**Outline**

tbd

**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?  
      It did because it gave an error right away
   2. Did the program encounter an error before it finished running?  
      Doesn’t not matter in this scenario
   3. Did the program do what it was supposed to do?

Does not matter in this scenario

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?  
      No, it didn’t because it ran
   2. Did the program encounter an error before it finished running?  
      Yes, it stopped before the code was finished
   3. Did the program do what it was supposed to do?

Does not matter in this scenario

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?  
      No, it ran
   2. Did the program encounter an error before it finished running?  
      No, it kept creating the image until the code did not end
   3. Did the program do what it was supposed to do?

It was supposed to give colored circles but it gave 2 black circles, which was not the correct image

**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.**

If a programmer has programmed the code write and it is the proper structure

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

The particular why of writing the code is not formatted right, to go because and read it/fix it.

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

On line 9 python turtle says that there is “ParseError: 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

**Level 2: Run-time Errors**

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

An error that occurs while the code is running

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

The code ran but half way through it stopped running its self because of the error on line 18.

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

Syntax error is an error that is seen in a code before it runs and is a format error. A run-time error is when the code runs but as it runs the code finds an error and stops.

**Level 3: Logic Errors**

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

It is when a code is correct but a bug changes it to not print out what is coded.

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

The code does not print out the colored circles that were supposed to be there.

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
2. **Explain the difference between a "logic error" and a "syntax error".**

A logic error knows the format is right but the bug slightly messes it up. However, a syntax error says the format is wrong and to go back and fix it.

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

A logic error knows the format is right but the bug slightly messes it up. However, a run-time error says the format when checked first is correct but has it runs the detects an error and stops have way.

**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).

**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) :

print(circleNumber)

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

print(circleNumber)

drawCircle(circleColours[circleNumber])