**Programming Challenges**

Here are some short programming challenges that you could try to apply the language features that we have covered over the two sessions.

*1. Fizz-Buzz*

Write a programming that prints out the numbers from 1 to 100, replacing any numbers that divide by 3 with the word "Fizz", any numbers that divide by 5 with the word "Buzz" and any words that divide by 3 and 5 with "Fizz Buzz".

So output to the playground console would look like:

1

2

Fizz

4

Buzz

Fizz

7

8

Fizz

Buzz

11

Fizz

13

14

Fizz Buzz

16 etc...

Tips: You need to test for Fizz Buzz first, before testing for just Fizz or just Buzz.

Testing whether a number divides by 3 can be done with the boolean expression:

if number % 3 {....}

*2. Eliza*

Eliza was an early AI program that simulated a psychologist's questions. For example, if you said "My brother hated my sister", it would ask "why do you say your brother hated your sister"

Write an eliza function that takes a string, breaks it into an array of strings (one for each word), replaces the word "my" with the word "your", "me" with "you", and makes up a string asking why as shown above. Alternatively, if the sentence contains the word "feel", then return the string "Do you find you have strong feelings?"

Try calling eliza("My mother doesn't understand me")

and eliza("I feel she ignores my opinions")

Tips for eliza: if you have a string called sentence, this will split it into an array of words:

let words = sentence.components(separatedBy: " ")

Don't forget to allow for "my" and "My" and replace them with "your" and "Your".

*3. Seven ages of man*

Write a function called sevenAgesOfMan that takes an Integer parameter, and returns a string depending on the age of the person, according to Shakespeare's seven ages in the play As you like it:

Infant - 0 to 5 years

Whining schoolboy - 6 to 14 years

Lover - 15 to 24 years

Soldier - 25 to 40 years

Justice - 41 to 59 years

Pantaloon - 60 to 75 years

Second childishness and mere oblivion - over 75 years

When you have written the function, call it for all values from 1 to 80, and print the value of the year and the result of calling the function for each of the years.

Tip - write the function first and try it for a year in each category and check it gives the right answer. Then write a loop from 1 to 80 and call the function to get a result. Have a print statement in the loop that uses string interpolation to print out the age and the function result. Check the edge cases work correctly.

Example output:

Age 1 is Infant

Age 2 is Infant

Age 3 is Infant

Age 4 is Infant

Age 5 is Infant

Age 6 is Whining schoolboy

etc...