In-Class Question 12

Question)

Here is a Python program.

```
def nice_gibson(midterm_score):
    if midterm_score < 20:
        midterm_score = midterm_score + 20
    elif midterm_score < 40:
        midterm_score = midterm_score + 10
    elif midterm_score < 60:
        midterm_score = midterm_score + 5
    elif midterm_score < 80:
        midterm_score = midterm_score + 1
midterm_score = int(input("What is your midterm score? "))
print("Hmm.., not a bad result.")
print("But Gibson is very nice " + \
        "he will upgrade it for you~~~")
nice_gibson(midterm_score)
print("Your score now becomes", midterm_score, ":)")
```

If you run the program, enter 25 and press Enter, what is **your midterm score according to the last line of output** when the program finishes?

For your answer, just **enter an integer**. Don't enter a formula, or a mathematical expression, or anything like that. Don't enter any letters. Don't enter a full stop or a decimal place. Just **enter an integer**.

Correct answer(s):

• 25

Explanation:

- The program tests your understanding of local and global variables
- Although it looks like the program has only one variable, midterm_score, there are actually two variables being used
- The first variable is a global variable midterm_score created in this line of code:

```
midterm_score = int(input("What is your midterm score? "))
```

• The second variable is a local variable midterm_score created at the start of the function:

```
def nice_gibson(midterm_score):
```

- They are two separate variables having the same name, so changing one of the variables would not affect the other one
- If the user enters 25 after running the program, the global variable will be initialized with 25
- The content of the global variable, i.e. 25, is then passed into the function nice_gibson()
- Inside the function, the local variable is created and initialized with 25
- The variable is furthered modified to become 35 in this line of code:

midterm_score = midterm_score + 10

- Note that the function is working with the local variable so that the global variable is not affected at all
- Therefore, the output of the program shows 25, which is the value of the global variable