

Warm up discussion problem:

The three wisest sages in the land were brought before the king to see which of them were worthy to become the king's advisor. Led blindfolded into a small room, the sages were seated around a small wooden table and told the following: "Upon each of their heads was placed a hat. Each was either wearing a blue hat or a white hat. At least one of them was wearing a blue hat. There may be only one blue hat and two white hats, there may be two blue hats and one white hat, or there may be three blue hats. But you may be certain that there are not three white hats. I will shortly remove your blindfolds, and the test will begin. The first to correctly announce the color of his hat shall be my advisor. Be warned however, he who guesses wrongly shall be beheaded. If not one of you answers within the hour, you will be sent home and I will seek elsewhere for wisdom."

With that, the king uncovered the sages' eyes and sat in the corner and waited. One sage looked around and saw that the competitors each were wearing blue hats. From the look in their eyes he could see their thoughts were the same, "What is the color of my hat?"

For what seemed like hours no one spoke. Finally the sage stood up and said, "The color of the hat I am wearing is..."

What did the young sage answer and how could the sage have known?

Workshop: *Writing Programs*

1. Review the Chaos program and identify the parts of the program as follows:

```
def main():  
    print("This program illustrates a chaotic function")  
    x = float(input("Enter a number between 0 and 1: "))  
    for i in range(10):  
        x = 3.9 * x * (1 - x)  
        print(x)
```

- (a) Circle each identifier.
- (b) Underline each expression.

- (c) Put a comment at the end of each line indicating the type of statement on that line (output, assignment, input, loop, etc.).
2. Show the output of the following code snippets:
- (a) `for i in range(5):`
`print(i * i)`
- (b) `for d in [3, 1, 4, 1, 5]:`
`print(d)`
- (c) `for i in range(4):`
`print('Hello')`
- (d) `for i in range(5):`
`print(i, 2**i)`
3. Write a simple program that politely asks you for your name and then prints a personal greeting of the form `Hello Andrea, how are you today?` containing the name.
4. Given the temperature t (in Fahrenheit) and the wind speed v (in miles per hour), the National Weather service defines a concept of “wind chill”. Write a program that takes two numbers as input and prints out the wind chill according to this formula:

$$W = 35.74 + 0.6215t + (0.4275t - 35.75)v^{0.16} \quad (1)$$

5. Write a program that prints the names of the days of the week. You can't simply use a sequence of `print` statements. Also, be sure to create a complete Python program with a properly defined `main` function.
6. The Python `print` function supports other keyword parameters besides `end`. One of these other keyword is `sep` (short for separator). What do you think the `sep` parameter does? Consult the Python documentation and test your idea interactively.