BE CD D
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EXPERIMENT NO. 4

Aim: Map reduce task for finding maximum and minimum temperature.

Input:

```
2001    76.45
2001    56.46
2002    77.56
2002    87.43
2003    45.65
2001    76.4708977
2001    56.234456567
2002    98.45
2002    43.45
2002    656.48
2001    98.67
```

Mapper:

```
f=open("year_temp.txt", "r")
mapper_dict = dict()
for line in f:
    line = line.strip()
    key, value = line.split('\t')
    if len(mapper_dict) > 0:
        if key not in mapper_dict.keys():
            mapper_dict[key] = [value]
        else:
            mapper_dict[key].extend([value])
    else:
        mapper_dict[key] = [value]
print('Output of mapper')
print(' ')
```

Output:

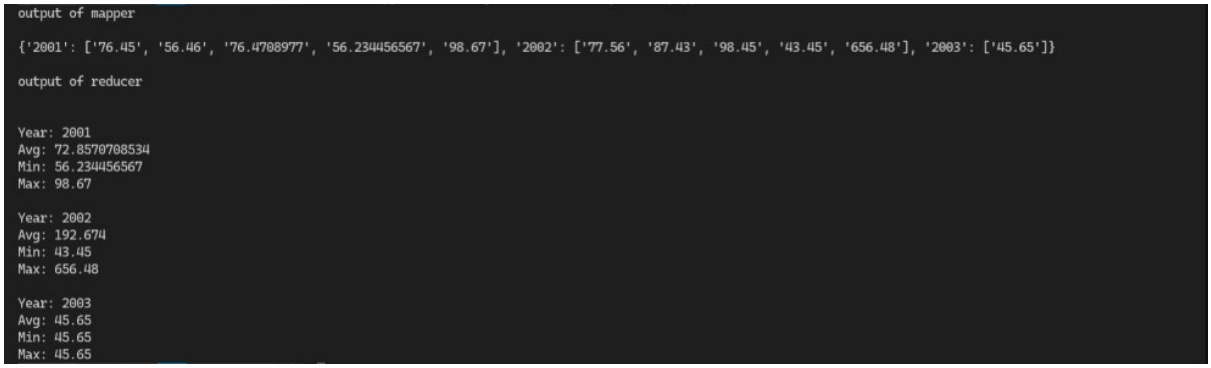
```
output of mapper

{'2001': ['76.45', '56.46', '76.4708977', '56.234456567', '98.67'], '2002': ['77.56', '87.43', '98.45', '43.45', '656.48'], '2003': ['45.65']}
```

Reducer:

```
import mapper
import numpy as np
data = dict(mapper.mapper_dict)
print(‘ ’)
print(‘Output of reducer’)
print(‘ ’)
for year in data:
    temps = np.array( data[year] )
    output = (year, temps.mean(), temps.min(), temps.max())
    print ('\nYear: {0} \nAvg: {1} \nMin: {2} \nMax: {3}'.format(output[0],
output[1], output[2], output[3]))
```

Output:



Conclusion: Thus, we have successfully implemented Map reduce task for finding maximum and minimum temperature.