Report撰写的三要素：

1. self-contain：重要概念都给出定义和解释
2. high logic：每个篇章/段落/句子就只有一个核心概念。相邻的篇章/段落/句子必然存在某种逻辑关系
3. concise：语言要尽量言之有物，简洁凝练，直至本质，不要说一些无关紧要的东西。很多时候文字不好的原因就是你希望把一个事情说清楚，就说很多，反而说得越不清楚。数学是最简洁凝练准确的语言。
4. 尝试用数学去表达你的理解，例如：

linear space (also called vector space) is a collection of vectors which can be added and multiplied by numbers.

You should have following equivalent mathematical statement:

V={v, w} is vector space if and only if

1. v+w = w+v

2. etc.

1. 尽量集中到要阅读的论文本身，至少你的回答应该从论文去寻找，除了一些基本概念之外。此外，英语必须按照read me里面说的，写完后，逐个勾画主谓宾。尽量少用被动语态！
2. What is the objective function?
3. PCA，SVD，ED之间的关系必须理清。还有variance，covariance，SNR，冗余，以及对角化协方差矩阵。基本的逻辑关系应该是：
   1. SNR
   2. Covariance matrix
   3. removal redundancy/SNR leads to diagonalization of conv. Matrix according to the definition of conv.
   4. This further leads to an SVD problem.

Alternatively, PCA could also be achieved using ED. This is totally based on the definition of PCA.

1. the following concepts may be helpful to understand the ``component’’ in the context of PCA, confirm you have REALLY understood them:
   * Matrix;
   * Eigen value and Eigen vector;
   * Basis
   * Projection on the basis
   * Reconstruction error
   * Variance
   * Mean
   * Covariance
   * SNR
   * Redundancy
   * others

Regarding to Principle, see below

* + Eigen value and Eigen vector;
  + Eigen decomposing and SVD
  + Others