4.2 - Week 4 - Applied - Practical

Important Information!

Please ensure that you include a `.globl` directive for every function that you create as our test files will require this directive to import your function and run the tests.

Exercise 1 - A simple function

Consider the following python code and translate it faithfully to MIPS

```
def square(integer: int):
    square = integer * integer
    return square

def main():
    integer = 5
    print(square(integer))

main()
```

Exercise 2 - List argument

Consider the following python code and translate it faithfully to MIPS. Remember all the constraints about lists being passed into the function!

```
def fancy_printer(list_of_numbers):
    for i in range(len(list_of_numbers)):
        print(i, ":", list_of_numbers[i])

def main():
    list_of_numbers = [10,20,30,40]
    fancy_printer(list_of_numbers)

main()
```

Please note that when you separate items in a print command in Python, it adds spaces on either side. You can see this by running the code above

Exercise 3 - A recursive function

Okay, things will get real hard now. Don't get disheartened if you are unable to finish this within the 2 hours. Make sure you attend consultations so you can understand exactly how functions work in MIPS.
Give it a go! Translate the following python code faithfully into MIPS

```
def addition(num):
    if num >= 0:
        # call same function by reducing number by 1
        return num + addition(num - 1)
    else:
        return 0

def main():
    res = addition(10)
    print(res)

main()
```

BONUS - Exercise 4 - Dark Souls III in MIPS

Alright, now come on....you know we have to.
Let's make WORDLE in MIPS!

Nah, that's too hard. Let's implement two recursive calls, just making it that tiny little bit harder :)

```
def fibonacci(n):
  if n <= 1:
    return n
  else:
    res1 = fibonacci(n-1)
    res2 = fibonacci(n-2)
    return res1 + res2

def main():
    print(fibonacci(16))

main()
```

Translate the python code above faithfully into MIPS. This will print the n^{th} Fibonacci number