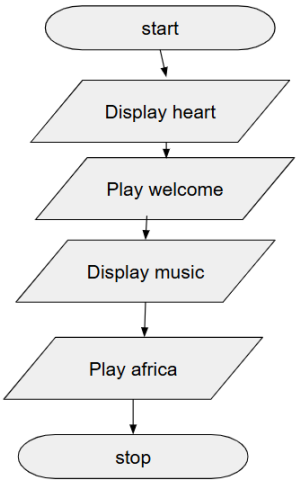
Python Code #1.

```
'''
Python Code #1
Create a flowchart for this code.
You don't need to include the imports.
'''
from codex import *
from time import sleep

color = GREEN

pixels.set(0, color)
pixels.set(1, color)
pixels.set(2, color)
pixels.set(3, color)
sleep(2)

color = BLUE

pixels.set(0, color)
pixels.set(1, color)
pixels.set(2, color)
pixels.set(3, color)
sleep(2)
```



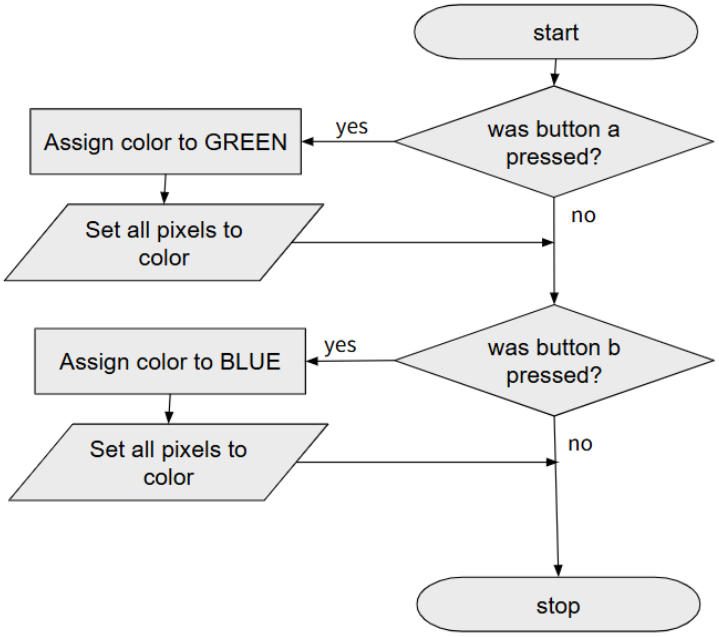
Python Code #2

```
'''
Python Code #2
Create a flowchart for the code.
'''
from codex import *

display.show(pics.HEART)
audio.mp3('sounds/welcome')

display.show(pics.MUSIC)
audio.mp3('sounds/africa')
```



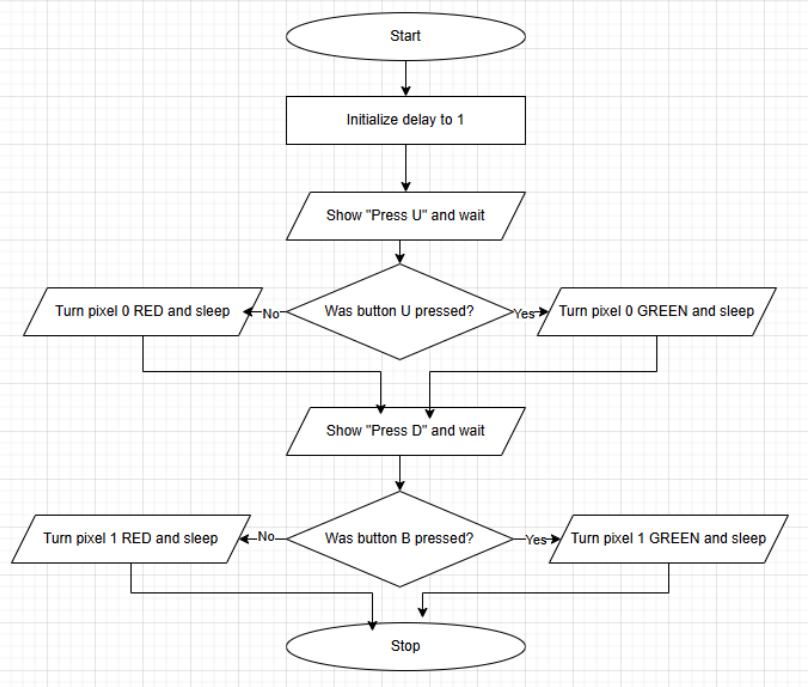
Python Code #3

```
'''
Python Code #3
Create a flowchart for the code.
'''
from codex import *

if buttons.was_pressed(BTN_A):
    color = GREEN
    pixels.set(0, color)
    pixels.set(1, color)
    pixels.set(2, color)
    pixels.set(3, color)

if buttons.was_pressed(BTN_B):
    color = BLUE
    pixels.set(0, color)
    pixels.set(1, color)
    pixels.set(2, color)
    pixels.set(3, color)
```



Python Code #4

```
'''
Python Code #4
'''
from codex import *
from time import sleep

delay = 1

display.show("Press U")
sleep(delay)

if buttons.was_pressed(BTN_U):
    pixels.set(0, GREEN)
    sleep(delay)
else:
    pixels.set(0, RED)
    sleep(delay)

display.show("Press D")
sleep(delay)

if buttons.was_pressed(BTN_D):
    pixels.set(1, GREEN)
    sleep(delay)
else:
    pixels.set(1, RED)
    sleep(delay)
```



Challenge: Create your own flowchart from the Python code.

```
'''
Python Code Challenge
'''
from codex import *
from time import sleep

delay = 1
count = 0

display.show("Press B")
sleep(delay)
if buttons.was_pressed(BTN_B):
    pixels.set(0, GREEN)
    sleep(delay)
    count = count + 1
else:
    pixels.set(0, RED)
    sleep(delay)
display.show("Press A")
sleep(delay)
if buttons.was_pressed(BTN_A):
    pixels.set(1, GREEN)
    sleep(delay)
    count = count + 1
else:
    pixels.set(1, RED)
    sleep(delay)
display.show(str(count))
```