functions

**run\_raw\_mnist:**

evaluate KM, SAE+KM, DCN on raw MNIST.

1) It first run K-means for 10 times to get [nmi, ari, ac] for K-means.

2) Then it run test\_SdC to build a stacked denoising autoencoder

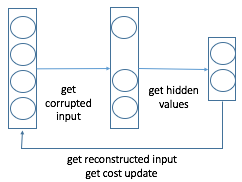
**multi\_layer\_km:**

It contains 2 classes: **dA2, SdC.**

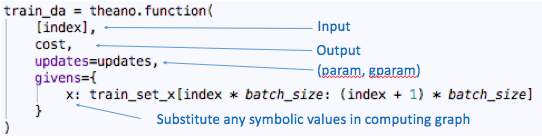
It also contains 5 function: **load\_data, load\_data\_shared, shared\_dataset, batch\_km, test\_SdC**

**dA2(dA)**

It is a 2-layer denoising autoencoder. It inherits class dA, but overwrite some function. For example: “get\_hidden\_values”, “get\_reconstructed\_input” computes the hidden layer value by relu instead of sigmoid. “get\_cost\_update” changes the loss function from cross-entropy loss to squared loss.

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Now that we are able to get cost and update, we can define a function to train the deep learning model. It is important to learn how to define a function in theano:



**SdC**