

Jiahui Tang

1.4. Movie Rating Data (10 points)

Grouplens Research has collected and made available rating data sets from the MovieLens web site (<http://movielens.org>). The data sets were collected over various periods of time, depending on the size of the set. Before using these data sets, please review their README files for the usage licenses and other details. You can use as input file the small version of the dataset `ml-latest-small.zip` (downloaded from <https://grouplens.org/datasets/movielens/>). You have to preprocess the `ratings.csv` file to remove the header line.

```
$ sed '1d' ratings.csv > tmpfile; mv tmpfile ratings.csv
```

Develop a MapReduce job to show movies ids with an average rating in the ranges:

Range 1: 1 or lower

Range 2: 2 or lower (but higher than 1)

Range 3: 3 or lower (but higher than 2)

Range 4: 4 or lower (but higher than 3)

Range 5: 5 or lower (but higher than 4)

Use the design patterns explained in class. The job should have two MapReduce phases. The output of the first phase should be the movie ids and their average rating. The output of the second phase should be ranges and the movie's ids.

```
$ ./P14a_mapper.py < ratings.csv | sort | ./P14a_reducer.py | ./P14b_mapper.py  
| sort | ./P14b_reducer.py
```

Submission

- `P14a_mapper.py`: Mapper script first phase
- `P14a_reducer.py`: Reducer script first phase
- `P14b_mapper.py`: Mapper script second phase
- `P14b_reducer.py`: Reducer script second phase
- `P14.pdf`: The command line that you used to execute the job and any information required to reproduce the execution

Command Used:

```
sed '1d' ratings.csv > tmpfile; mv tmpfile ratings.csv  
  
./P14a_mapper.py < ratings.csv | sort | ./P14a_reducer.py |  
./P14b_mapper.py | sort | ./P14b_reducer.py
```

Output:

```
admin@C02D36V0ML85 problem_1 % ./P14a_mapper.py < ratings.csv | sort  
| ./P14a_reducer.py | ./P14b_mapper.py | sort | ./P14b_reducer.py
```

```
Range 1    102792,104760,105121,106111,108689,112497,1154,1164,11693  
9,119655,120635,121113,125916,128592,129250,129657,130448,1311,13145  
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1495,152057,1539,155820,1571,159755,159972,160080,1602,161155,16183  
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5737,25826,25901,26009,26157,26188,26409,26430,26467,26485,27351,273  
76,27482,27685,27689,27798,27857,2845,2869,2884,3003,3043,3047,3129  
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73,47330,4736,4753,4775,47810,47815,48522,4859,48591,48660,4875,4897  
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```

```
Range 2    100032,100083,100226,100390,100498,101088,101112,101360,1  
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