DSP HW2

- Run Baseline

```
==================== HTK Results Analysis =====================
  Date: Wed May  1 18:56:32 2019
  Ref : labels/answer.mlf
  Rec : result/result.mlf
---------------------- Overall Results ------------------------
SENT: %Correct=38.54 [H=185, S=295, N=480]
WORD: %Corr=96.61, Acc=74.34 [H=1679, D=13, S=46, I=387, N=1738]
================================================================
```

- Improve Accuracy

```
==================== HTK Results Analysis =====================
  Date: Wed May  1 23:47:36 2019
  Ref : labels/answer.mlf
  Rec : result/result.mlf
---------------------- Overall Results ------------------------
SENT: %Correct=91.67 [H=440, S=40, N=480]
WORD: %Corr=98.33, Acc=97.41 [H=1709, D=21, S=8, I=16, N=1738]
================================================================
```

number of states = 10

Gaussian mixtures = 20

iterations = 50

- Summary

    1. number of states (Gaussian mixtures = 20, iterations = 50)

number of states	accuracy
5	90.10
10	97.41
15	97.24

    增加 number of states 的影響最為顯著，因為將每個聲音分得更細，因此更能代表其特性，故其 accuracy 大幅提升，但 state number = 20 時即顯示 bad data。

    2. Gaussian mixtures (number of states = 15, iterations = 50)

Gaussian mixtures	accuracy
5	97.18
10	97.30
15	97.01
20	97.24

    Observation 為連續型機率分佈，因此增加 Gaussian mixtures 雖影響不大，但能更精確地描述其分佈。

    3. Iterations (number of states = 15, Gaussian mixtures = 20)

iterations	accuracy
5	96.32

10	96.84
15	97.01
25	97.24
50	97.24

Iterations 與 accuracy 成正相關，原則上 iterations 愈高，accuracy 愈精確。