**Outline**

t.b.d.

**Objectives**

* tbd

**Materials**

* tbd

**Level 0: Teacher Demo of Sample Programs**

1. Sample program #1 is an example of a "Syntax Error". Follow the teacher demo and explain the characteristics of a syntax error. Consider the following criteria:  
   1. Did the program have an error before starting to run?

* There is a syntax error  
  1. Did the program encounter an error before it finished running?
* The program did not work  
  1. Did the program do what it was supposed to do?
* No the program did not work

1. Sample program #2 is an example of a "Run-time Error". Follow the teacher demo and explain the characteristics of a run-time error. Consider the following criteria:  
   1. Did the program have an error before starting to run?

* Started to run but was not complete
  1. Did the program encounter an error before it finished running?
* There was a runtime error before finishing it
  1. Did the program do what it was supposed to do?
* Did not draw three circles

1. Sample program #3 is an example of a "Logic Error". Follow the teacher demo and explain the characteristics of a logic error. Consider the following criteria:  
   1. Did the program have an error before starting to run?

* Started running and no errors
  1. Did the program encounter an error before it finished running?
* There was no errors
  1. Did the program do what it was supposed to do?
* Was supposed to draw three colored circles

**Level 1: Syntax Errors**

1. Research the definition of the word "Syntax". Summarize its meaning below and how it relates to computer languages and programming.

* Syntax is a set of rules and processes that govern the structure of sentences in a given language

1. Research the definition of a "Syntax Error" related to computer programming. Summarize this definition below.

* An error in the syntax of a sequence of characters or tokens that is intended to be written in a particular programming language.

1. Explain why Sample Program #1 is an example of a "Syntax Error".

* Because of the bad input on line 9

1. Find and correct the syntax errors in Sample Program #1. Provide a listing of your corrected program below.
   * Use a "#" at the beginning of each line containing an error   
     to "Comment Out" the bad code
   * List the corrected code line underneath the commented out error line

# drawCircle(circleColours[circleNumber])

**Level 2: Run-time Errors**

1. Research the definition of a "Run-time Error" related to computer programming. Summarize this definition below.

* a program error that occurs while the program is running.

1. Explain why Sample Program #2 is an example of a "Run-time Error".

* Because the program started but was not complete

1. Find and correct the run-time errors in Sample Program #2. Provide a listing of your corrected program below.
   * Use a "#" at the beginning of each line containing an error   
     to "Comment Out" the bad code
   * List the corrected code line underneath the commented out error line

# drawCircle(circleColours[circleNumber])

1. Explain the difference between a "syntax error" and a "run-time error".

* Syntax errors are static error that can be detected by the compiler. Runtimeerrors are dynamic error that cannot be detected by the compiler.

**Level 3: Logic Errors**

1. Research the definition of a "Logic Error" related to computer programming. Summarize this definition below.

* a logic error is a bug in a program that causes it to operate incorrectly

1. Explain why Sample Program #3 is an example of a "Logic Error".

* Because it stops working half way through

1. Find and correct the logic errors in Sample Program #3. Provide a listing of your corrected program below.
   * Use a "#" at the beginning of each line containing an error   
     to "Comment Out" the bad code

List the corrected code line underneath the commented out error line   
# for circleIndex in range(2) :

1. Explain the difference between a "logic error" and a "syntax error".
   * Logic error does not do the proper task of the command and syntax error does not work at all
2. Explain the difference between a "logic error" and a "run-time error".
   * Logic error does not do the proper task and run time error stops working half way through the program

**Level 4: Your Sample Program**

1. Create a sample program to show the different types of programming errors. Provide your program listing below.
   * Your program must be of your own design and must be different from the sample programs provided in this module.
   * Your program must contain at least one example of each of: a syntax error, a run-time error, and a logic error.
   * Provide the corrected code in a comment underneath the error code (using a "#" at the beginning of the comment line).

**Wrong:**

import turtle

myPen = turtle.Turtle()

circleColors = [(396,296,0),(190,50,196),(10000,180,236)]

def drawCircle(rgb) :

myPen.down(

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 500

for circleIndex in range(40) :

drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

**Correct:**

import turtle

myPen = turtle.Turtle()

circleColors = [(396,296,0),(190,50,196),(10000,180,236)]

def drawCircle(rgb) :

myPen.down()

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 500

for circleIndex in range(40) :

# drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

**SAMPLE PROGRAM #1 - Syntax Error**

import turtle

myPen = turtle.Turtle()

circleColors = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down(

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 0

for circleIndex in range(3) :

drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

**SAMPLE PROGRAM #2 - Run-time Error**

import turtle

myPen = turtle.Turtle()

circleColours = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down()

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 1

for circleIndex in range(4) :

drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

**SAMPLE PROGRAM #3 - Logic Error**

import turtle

myPen = turtle.Turtle()

circleColours = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down()

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

numOfCircles = 3

for circleIndex in range(2) :

circleNumber = numOfCircles - circleIndex - 1

drawCircle(circleColours[circleNumber])