

Computer Science 1	Lab 11
The "Tiled Flags" Program	Practice/Perform Major Python Assignment
Assignment Purpose:	
This program requires knowledge of combining graphics with compound conditions.	

This program will display various flags from around the world. The flags will be displayed in a special way. Over 1000 "tiles" will be displayed in many rows and columns. **if** statements needs to be used to check the coordinates to determine the proper colors. Most of these flags will have at least 3 vertical stripes or 3 horizontal stripes. In either case, the middle stripe(s) will require a *compound condition* in order to properly assign the color. You are provided with a title page and the first 3 flags. You need to figure out how to create the rest of the flags.

Lab 11 Student Version	Do not copy this file, which is provided.
<pre> 1 # Lab11st.py 2 # "Tiled Flags" 3 # This is the student, starting version, of Lab 11. 4 5 6 from Graphics import * 7 8 9 tileSize = 25 10 tileSize = tileSize-3 11 12 13 def drawTile(x,y): 14 fillRect(x+2,y+2,tileSize,tileSize) 15 setColor("white") 16 drawLine(x+2,y+2,x+tileSize,y+2) 17 drawLine(x+tileSize,y+2,x+tileSize,y+tileSize) 18 19 20 def showName(name): 21 x = len(name)*24 22 color("black") 23 fillRectangle(1120-x,50,1150,101) 24 color("white") 25 fillRectangle(1125-x,55,1145,96) </pre>	

```

26     color("black")
27     drawString(name,1135-x,98,"Courier New",24,"bold")
28     delay(1000) # 1 second delay between flags
29     reset()
30     tracer(0,0)
31     hideturtle()
32
33
34 def titlePage(name, period):
35     setBackground("gold")
36     setColor("white")
37     fillRectangle(100,100,1100,550)
38     setColor("red")
39     drawString("Lab 11, Tiled Flags",175,240,"Arial",54,"bold")
40     setColor("blue")
41     drawString("by: "+name,175,370,"Arial",54,"bold")
42     setColor("green")
43     drawString("Period: "+period,175,500,"Arial",54,"bold")
44     delay(2000) # Wait 2 seconds before showing first flag.
45
46
47 def flagOfLibya ():
48     setBackground("black")
49     for x in range(0,1200,tileSpacing):
50         for y in range(0,650,tileSpacing):
51             setColor("green")
52             drawTile(x,y)
53         update()
54     showName("Libya (1977-2011)")
55
56
57 def flagOfPoland ():
58     setBackground("black")
59     for x in range(0,1200,tileSpacing):
60         for y in range(0,650,tileSpacing):
61             if y < 325: # top stripe
62                 setColor("white")
63             else: # bottom stripe
64                 setColor("red")
65             drawTile(x,y)
66         update()
67     showName("Poland")
68

```

```

69
70 def flagOfItaly ():
71     setBackground("black")
72     for x in range(0,1200,tileSpacing):
73         for y in range(0,650,tileSpacing):
74             if x < 400:                # left stripe
75                 setColor("green")
76                 if x >= 400 and x < 800: # middle stripe
77                     setColor("white")
78                 if x >= 800:            # right stripe
79                     setColor("red")
80             drawTile(x,y)
81         update()
82     showName("Italy")
83
84
85
86
87 #####
88 #  MAIN  #
89 #####
90
91 beginGrfx(1200,650)
92
93 titlePage("John Smith","7")
94
95 flagOfLibya()
96 flagOfPoland()
97 flagOfItaly()
98
99
100
101
102 endGrfx()
103

