

Q. Develop a MapReduce program to find the grades of students

GradeCalculator.py

```
from mrjob.job import MRJob
```

```
class GradeCalculator(MRJob):
```

```
    def mapper(self, _, line):
```

```
        # Split the input line into name and score
```

```
        name, score = line.split(',')
```

```
        score = int(score)
```

```
        # Emit the name and score
```

```
        yield name, score
```

```
    def reducer(self, key, values):
```

```
        # Calculate the average score
```

```
        total_score = 0
```

```
        num_scores = 0
```

```
        for score in values:
```

```
            total_score += score
```

```
            num_scores += 1
```

```
        average_score = total_score / num_scores
```

```
        # Determine the grade based on the average score
```

```
        if average_score >= 90:
```

```
            grade = 'A'
```

```
        elif average_score >= 80:
```

```
            grade = 'B'
```

```
        elif average_score >= 70:
```

```
            grade = 'C'
```

```
        elif average_score >= 60:
```

```
            grade = 'D'
```

```
        else:
```

```
            grade = 'F'
```

```

        # Emit the name and grade

        yield key, grade

if __name__ == '__main__':
    GradeCalculator.run()

```

samplefile.txt

```

Prathamesh,95

Rohit,75

Virat,82

Sachin,68

Dhoni,88

Ashwin,73

Kuldeep,91

David,55

jadeja,50

Rahul,60

Iyer,45

Chahal,40

```

Output:

```

D:\Learning only\CL4>python practical4_1.py practical4.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory C:\Users\PRATHA~1\AppData\Local\Temp\practical4_1.Prathamesh Patil.20240414.100510.266307
Running step 1 of 1...
job output is in C:\Users\PRATHA~1\AppData\Local\Temp\practical4_1.Prathamesh Patil.20240414.100510.266307\output
Streaming final output from C:\Users\PRATHA~1\AppData\Local\Temp\practical4_1.Prathamesh Patil.20240414.100510.266307\output...
"Ashwin"      "C"
"Chahal"     "F"
"David"      "F"
"Dhoni"      "B"
"Iyer"       "F"
"Kuldeep"    "A"
"Prathamesh" "A"
"Rahul"      "D"
"Rohit"      "C"
"Sachin"     "D"
"Virat"      "B"
"jadeja"     "F"
Removing temp directory C:\Users\PRATHA~1\AppData\Local\Temp\practical4_1.Prathamesh Patil.20240414.100510.266307...

```