MH1401: Algorithms & Computing I
Python Crash Course

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About

This document will go through common mistakes and things to take note when programming for PYTHON and should be helpful for your exam and future modules.

Things To Take Note

⓪ **IMPORTANT**

① **Structure of Python Script**

⓪ IMPORTANT

Take note that just because your program works **DOES NOT** mean that it is correct and will always work on different computers and compilers.

① Structure of Python Script

The structure of the code should consist of the following:

1. Importing modules
2. Function Declaration
3. Script

```python
import numpy as np #Import modules

def sumlist(somelist): #Define function
    return sum(somelist)

def prodlist(somelist2):
    prodnum = 1
    for i in range(len(somelist2)):
        prodnum*=somelist2[i]
    return prodnum

print(sumlist(list([1,2,3,4]))) #Script
print(prodlist(list([1,2,3,4])))
```

Figure 1: Typical structure of Python code

①.① Importing Modules

Typically, modules are declared at the top of the Python file above everything else. However, in some cases there may be exceptions. In Figure 2 below, we import the module `numpy` as we will only be using it **inside** the function.

```python
def somerandommat(dim):
    import numpy as np
    return np.sum(np.sum(np.random.rand(dim,dim)))

print(somerandommat(3))
```

Figure 2: `Numpy` imported for the function only

⋆We do not define functions in an `if, else, for, while` etc. statement. As long as it needs to be used somewhere, it should be put at the top.

⋆Do **NOT** import every library that you can think of and not use it. It is highly inefficient and will make your program very bloated.