```

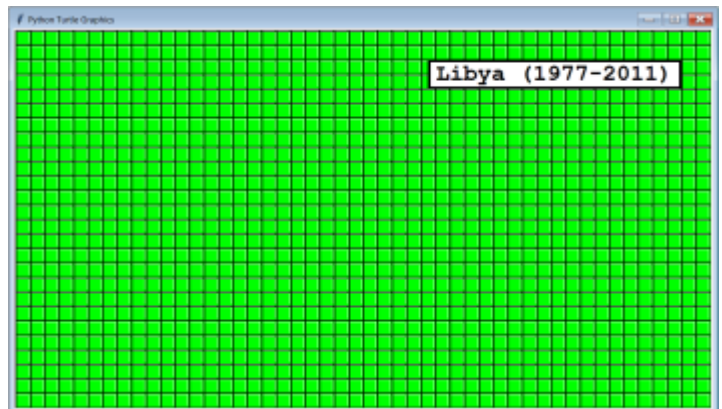
Student Version Output

The student provided version starts with a title page, followed by 3 provided flags. The first flag is the simplest being only one solid color. The second is also very simple with just 2 stripes. Neither the first nor the second flag resemble anything you will do in this lab. They are essentially “stepping stones”. The third flag resembles some of the simpler flags that you will create in this assignment.

Title Page:

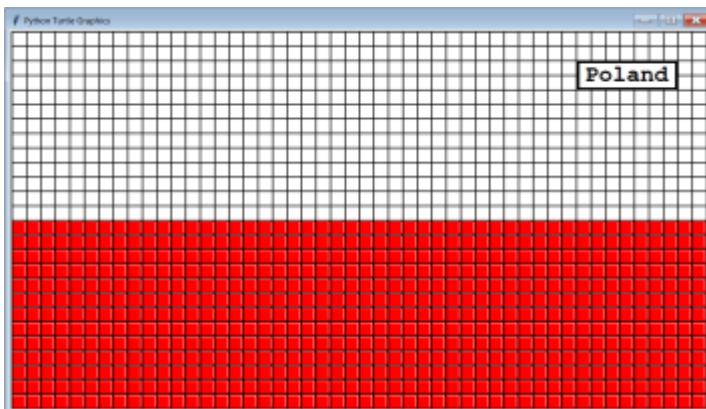


Old Flag of Libya:



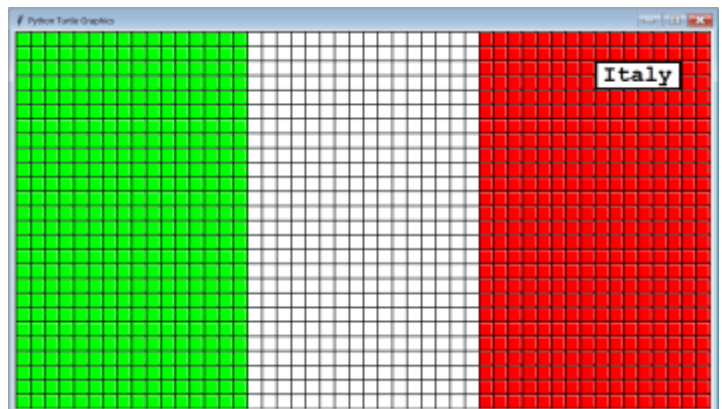
Solid green

Poland:



**red
white**

Italy:



green / white / red

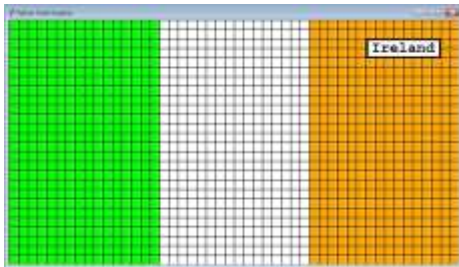
NOTE: When you do this lab for a grade, you should *comment out* the procedure calls to **flagOfLibya**, **flagOfManaco** and **flagOfItaly** in the “MAIN” section of the program. This way, your teacher does not have to waste time looking at flags that do not even count toward your grade.

30 through 110 Point Version Output

You will be expected to produce several flags. You start with a grade of 30. Each flag will be worth 5 additional points. You will NOT KNOW which flags you will be assigned ahead of time. Below are examples of the types of flags you MIGHT be assigned. NOTE: Different classes may be assigned different flags. Different students within the same class may even be assigned different flags. There are 49 flags shown in this document. You will be assigned **16** of them.

