

## CS116 – Indefinite Loops

Due Date: November 14

**Purpose:** We have been using *definite loops* so far in which we specify the number of times the loop will iterate by the length of a list. Sometimes, however, it is impossible to know how many times we need to loop at the outset. This could be because we are reading a file of unknown length, or a player is making an unknown number of moves in a game, as two examples. Python has a **while** loop to handle those types of situations.

**Skills:** After completion of this module you should be able to

1. Use an indefinite loop

**Schema:** Process something an unknown number of time

```
while processing is not done:  
    process stuff
```

**Activity:** With your group perform the following tasks and answer the questions. You will be reporting your answers back to the class in 30 minutes.

1. Open the program `simplegame.py` and examine the code without executing it. By looking at the code predict what condition must hold for the player to win the game.

Why is an indefinite loop needed for this game rather than a definite loop?

Try the game by creating a `Game` object and invoking the `playGame` method. I hope you won!

Modify the condition in the **while** so that game play will stop if the player wins or if the player loses by getting a negative score. Add an **if** statement at the end so that the program prints either a win or a lose message.

2. Open the program `game.py` and examine the code without executing it. This looks like a much more interesting game! Predict what will happen if the player types **north** as the first move.

Predict what will happen if the player types **exit** as the first move.

Why is an indefinite loop needed for this game?

Feel free to play the game for a few minutes.

Complete each of the following assignments to be submitted for grading. Each should be done individually but you can consult with a classmate to discuss your strategies or if you get an error message that you do not understand.

For indefinite loop problems it will help if you ask yourself the following question:

1. What is the condition for continuing to loop?

**Assignment 1:**

Add an Ogre in the kitchen. This mean creature will kill you if you wander into the room, causing you to lose the game. You probably will want to use a variable like the `ghost` to indicate whether the player is alive or not.

**Criteria of Success:** Your game terminates if you are killed with an altered `while` condition.

**Assignment 2:**

Add a treasure in the living room. The player should automatically acquire the treasure by entering that room. If the player then gets the treasure out of the house onto the porch then the game is over and the player wins. You probably will want to use a variable to indicate whether the player has the treasure.

**Criteria of Success:** Your game terminates when the player wins (or dies) or decides to exit the game.

Submit your python files with your methods in Canvas for grading.