#CodeYork

Assignment 3

June XX, 2017

Task 1 - Recursive Factorials

We can use recursion to write a function that will compute the factorial of a number.

Here is some code to get you started:

```
def factorial(n):
      if n == X:
            return Y
      else:
            return Z * factorial(W)
```

Finish off this code by replacing the X, Y, Z, W with the correct expressions, and then test your function out to make sure it works.

Extension: Try to implement this iteratively too. See how the recursive implementation is much more natural and expressive.

Task 2 - String Manipulation

Recall from the first session that we can splice and access elements of lists. We can do the same with strings. If:

```
Word = "hello"
```

then, word[0] will give us “h”, word[-1] will give us “o”. **How do we get “ell”?**

Task 3 - Recursive Palindromes

A palindrome is a word which reads the same backward or forward, such as madam or kayak. **Implement a function to check if a string is a palindrome.**

You may start with the following code:

```
def is_palindrome(word):
    if X:
        return True
    elif word[0] == Y:
        return is_palindrome(Z)
    else:
        return W
```

Just like in task 1, you'll need to replace the X, Y, Z, W with the correct expressions.

Task 4 - Palindromes Again

Recall that we can reverse a string by using [::-1]. **Write an alternative version of the function** that checks if a string is a palindrome by reversing it and checking if it's equal.

Hint: The code inside the function should only be one line! Much shorter than in task 3.