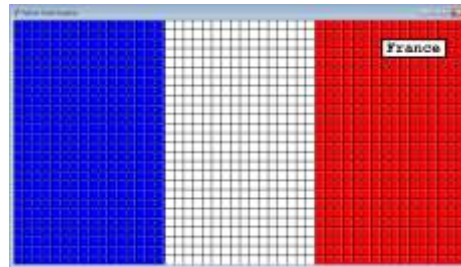
Some flags like these have 3 equal vertical stripes:
For these flags, each “stripe” will have the same number of columns of tiles.

Ireland:



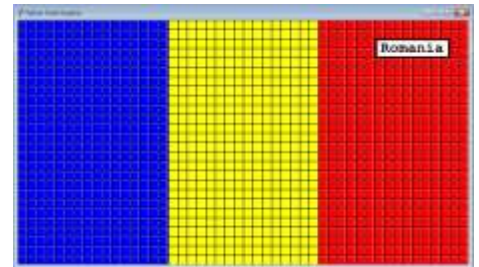
green / white / orange

France:



blue / white / red

Romania:



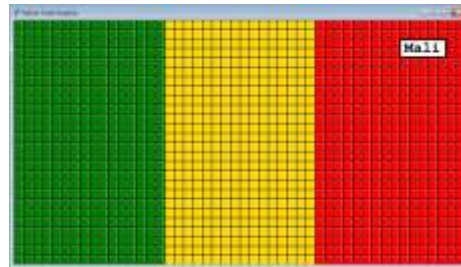
blue / yellow / red

Belgium:



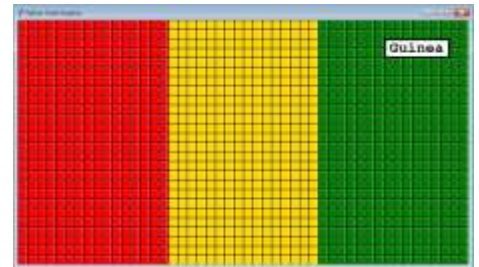
black / yellow / red

Mali:



darkGreen / gold / red

Guinea:



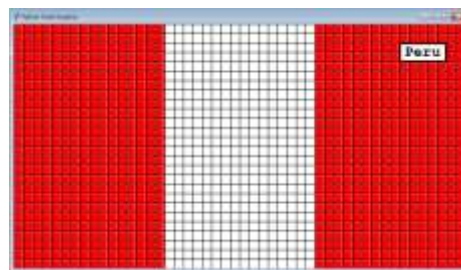
red / gold / darkGreen

Newfoundland:



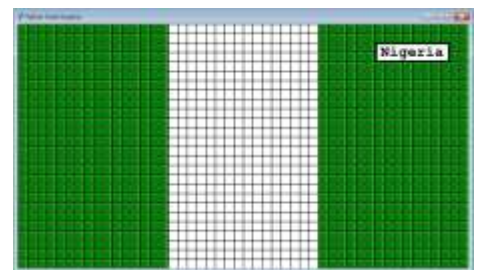
darkGreen / white / pink

Peru:



red / white / red

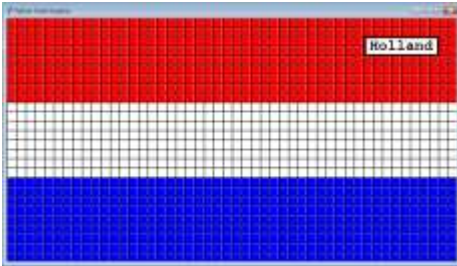
Nigeria:



darkGreen / white / darkGreen

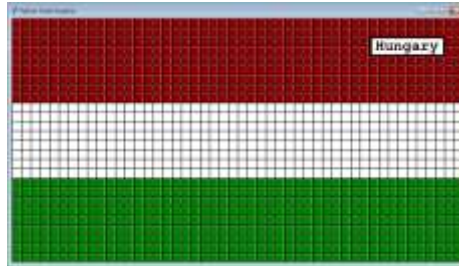
Some flags like these have 3 equal-ish horizontal stripes:
 For these flags, the middle “stripe” will have one fewer row of tiles.
 NOTE: Some flags have crowns, suns or other insignia. These are left off for this assignment.

