1001,John,45
1002,Jane,68
1003,Bob,75
1004,Alice,55
1005,Charlie,90
1006,Eve,82
1007,David,63
1008,Frank,78
1009,Grace,92
1010,Henry,60
1011,Isabel,70
1012,Jack,80
1013,Kate,88
1014,Liam,50
1015,Mia,72
1016,Noah,65
1017,Olivia,85
1018,Peter,58
1019,Quinn,76
1020,Riley,95

mapper.py

```
#!/usr/bin/env python

import sys

# Initialize an empty list to store tuples of (marks, student_id, name)
data = []

# Input comes from standard input
for line in sys.stdin:
# Remove leading and trailing whitespace
line = line.strip()
# Split the line into fields
student_id, name, marks = line.split(',')
# Convert marks to integer
marks = int(marks)
# Append the tuple to the list
data.append((marks, student_id, name))

# Sort the list by marks in descending order
data.sort(reverse=True)

# Output the top 5 and bottom 5 students
for i in range(min(len(data), 5)):
```

```
print('%s,%s' % (data[i][1], data[i][2])) # Output format: student_id, name
for i in range(max(0, len(data) - 5), len(data)):
print('%s,%s' % (data[i][1], data[i][2])) # Output format: student_id, name
```

reducer.py

```
#!/usr/bin/env python

import sys

# Initialize variables to hold total marks and count for top 5 and bottom 5 students
top_total_marks = 0
bottom_total_marks = 0
top_count = 0
bottom_count = 0

# Input comes from standard input
for line in sys.stdin:
# Remove leading and trailing whitespace
line = line.strip()
# Split the line into student ID and name
student_id, name = line.split(',')
# Extract the mark from student ID (assuming the mark is the last part of the student ID)
mark = int(student_id.split('_')[-1])
# Check if the student is in the top 5 or bottom 5
if top_count < 5:
top_total_marks += mark
top_count += 1
elif bottom_count < 5:
bottom_total_marks += mark
bottom_count += 1

# Calculate the average marks for top 5 and bottom 5 students
top_average_marks = top_total_marks / 5 if top_count > 0 else 0
bottom_average_marks = bottom_total_marks / 5 if bottom_count > 0 else 0

# Output the results
print("Top 5 Average Marks:", top_average_marks)
print("Bottom 5 Average Marks:", bottom_average_marks)
```