

# Chapter 1

## My Chapter learning

Dear Diary, It was a wonderful experience for me to lot important things in the class. I would like to share some the important things.

### 1.1 Math class

The equation of Latent Dirichlet allocation is very helpful in natural language processing for modelling a generative statistical model. The equation of the model is shown below :-

$$p(\beta, \theta, z, w | \alpha, \eta) = \prod_{i=1}^K p(\beta_i | \eta) \prod_{d=1}^D p(\theta_d, \alpha) \left( \prod_{n=1}^N p(z_{d,n} | \theta_d) p(w_{d,n} | \beta_{1:K}, z_{d,n}) \right) \quad (1.1)$$

Also the formula of cumulative distribution function in case of uniform probability mea-

## 1.2 Counting sort

Counting sort is one of the nice algorithm which is not comparison based sorting. Below is the counting sort algorithm :-

Euclid's algorithm [1] Euclid,  $b$  The g.c.d. of  $a$  and  $b$   $r \leftarrow a \bmod b$   $r \neq 0$  We have the answer if  $r$  is 0  $a \leftarrow b$   $b \leftarrow r$   $r \leftarrow a \bmod b$  **return**  $b$  The gcd is  $b$