Holland:



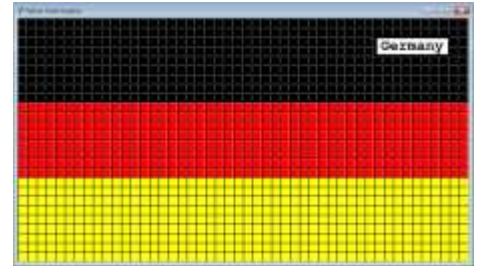
red
white
blue

Hungary:



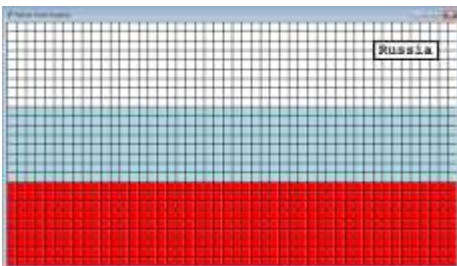
darkRed
white
darkGreen

Germany:



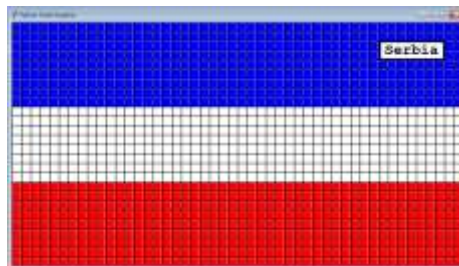
black
red
yellow

Russia:



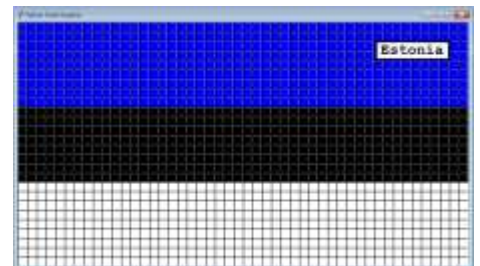
white
lightBlue
red

Serbia:



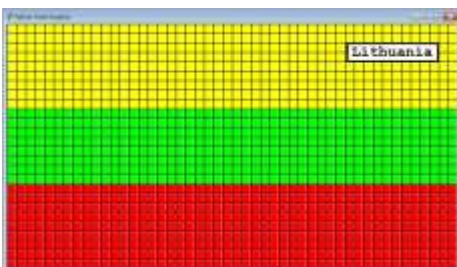
blue
white
red

Estonia:



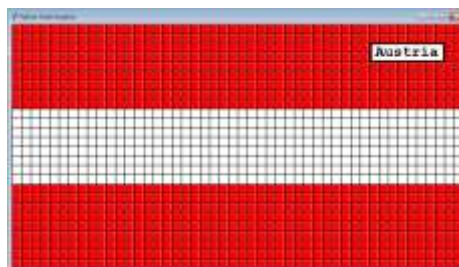
blue
black
white

Lithuania:



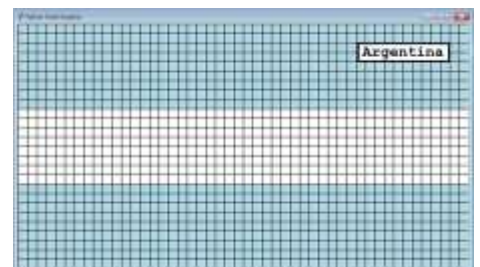
yellow
green
red

Austria:



red
white
red

Argentina:



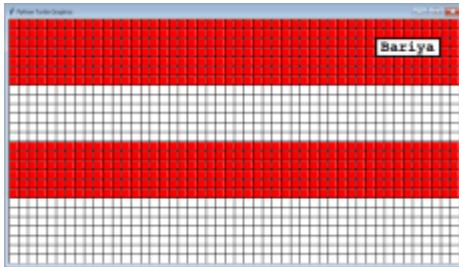
lightBlue
white
lightBlue

Some flags have more than 3 stripes or have stripes of different widths.

