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TECHNOLOGICAL  
UNIVERSITY**  

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**SINGAPORE**

**MH1401: Algorithms & Computing I  
Python Crash Course**

**By  
Brandon Goh Wen Heng**

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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

① IMPORTANT

① Structure of Python Script

## ① 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

```
1 import numpy as np #Import modules
2
3 def sumlist(somelist): #Define function
4     return sum(somelist)
5
6 def prodlist(somelist2):
7     prodnum = 1
8     for i in range(len(somelist2)):
9         prodnum*=somelist2[i]
10    return prodnum
11
12 print(sumlist(list([1,2,3,4]))) #Script
13 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.

```
1 def somerandommat(dim):
2     import numpy as np
3     return np.sum(np.sum(np.random.rand(dim,dim)))
4
5 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.