**Part A – Rock Paper Scissors**

To complete this section, you will need to copy a sample Rock Paper Scissors program from the class GitHub repository and load it into your repl.it environment according to the following instructions:

* Access the “midterm” folder on the class GitHub repository
* Download the program titled “***SampleProgramVersionB.txt***”
* Note: If you use another program your answers for this section will be wrong
* Load this program into your repl.it environment.
* Note: This program has errors that must be fixed before it can be run

1. Syntax Error: Once you have found and corrected the syntax error in your sample program, answer the following questions. **[2 Marks]**
   1. Explain what was causing the problem. Include a copy of the bad code.
   2. Explain what you did to fix the problem. Include a copy of the fixed code.
2. Run-Time Error: Once you have found and corrected the run time error in your sample program, answer the following questions. **[2 Marks]**
   1. Explain what was causing the problem. Include a copy of the bad code.
   2. Explain what you did to fix the problem. Include a copy of the fixed code.
3. Logic Error: Once you have found and corrected the run logic error in your sample program, answer the following questions. **[2 Marks]**
   1. Explain what was causing the problem. Include a copy of the bad code.
   2. Explain what you did to fix the problem. Include a copy of the fixed code.
4. The program does not work correctly if you typed something like “w” or   
   another non-command. **[2 Marks]**
   1. Explain if this error is a: Syntax Error, Logic Error, or Runtime Error.
   2. Explain what you would need to do to handle invalid user input. (NOTE: Just explain, you don’t need to code the solution.)
5. The program uses a “while” loop to keep the game going for multiple turns. **[2 Marks]**
   1. Explain how a “while” loop is different from a “for” loop.
   2. Explain how a “while” loop is similar to a “for” loop.

**Part B – Programming Turtle**

1. Write a Python Turtle program to do the following: **[6 Marks]**
   1. Draw a green circle of diameter 20 pixels
   2. Move down 40 pixels without drawing a line
   3. Draw an yellow triangle of side length 20 pixels
   4. Provide a listing of your program below.
2. Extend your program to do the following additional operations: **[3 Marks]**
   1. Use a Python loop structure to repeat the basic pattern three times.
   2. Provide a listing of your code changes below
3. Extend your program to do the following additional operations: **[3 Marks]**
   1. Use a Python list variable to draw a Red circle, a Green circle, and a Blue circle
   2. Provide a listing of your code changes below
4. Extend your program to do the following additional operations: **[2 Marks]**
   1. Write code to ask the user if the program should print circles or triangles
   2. Write code to read user input from the console
   3. Use an “if … else …” conditional to draw only circles or triangles
   4. Provide a listing of your code on the back of this page