NOTE: Not all of these are “country” flags. Some are from states, regions, provinces or cities.

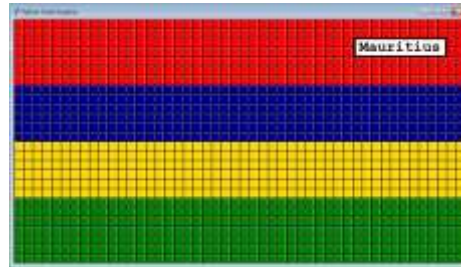
ALSO: Some of these flags are Navel Jacks or Naval Signal flags.

Bariya:



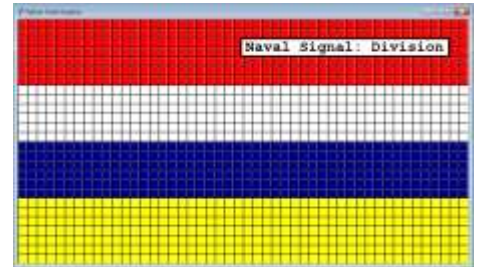
red
white
red
white

Mauritius:



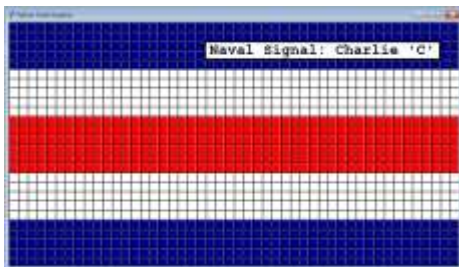
darkRed
darkBlue
gold
darkGreen

Naval Signal: Division



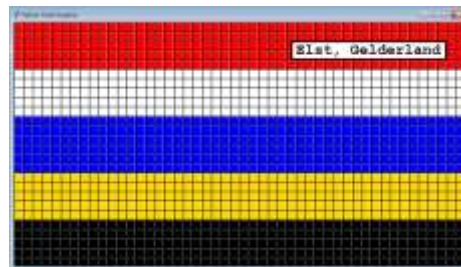
red
white
darkBlue
yellow

Naval Signal: Charlie 'C'



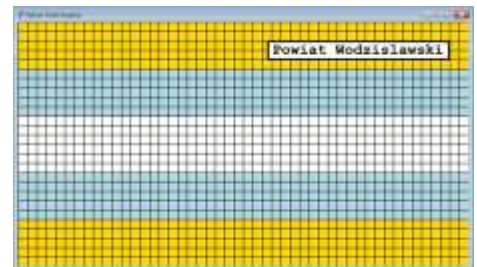
darkBlue
white
red
white
darkBlue

Elst, Gelderland:



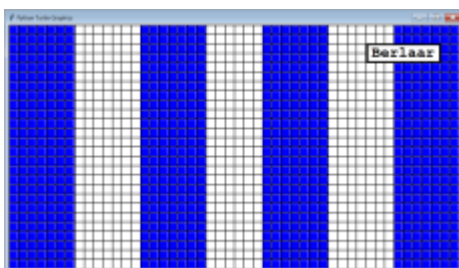
red
white
blue
gold
black

Powiat Wodzislawski:



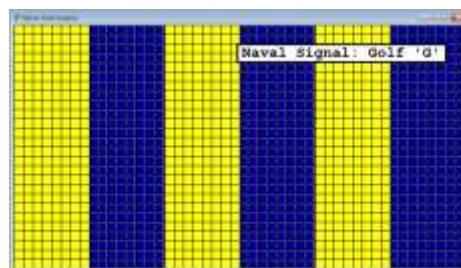
gold
lightBlue
white
lightBlue
gold

Berlaar:



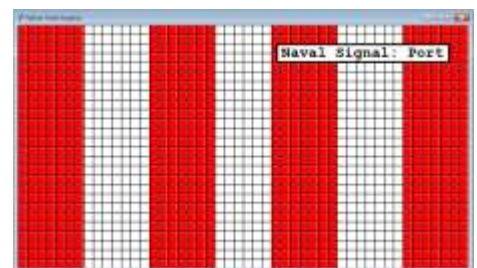
blue and white

Naval Signal: Golf 'G'



