Nesting Programming Constructs

CMPT 140

Exercise 1

What is printed to the console by the following program?

(a)

```
1
2  bandana = "red"
3  fur = "purple"
4  eyes = "kooky"
5
6  if bandana == "red":
7      if fur == "blue":
8          if eyes == "googly":
9              print("IT'S THE GREAT COOKIE THIEF!!")
10         else:
11             print("Thank goodness, it's not the thief.")
```

Exercise 1 (ctn'd)

What is drawn on the canvas by this program?

(b)

```
1  n = 10
2  g = 2
3  size(300, 300)
4
5  for s in range(n):
6      if s != g:
7          x = s*30
8          rect(x,0,30,30)
```

Exercise 1 (ctn'd)

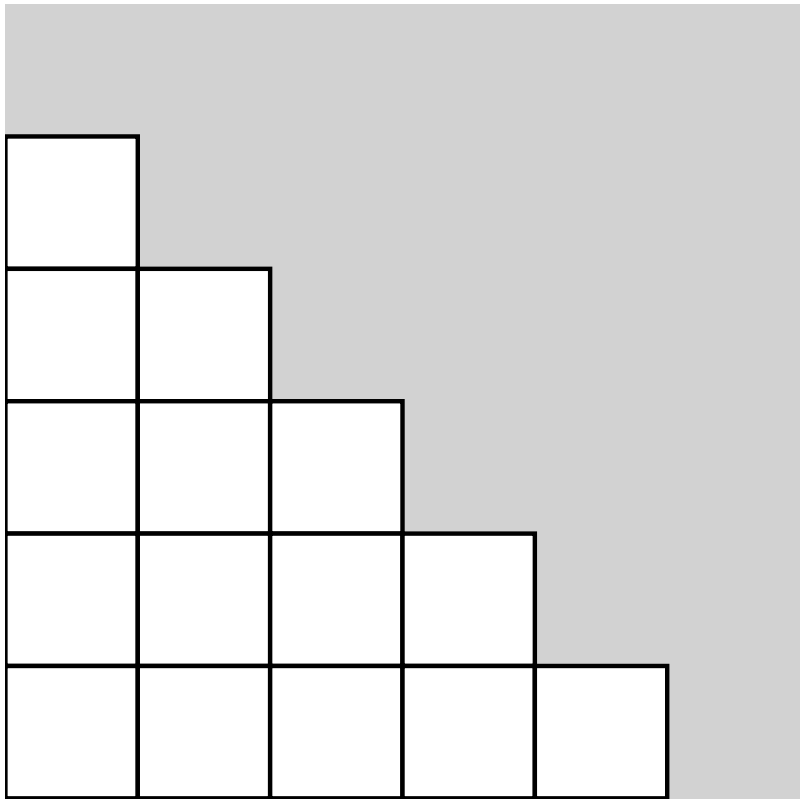
What is drawn on the canvas by this program?

(c)

```
1 size(300, 300)
2
3 for r in range(10):
4     for c in range(8):
5         rect(c*30, r*30, 30, 30)
```

Exercise 2

Write a code snippet that will draw the following image on the canvas (using loops!):



Exercise 3

What is drawn on the canvas by this program?

(a)

```
1  size(200, 200)
2
3  for a in range(3):
4      for b in range(3):
5          for c in range(3):
6              x = a*60+30
7              y = b*60+30
8              z = 60-c*16
9              ellipse(x,y,z,z)
```

Exercise 3 (ctn'd)

What is drawn on the canvas by this program?

(b)

```
1  size(300, 300)
2
3  for i in range(10):
4      for j in range(10):
5          if (i % 2 == 0) and (j %2 == 0):
6              x = i*30 + 15
7              y = j*30 + 15
8              ellipse(x, y, 30, 30)
9          else:
10             x = i*30
11             y = j*30
12             rect(x, y, 30, 30)
```

Exercise 4

Define a function called `layout_targets(difficulty)`

- the parameter `difficulty` is a string with two possible values: `"moderate"` and `"challenging"`
- the layout of the targets should depend on the difficulty as per the drawing below
- you have access to a pre-defined function: `draw_target(row, column)` which will draw a target in the specified row/column location
- row and column indices for those functions start at 0, not 1!

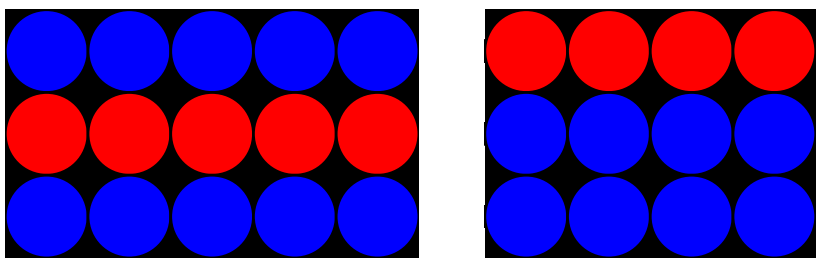


Figure: "moderate" layout (left) and "challenging" layout (right)