

Assignment 1

Total: 35pts

Part A - Write Code! (5pts)

For each item below, determine the appropriate Python code to generate the desired output.

1. Display your name and student ID to the console.

```
In [4]: print ("Julia Rafuse W0471961")
```

Julia Rafuse W0471961

```
In [3]: first_name = input("Enter your first name:")
last_name = input ("Enter your last name:")
student_id = input ("Enter your student ID:")
print (f"{first_name} {last_name} {student_id}")
```

Julia Rafuse W0471961

```
In [5]: first_name = input("What is your first name?")
last_name = input ("What is your last name?")
student_id = input ("What is your student ID?")
print (f"{first_name} {last_name} {student_id}")
```

Julia Rafuse W0471961

Example Output:

Jane Doe W0123456

2. Create a variable, called **num**, to hold the integer value, **10**. Then, display the contents of the variable.

```
In [7]: num = 10
print(num)
```

10

Expected Output:

10

3. Create a variable to hold the name of your favourite TV character. Then, use string interpolation to display the message "My favourite TV star is: " with the variable contents appended. (e.g. "My favourite TV star is: Homer Simpson")

```
In [129... favourite_character = "Harry Potter"
print(f"My favourite TV star is: {favourite_character}")
```

My favourite TV star is: Harry Potter

Expected Output:

My favourite TV star is: Homer Simpson

4. Display Santa Clause's catch phrase (Ho Ho Ho) using the string replication operator.

```
In [131... 'Ho ' * 3
```

```
Out[131... 'Ho Ho Ho '
```

Expected Output:

Ho Ho Ho

5. Create the Python statement to calculate the following mathematical expression: $\frac{(2 + 3)^2 \times (6 - 4)^3}{1}$ Round the results to three decimal points.

```
In [26]: calculated_result = ((2 + 3) / 2)*((6-4)/3)
print(calculated_result)
rounded_result = round (calculated_result,3)
print(rounded_result)
```

1.6666666666666665

1.667

Expected Output:

1.667

Part B - Fix the Error! (15pts)

Listed below are several snippets of code that contain small errors. For each of the questions, copy the given code and **correct the error** so the code will generate the desired output.

NOTE: Don't add any additional lines or entirely rewrite the given code, just correct the error to make the line(s) work as expected. You will be marked incorrect otherwise.

6. Display a string of text on the screen.

```
# DON'T modify the line below  
print "This is a story about a man named Jed."
```

```
In [30]: # DO enter your code below this line  
print ("This is a story about a man named Jed.")
```

This is a story about a man named Jed.

Expected Output:

This is a story about a man named Jed.

7. Concatenate a string and a decimal number.

```
# DON'T modify the line below  
print("PI = " + 3.14159)
```

```
In [32]: # DO enter your code below this line  
print("PI = " + "3.14159")
```

PI = 3.14159

Expected Output:

PI = 3.14159

8. Fix the line so that the answer is correctly calculated and displayed.

```
# DON'T modify the line below  
print("1 + 2")
```

```
In [35]: # DO enter your code below this line  
num_str = str(1+2)  
print(num_str)
```

3

Expected Output:

3

9. Print a string and a calculation.

```
# DON'T modify the line below
print("3 cubed =", 3 * 3)
```

```
In [41]: # DO enter your code below this line
print("3 cubed =", 3**3)
```

3 cubed = 27

Expected Output:

3 cubed = 27

10. Display a name in the format <last name>, <first name>

```
# DON'T modify the line below
print("{0}, {1}".format("John", "Smith"))
```

```
In [43]: # DO enter your code below this line
print("{1}, {0}".format("John", "Smith"))
```

Smith, John

Expected Output:

Smith, John

11. Display the answer of an integer division and the remainder. There should not be any decimal points displayed.

```
# DON'T modify the line below
print("193 / 5 =", 193/5, "remainder", 193/5)
```

```
In [50]: # DO enter your code below this line
print("193 / 5 =", round(193 / 5, 2), "remainder", 193 % 5)
```

193 / 5 = 38.6 remainder 38.6

193 / 5 = 38.6 remainder 3

Expected Output:

193 / 5 = 38 remainder 3

12. Correct the following calculation to convert 100° Celsius to Fahrenheit.

```
# DON'T modify this code
temperature = 100.0
print(temperature + 32 * 9 / 5)
```

```
In [59]: # DO enter your code below this line
temperature = 100.0
print((temperature * 9 / 5) + 32)
```

