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CSE 3342
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Assignment 4

1) What is a closure?

A closure is a function variable that refers to an inner function within an outer function that can be executed later on in the program without executing the outer function, and while remembering the local variables established at the time the function variable was created. Closures are like any other function in that they can have return types and variables. They are unique in that they remember variables that would otherwise be local scope without the outer function executing. It remembers what was done to it on the first execution of the outer function and will store those variables for future use.

2) Program Example:

```
#Lizzy Hanna, CSE 3342 Assignment 4
#outer function
def outer_func(college):
   school = college

   #inner function
   def inner_func(professor_name):
      print(professor_name, "is a professor within the ", school, "School at SMU")

   #returns inner function as a variable
   return inner_func

#creates the function variables (the closures)
meadows_func = outer_func("Meadows")
lyle_func = outer_func("Lyle")
dedman_func = outer_func("Dedman")

#executes the function variables
meadows_func("Pamela Elrod-Huffman")
lyle_func("Naseer Jain")
dedman_func("Luke Robinson")
```

OUTPUT:

```
======= RESTART: /Users/elizabethhanna/Documents/Hanna_Assignment4.py =======
Pamela Elrod-Huffman is a professor within the  Meadows School at SMU
Naseer Jain is a professor within the  Lyle School at SMU
Luke Robinson is a professor within the  Dedman School at SMU
>>>
```