CamJam EduKit Worksheet Three

Project Making LEDs blink with Python

Description In this project, you will learn how to make LEDs blink.
This worksheet uses the same LED circuit that was built in Worksheet Two.

Equipment Required

The circuit built in CamJam EduKit Worksheet Two.

Code

You are going to save this code into the same 'EduKit' directory.

1. Change to the directory:
```
cd ~/EduKit/
```
2. Create a new file by typing
```
nano 3-blink.py
```
3. Type in the following code:
```
#Import Libraries
import time              #A collection of time related commands
import RPi.GPIO as GPIO #The GPIO commands

#Set the GPIO pin naming mode
GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)

#Set pins 18, 23 and 24 to be output
GPIO.setup(18,GPIO.OUT)
GPIO.setup(23,GPIO.OUT)
GPIO.setup(24,GPIO.OUT)

#Turn LEDs on
GPIO.output(18,GPIO.HIGH)
GPIO.output(23,GPIO.HIGH)
GPIO.output(24,GPIO.HIGH)

time.sleep(1) #Pause for 1 second

#Turn LEDs off
GPIO.output(18,GPIO.LOW)
GPIO.output(23,GPIO.LOW)
GPIO.output(24,GPIO.LOW)

time.sleep(1) #Pause for 1 second
```

Code

```
#Turn LEDs on
GPIO.output(18,GPIO.HIGH)
GPIO.output(23,GPIO.HIGH)
GPIO.output(24,GPIO.HIGH)

time.sleep(1) #Pause for 1 second

#Turn LEDs off
GPIO.output(18,GPIO.LOW)
GPIO.output(23,GPIO.LOW)
GPIO.output(24,GPIO.LOW)

#Clean up the GPIO pins
GPIO.cleanup()
```

Once complete use “Ctrl + x” then “y” then “enter” to save the file.

Running the Code

To run this code type:

```
sudo python 3-blink.py
```

You will see the three LEDs turn on then turn off twice, with one second in between each change.

If your code does not run and an error is reported, edit the code again using `nano e-blink.py`.

Code

Our next piece of code will flash the lights on and off forever (or until you press “Ctrl + c”).

Create the new file using:

```
nano 3-blink-forever.py
```

And type in the following code:

```
#Imports Libraries
import time
import RPi.GPIO as GPIO

#Set the GPIO pin naming mode
GPIO.setmode(GPIO.BCM)
GPIO.setwarnings(False)

#Set pins 18, 23 and 24 to be output
GPIO.setup(18,GPIO.OUT)
GPIO.setup(23,GPIO.OUT)
GPIO.setup(24,GPIO.OUT)
```

Code

```
#Loop forever (as true is always true)
while True:
      #Turn LEDs on
      GPIO.output(18,GPIO.HIGH)
      GPIO.output(23,GPIO.HIGH)
      GPIO.output(24,GPIO.HIGH)
      #Wait one second
      time.sleep(1)
      #Turn LEDs off
      GPIO.output(18,GPIO.LOW)
      GPIO.output(23,GPIO.LOW)
      GPIO.output(24,GPIO.LOW)
      #Wait one second
      time.sleep(1)
```

Once complete use “Ctrl + x” then “y” then “enter” to save the file.

Running the Code

To run this code type:

```
sudo python 3-blink-forever.py
```

You will see the three LEDs turn on then turn off forever, or until you press “Ctrl+c”.

If there is an error in the code, use `nano` to edit it.