212.0

Expected Output:

212.0

13. Correct the following to calculate and display the expected answer using string concatenation.

```
# DON'T modify this code
print("1 + 2 = " + 1 + 2)
```

```
In [69]: # DO enter your code below this line
print("1 + 2 =", 1 + 2)
```

1 + 2 = 3

Expected Output:

1 + 2 = 3

14. Correct the error(s) using best practices to display the desired output.

```
# DON'T modify this code
ninety-nine = 99
print("Number = " + ninety-nine)
```

```
In [77]: # DO enter your code below this line
ninety_nine = 99
print("Number = " + str(ninety_nine))
```

Number = 99

Expected Output:

Number = 99

15. Use a single print statement to print on multiple lines.

```
# DON'T modify this code
print("This is on multiple lines.")
```

```
In [80]: # DO enter your code below this line
print("This is")
```

```
print("on multiple")
print("lines.")
```

This is
on multiple
lines.

In [81]: `print("This is\non multiple\nlines.")`

This is
on multiple
lines.

Expected Output:

This is
on multiple
lines.

16. Comment out the first line.

```
# DON'T modify this code
print("This is just a comment.")
print("You should only see this line.")
```

In [82]: `# DO enter your code below this line`
`# print("This is just a comment.")`
`print("You should only see this line.")`

You should only see this line.

Expected Output:

You should only see this line.

17. Make some ASCII art! Correct the string to create the expected output.

```
# DON'T modify this code
print(".      . \ 0 /  - -   |   ^  / \ -  -")
```

In [93]: `# DO enter your code below this line`
`print(". .\n \\ 0 /\n - - \n | \n ^ \n / \ \n - -")`

```
.      .
 \ 0 /
  - -
   |
   ^
  / \
 - - -
```

```

      .
    \ 0 /
      - -
      |
      ^
    /  \
    -  -

```

18. A couple of problems here.... (Remember, just fix the errors, don't rewrite the statement. There are two errors!)

```

# DON'T modify this code
print("Something's [] right ".format("not") - "here.")

```

```

In [95]: # DO enter your code below this line
print("Something's {} right here".format("not"))

```

Something's not right here

Expected Output:

Something's not right here.

19. Fix the following bill calculation by adding a 15% gratuity.

```

# DON'T modify this code
restaurant_bill = 10.00
# add 15% to the bill here
print(f"Total: ${restaurant_bill:.2f}")

```

```

In [99]: # DO enter your code below this line
restaurant_bill = 10.00
tax = 10.00 * 0.15
print(f"Total: ${restaurant_bill + tax:.2f}")

```

Total: \$11.50

Expected Output:

Total: \$11.50

20. Correct the following inventory count by subtracting the number of items sold from the total.

```
# DON'T modify this code
total_items = 100
items_sold = 42
# correct the total here
print(f"Sold: ${itemsSold}, Remaining: ${totalItems}")
```

In [113...

```
# DO enter your code below this line
# DON'T modify this code
total_items = 100
items_sold = 42
# correct the total here
print(f"Sold:{items_sold},Remaining:{total_items - items_sold}")
```

Sold:42,Remaining:58

Expected Output:

Sold: \$42, Remaining: \$58

Part C - Math (15pts)

Create a Python program that calculates the roots of a quadratic equation using the equation, $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.

You can assume that the equations used will always have two defined roots. (i.e. $a \neq 0$)

The program should allow the user to input the three variables of the formula, a, b, and c, and then output the resulting roots.

Example:



No description has been provided for this image

In [137...

```
import math

# Ask the user for input
print("Enter the values of a, b, and c for the equation 'ax^2 + bx + c = 0'")
a = float(input("a: "))
b = float(input("b: "))
c = float(input("c: "))

# Calculate the discriminant
discriminant = b**2 - 4*a*c

# Calculate the roots using the quadratic formula
root1 = (-b + math.sqrt(discriminant)) / (2 * a)
root2 = (-b - math.sqrt(discriminant)) / (2 * a)

# Display the results
print(f"The two roots of the quadratic formula are: {root1:.11f} and {root2:.11f}")
```


Enter the values of a, b, and c for the equation ' $ax^2 + bx + c = 0$ '

The two roots of the quadratic formula are: 3.41421356237 and 0.58578643763