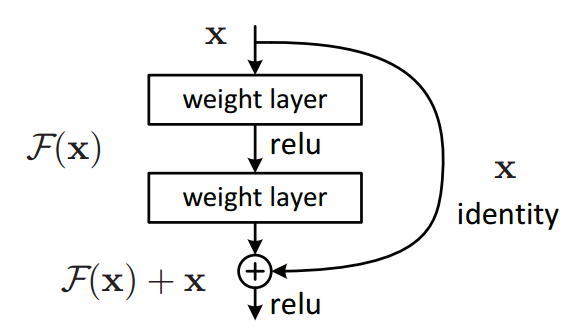
Problem1:  
 Please explain what is the residual block (two types) and give the pros and cons of each.

Residual Block可以避免梯度消失問題，減少loss卡在critical points的機會。

1. Basic Residual Block

由兩個連續的3x3 convolution layers組成，output為通過兩層convolution layers的data(右圖F(x))及input(右圖x)之相加(shortcut connection)。

Pros:

相較於Bottleneck Residual Block結構更為簡單、計算量少，對於較淺的network比較合適。

Cons:

計算效率較差，且對於層數較深的模型表現不如Bottleneck Residual Block好。

1. Bottleneck Residual Block

由三個連續的convolution layers組成，分別為1x1、3x3、1x1，