

Week 3: Loops And Custom Blocks CMPS10

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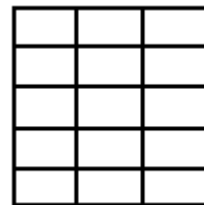
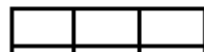
Outline

- Part 1: Nested loop Coding Examples (*if we had time*)
- Part 2: Drawing a Pentagon and a Hexagon Examples
 - custom blocks
- Part 3: Drawing a Flower and Stem
- Part 4: Fancy Flower Field
- Part 5: Week 3 Homework Assignment

Part 1: Nested loop Coding Examples

➤ Try out these lines of code in snap!

- Report the value of x.
- Report the value of I,j,k
- Note: Import tools to see the for loop.



1,2,3



The image shows four examples of Snap! code blocks:

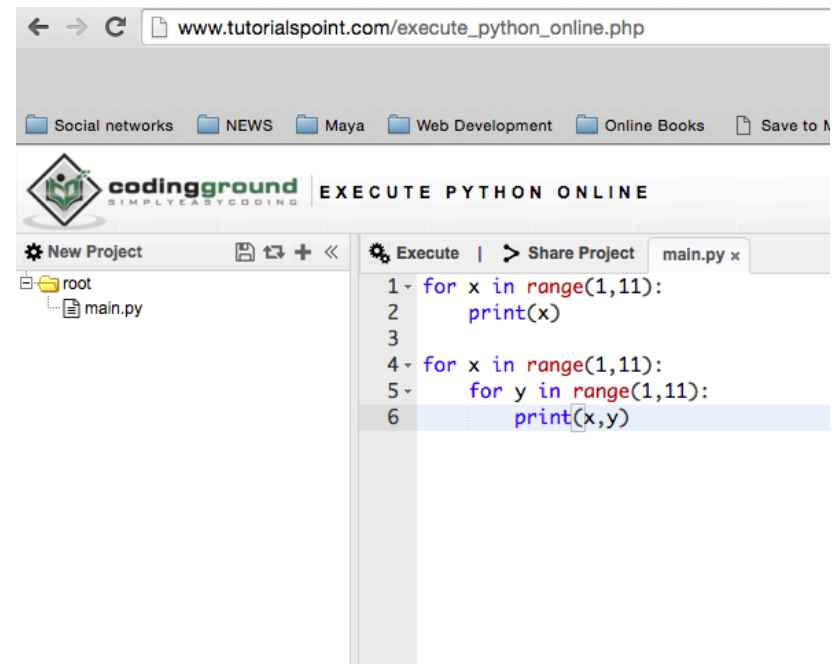
- Example 1:** A 'for' loop with 'i' from 1 to 10, containing a 'say i for 2 secs' block.
- Example 2:** A 'when clicked' event block containing a 'set x to 1' block, a 'repeat 10' loop with a 'set x to x + 1' block, and a 'show variable x' block.
- Example 3:** A 'script variables' block with 'i' and 'j' variables, followed by a 'for i = 1 to 10' loop containing a 'for j = 1 to 10' loop with 'say i for 1 secs' and 'say j for 1 secs' blocks.
- Example 4:** A 'when clicked' event block containing a 'set x to 1' block, a 'repeat 10' loop with a 'repeat 10' loop containing a 'set x to x + 1' block, and a 'show variable x' block.

Part 1:Nested loop Coding Examples (python)

➤ Try out these lines of code in python!

➤ http://www.tutorialspoint.com/execute_python_online.php.

```
sh-4.3$ python main.py
1
2
3
4
5
6
7
8
9
10
(1, 1)
(1, 2)
(1, 3)
```



```
www.tutorialspoint.com/execute_python_online.php
Social networks NEWS Maya Web Development Online Books Save to M
codingground SIMPLY EASY CODING EXECUTE PYTHON ONLINE
New Project Execute | Share Project main.py x
root
main.py
1 for x in range(1,11):
2 print(x)
3
4 for x in range(1,11):
5 for y in range(1,11):
6 print(x,y)
```

Part 2: Drawing a Pentagon and a Hexagon Examples

➤ Pentagon Math:

- $3 * 180 / 5 = 108$
- $180 - 108 = 72$

➤ Start Math:

- $108 / 3 = 36$
- $180 - 36 = 144$

➤ Hexagon Math:

- $4 * 180 / 6 = 120$
- $180 - 120 = 60$

```
point in direction 90
pen down
repeat 5
  move 100 steps
  turn 72 degrees
```

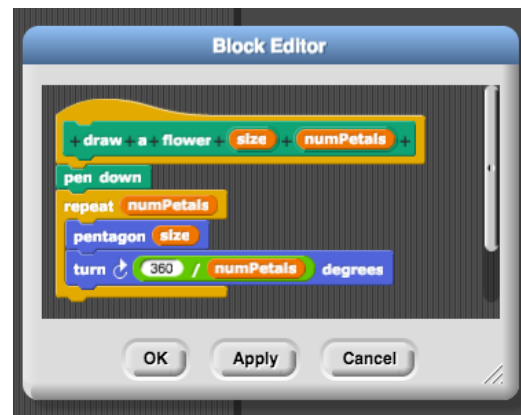
```
go to x: 0 y: 0
point in direction 90
pen down
repeat 5
  move 100 steps
  turn 144 degrees
```

```
point in direction 90
pen down
repeat 6
  move 100 steps
  turn 60 degrees
```

