

Year 10 Interleaved Homework 15

Name: **Ethan Armstrong**

1. Complete the following conversions

Show all your working out for each one.

a. Convert **15** from hexadecimal to binary.

00010101

b. Convert **210** from decimal to binary.

11010010

c. Convert **01010110** from binary to hexadecimal.

0x56

d. Convert **154** from decimal to hexadecimal.

0x9a

2. Write the formula to calculate the size of a sound file in Bytes

(Sample Rate*Bit Depth*Duration (seconds)) ÷ 8

3. Snow White has data stored in an array called dwarves

```
dwarves = ["Sleepy", "Bashful", "Dopey", "Doc", "Grumpy",  
"Happy", "Sneezy"]
```

Answer the following questions based on this array:

a. What is the length of the array?

7

b. What is the name of the dwarf in position **5**?

Happy

c. What position is **"Doc"** in the array?

3

d. Write the code that will print out all the names of the dwarves.
You must use a loop.

```
1. dwarves = ["Sleepy", "Bashful", "Dopey", "Doc", "Grumpy",  
"Happy", "Sneezy"]  
2. for dwarf in dwarves:  
3.     print(dwarf)
```

4. State the values of a, b, c, d, and e after the following operations are carried out:

a $34 \bmod 5$ 4
b $123 \div 7$ 17
c $(7 + 23) * 4 + 1$ 121
d $16.5 / 4 + 12.6 / 2$ 10.425
e "34" + "5" "345"

5. Answer the following binary addition questions:

$10111111 + 01011100 = 1\ 00011011$

$01011100 + 11001001 = 1\ 00100101$

$11001001 + 01111011 = 1\ 01000100$

$01111011 + 01101001 = 11100100$

6. Explain the arithmetic effect of shifting a number 4 places to the left.

Times 16

7. Shift the binary number below so that it is divided by 32:

1 0 1 0 1 0 1 0

00000101

8. Write a Python program that does the following:

- Asks the user to enter 1, 2, or 3.
 - o This should be repeated until they enter a valid number.
- If they enter 1, display the message "Thank you".
- If they enter 2, display "Well done".
- If they enter 3, display "Correct".

Ensure to apply proper indentation, use meaningful variable names, and adhere to Python syntax in your response.

```
1. number = int(input("Enter a number"))
2.
3. while number not in range(1, 4):
4.     number = int(input("Enter a number"))
5.
6. print("Thank you" if number == 1 else "Well done" if number
   == 2 else "Correct")
7.
```