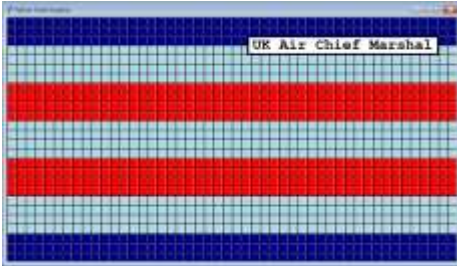
yellow and darkBlue

Naval Signal: Port



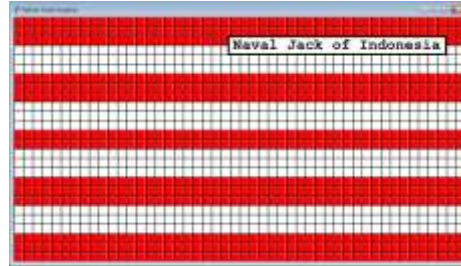
red and white

UK Air Chief Marshal:



darkBlue
lightBlue
red
lightBlue
red
lightBlue
darkBlue

Naval Jack of Indonesia:



red and white

Catalonia:



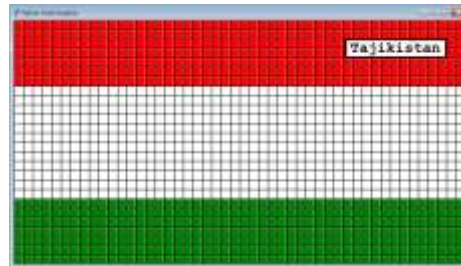
yellow and red

Colombia:



Gold
blue
red

Tajikistan:

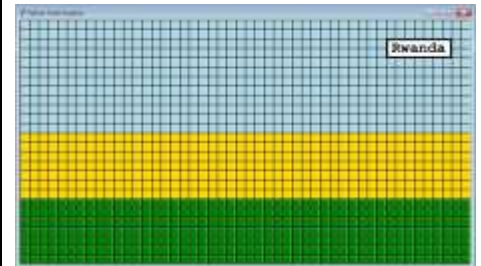


red
white
darkGreen

NOTE: This insignia is normally in the center of the flag.



Rwanda:

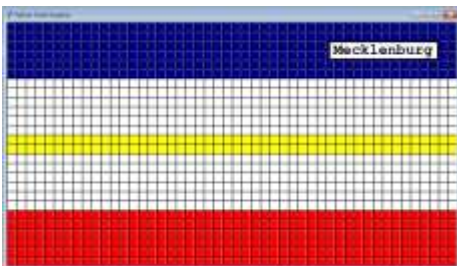


lightBlue
gold
darkGreen

NOTE: This insignia is normally in the top-right corner of the flag.

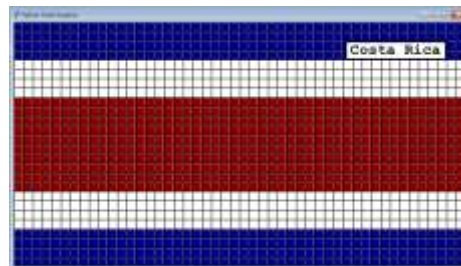


Mecklenburg:



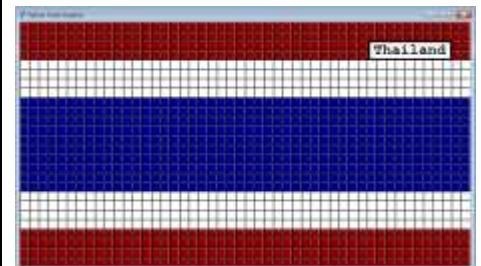
darkBlue
white
yellow
white
red

Costa Rica:



