

INF 551 – Spring 2018

Quiz 10: MapReduce (10 points), 15 minutes

Consider the WordCount example seen in class. Assume that input directory has 2 small files whose contents are shown below. Suppose that combiner is used.

File1	File2
dog or cat this cat	cat and dog that dog

1. [1 point] How many map tasks will be created?

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2. [4 points] Show the input and output of each call to the map function for each map task.

Map task 1:

Input: (0, "dog or cat"), (11, "this cat")

Output: (dog, 1), (or, 1), (cat, 1), (this, 1), (cat, 1)

Map task 2:

Input: (0, "cat and dog"), (12, "that dog")

Output: (dog, 1), (and, 1), (cat, 1), (that, 1), (dog, 1)

3. [2 points] Show the input and output of each call to the combine function.

Combine function 1:

Input: (dog, [1]), (or, [1]), (cat, [1, 1]), (this, [1])

Output: (dog, 1), (or, 1), (cat, 2), (this, 1)

Combine function 2:

Input: (dog, [1,1]), (and, [1]), (cat, [1]), (that, [1])

Output: (dog, 2), (and, 1), (cat, 1), (that, 1)

4. [3 points] Assume that **two** reducers are used. One handles all words which start with a letter from 'a' to 'n'; the other handles the rest. Show the input and output of each call to the reduce function for each reduce task.

Reduce function 1:

Input: (dog, [1,2]), (cat, [1, 2]), (and, [1])

OutPut: (and, 1), (cat, 3), (dog, 3)

Reduce function 2:

Input: (that, [1]), (this, [1]), (or, [1])

OutPut: (this, 1), (that, 1), (or, 1)