

## 3.2 - Week 3 - Applied - Practical

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### Print array elements

Translate the following python program faithfully into MIPS:

```
the_array = [1,2,3,4,5]
for i in range(len(the_array)):
    print(the_array[i])
```

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# Sum Of Integers

Faithfully translate the following code from Python to MIPS

```
x = 0

z = int(input("Enter length : "))

y = [ 0 ] * z

for i in range(z):
    y[i] = int(input("Enter integer : "))
    x += y[i]

print("Result :",x)
```



Ensure that you are actually reading the value from the array again for a faithful translation in line 9

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# Palindrome

Extend the previous exercise code to add MIPS code that determines if the list you read encodes a palindrome. For example, list [1,2,3] does not encode a palindrome, while [1,2,3,2,1] does.

Sample python code:

```
x = 0

z = int(input("Enter length : "))

y = [ 0 ] * z

for i in range(z):
    y[i] = int(input("Enter integer : "))

palindrome = 1
for i in range(len(y)//2):
    if y[i] != y[len(y)-1-i]:
        print("Not a palindrome")
        palindrome = 0
        break

if palindrome == 1:
    print("Palindrome")
```

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## Difficulty Level - MAXIMUM

Translate the following python code into MIPS:

```
length = int(input("Enter the length of the list: "))
normal_list = [None] * length
square_list = [None] * length

for i in range(length):
    normal_list[i] = int(input("Enter integer: "))
    square_list[len(normal_list)-i-1] = normal_list[i] * normal_list[i]

for i in range(len(square_list)):
    print(square_list[i])
```

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# FIT1054 - Optimising

You have already translated the following python code into MIPS:

```
length = int(input("Enter the length of the list: "))
normal_list = [None] * length
square_list = [None] * length

for i in range(length):
    normal_list[i] = int(input("Enter integer: "))
    square_list[len(normal_list)-i-1] = normal_list[i] * normal_list[i]

for i in range(len(square_list)):
    print(square_list[i])
```

Now let's try and optimize the code. We are turning faithfulness OFF **just** for this exercise. Try and optimize the code and let's see who can translate it using the minimum number of lines.