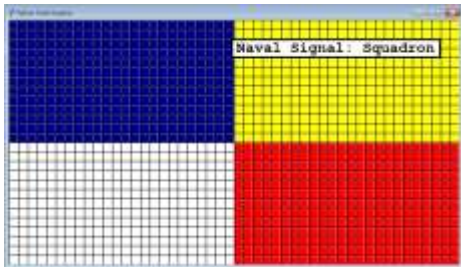
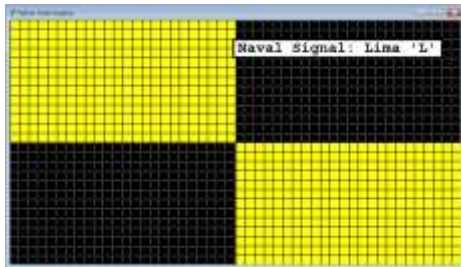
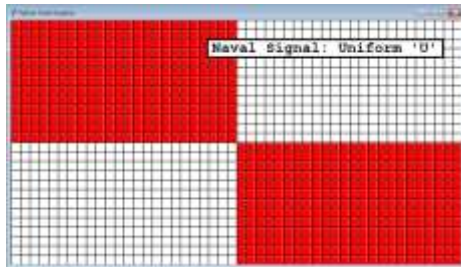
darkBlue
white
darkRed
white
darkBlue

Thailand:

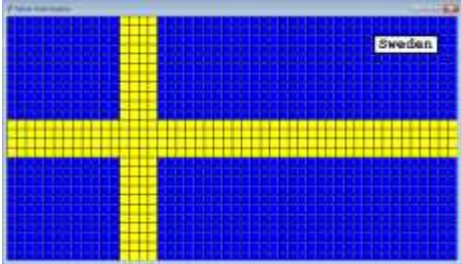
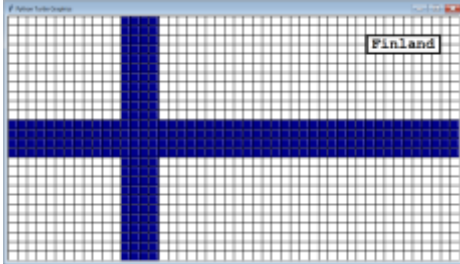
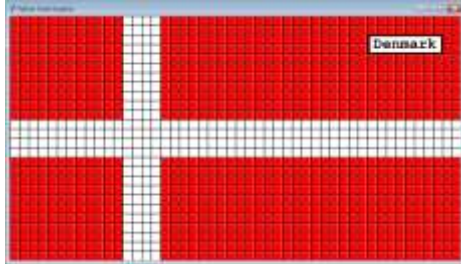


darkRed
white
darkBlue
white
darkRed

Some flags are divided into 4 quarters:

Naval Signal: Squadron	Naval Signal: Lima 'L'	Naval Signal: Uniform 'U'												
														
<table><tr><td>darkBlue</td><td>yellow</td></tr><tr><td>white</td><td>red</td></tr></table>	darkBlue	yellow	white	red	<table><tr><td>yellow</td><td>black</td></tr><tr><td>black</td><td>yellow</td></tr></table>	yellow	black	black	yellow	<table><tr><td>red</td><td>white</td></tr><tr><td>white</td><td>red</td></tr></table>	red	white	white	red
darkBlue	yellow													
white	red													
yellow	black													
black	yellow													
red	white													
white	red													

Some flags have a *Latin Cross*.

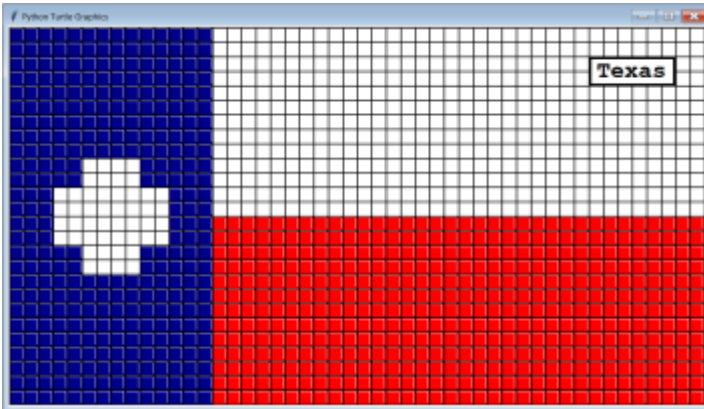
Sweden:	Finland:	Denmark:
		