Part 3: Drawing a Flower

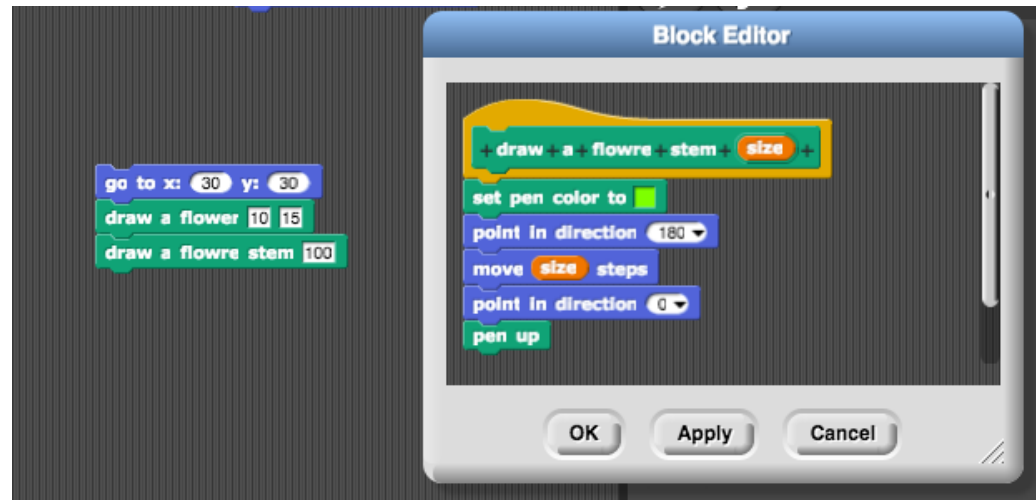
➤ Math:

- Figuring out how many pentagon to draw in 360 space.
- Loop with number of petals
- Turn number of petals/360



Part3: Drawing a Flower stem

Assuming that drawing the stem is the last part, pen up is necessary!



Part4: Drawing a Flower Field

- Repeat
 - Go to a random location (within the boundary)
 - Put the pen down
 - Draw a unique flower (shape, size, color)
 - Draw a stem
 - Pen up

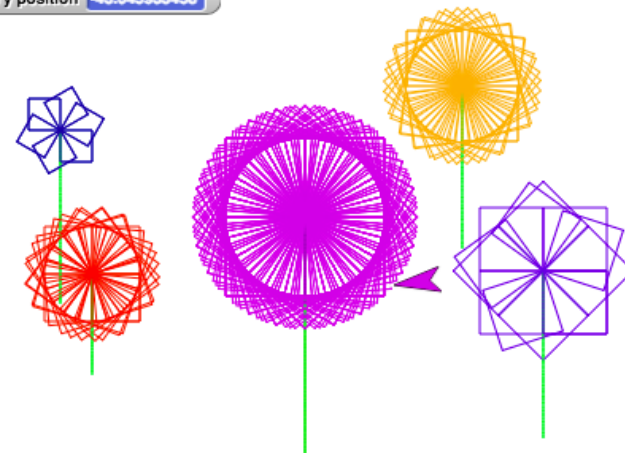


Part4: Fancy Flowers from Last Quarter

Extra credit for drawing flower stem leaves.



Sprite x position 58.09655268
Sprite y position -43.045933458



Part 5: Week 3 Lab Assignment

Assignment Link: [ecommons](#)

Assignment duration: About two to three hours

Assignment: Complete the following “Loops and Building Blocks” activities (on your own or via a partner): [Loops and Building your own Blocks.!](#)

Output: Export the field of flowers and save it as **XML**.

example: **flowers.xml**

What to submit? Submit your xml file as "Attachments" in the submission area.

If you **collaborated** with someone, mention their name and email address in the comment area.

If you are **resubmitting** (after being graded in the lab), mention mention that in the comment area.

Due: Jan 25th, 8am.

Part 5: Week 3 Lab Assignment

Grading Criteria:

- If you don't submit as a **XML**, you will receive **zero**.
- Full credit is 10. Two points of extra credit is available for this assignment.
- Extra credit +2 for a drawing a fancy flower field. Feel free to be creative!
 - If you draw a stem flower leaves, you will receive the +2 credit.
- Use of Custom Blocks is a must in this project (at least two nested custom blocks).
- Use of randomness is a must in this project (e.g., random location for drawing a flower).
- Be mindful about where you are drawing the flowers. It does not make sense to draw them in the air or sea.

Part 2: SNAP! : Snap Programming Syllabus

- Week 1: Complete your choice of one of the three “Hour of Code” Activities.
- Week 2: “Intro to Snap!”
- Week 3: “Loops and Blocks”
- Week 4: “Conditional and Variables”
- Week 5: “Abstraction and Testing”
- Week 6: “Multiple Sprites” – **mini project**
- **Week 7: “Lists” + midterm (18th Feb)**
- Week 8: “Recursion and Fractals”
- Week 9 and 10: “Final Project”

Questions?
