[IIAI30003] Digital Speech Processing

Homework 3

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Contents

1 Build Kaldi

```
mkdir new_train
mkdir new_test

for file in train/*.wav; do
  new_file="new_train/$(basename "$file")"
  sox "$file" -r 16000 -e signed-integer -b 16 "$new_file"
done

for file in test/*.wav; do
  new_file="new_test/$(basename "$file")"
  sox "$file" -r 16000 -e signed-integer -b 16 "$new_file"
done
```

Listing 1: Set Wav to 16kHz

```
import csv

with open('text.txt', 'w') as outfile:
    with open('train-toneless.csv', 'r', errors='ignore') as infile:
        [outfile.write(" ".join(row) + "\n") for row in csv.reader(
    infile)]
    outfile.close()
```

Listing 2: Transfering csv file to txt file

```
import csv

# Read the text file
with open('your_text_file.txt', 'r') as file:
    lines = file.readlines()

# Parse the text data and convert it into a list of dictionaries
data = []
for line in lines:
    parts = line.strip().split()
    id, *words = parts
    data.append({'id': id, 'text': ' '.join(words)})

# Sort the data by the 'id' field
sorted_data = sorted(data, key=lambda x: int(x['id']))

# Write the sorted data to a CSV file
with open('output.csv', 'w', newline='') as csvfile:
    fieldnames = ['id', 'text']
    writer = csv.DictWriter(csvfile, fieldnames=fieldnames)

    writer.writeheader()
    for row in sorted_data:
        writer.writerow(row)

print("Data has been transferred to output.csv and sorted by ID.")
```

Listing 3: Transfering txt file to csv file

2 Run CPU

The best Word-Error Rate (WER) that running on CPU for me in Kaggle competition is 4.94174.

3 Run GPU

The best Word-Error Rate (WER) that running on GPU for me in Kaggle competition is 3.68932.