blue with yellow Cross	white with darkBlue Cross	red with white Cross

If you can do all of the flags shown up to this point, you have the potential to earn a 100 on this lab. On the next page are 4 “Bonus Flags”. 2 of them will also be assigned to you when you do this assignment for a grade. Each of those flags is also worth 5 points. Doing all of the flags including the Bonus Flags is how you earn the maximum grade of 110.

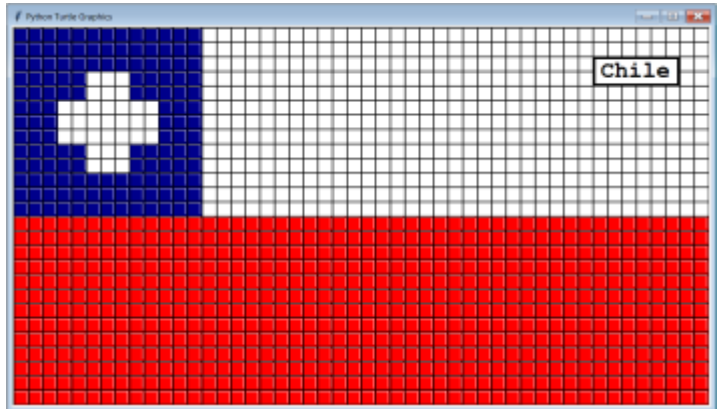
Bonus Flags

For the Bonus Flags, the number of tiles in each stripe needs to match the examples below exactly.

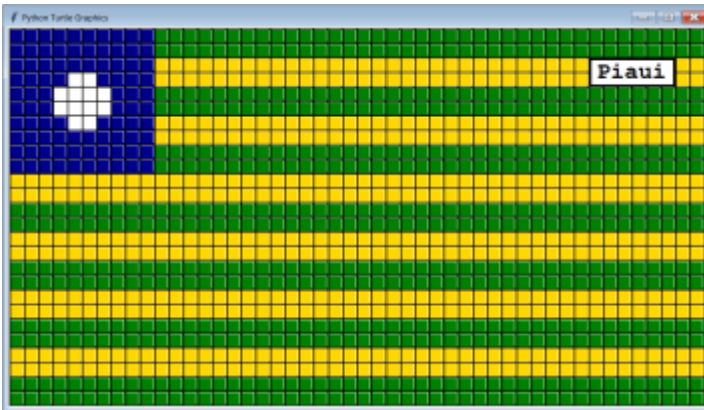
Texas:



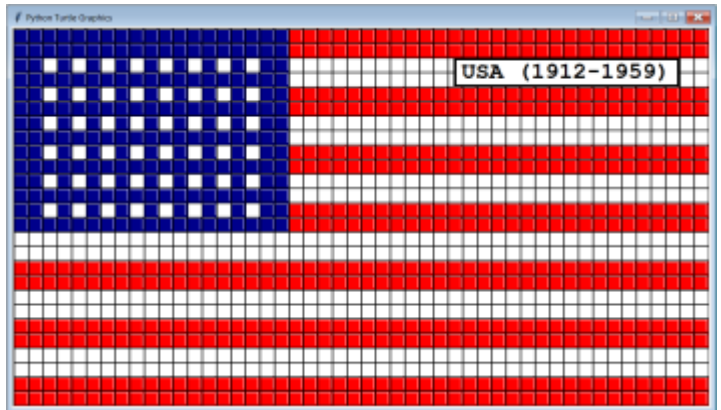
Chile:



Piaui:



USA (48-Star Flag used from 1912-1959)



All Bonus Flags have a blue canton with one or more white “stars”.

The flag of Piaui flag has darkGreen and gold stripes.

The rest of the Bonus Flags have red and white stripes.