

HIROSHIMA UNIVERSITY広島大学

課題１MapReduce (Homework 1)

Big Data KA218001

ビッグデータKA218001

**Submission Information**

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**第１問の答え:**

which is stored as input coordinates in this form:

1. *Map Step:*

* Divide the idle mapper workers where each is assigned a chunk of matrix M.
* For each element *mij*,multiply by *vj.*
* The output of the Map function is:
* By Iterating over j, the resultant key-value pairs are as follows: (Answer for 1-1)
  + (j=1, where 1≤i≤4)
  + (j=2)
  + (j=3)
  + (j=4)
  1. *Grouping Step:*
     + *Group the values by key to form the input for the Reduce step.*
     + *The output form of this step:*

1. *Reduce Step*
   * Each reducer worker sums the values associated with key *i* to compute the final result for each *Xi* row. (which is commutative and associative).
   * The input for the Reduce function is: (Answer for 1-2)
   * The output for Reduce function is:

**第２問の答え:**

1. *Map Step:*
   * Generate the key-value pairs (b, (R, a)) and (b, (S, c)) for each (a, b) and (b, c). (Cartesian Product)
   * Output of the Map function: (Answer for 2-1)
   1. *Grouping Step:*
      * Group the key-value pairs generated by the Mappers by key B, and pass the output to the Reducers: (Answer for 2-2)
2. *Reduce Step:*
   * For each pair (R, a), (S, c) produce the tuple (a, b, c) with a key (irrelevant)
     + At B = 0 → No values from R, and at B = 3 → No values from S.
   * The output is a list of all key-value pairs in the form of (a, b, c): (Answer for 2-3)
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