CS5542 : Lab Assignment #4

Due on Wednesday, February 17, 2016

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1: Hadoop MapReduce Algorithm

Question:

Implement MapReduce algorithm for finding Facebook common friends problem and run the MapReduce job on Apache Hadoop.Write a report including your algorithm and result screenshots.

Description:

Given that the friends of a person are stored as $A->(B,D,E)$ we can use this to feed the mapper, which will generate intermediate output of key-value pairs with key being friend along with the person. The value containing list of friends of that person.

Ex: Map($A->BDE$)
(AB)->(BDE)
(AD)->(BDE)
(AE)->(BDE)

Map($B->ACDE$)
(AB)->(ACDE)
(BC)->(ACDE)
(BD)->(ACDE)
(BE)->(ACDE)

Grouping them will result as: $(AB)->(BDE)(ACDE)$

Upon giving this to the reducer, which will intersect the values and output the same key. For Ex: $(AB)->(BDE)(ACDE)$ will output $(AB)->(CD)$

The final result will be:
(A B) -> (C D)
(A C) -> (B D)
(A D) -> (B C)
(B C) -> (A D E)
(B D) -> (A C E)
(B E) -> (C D)
(C D) -> (A B E)
(C E) -> (B D)
(D E) -> (B C)

Screenshot:

Figure 1: Hadoop Input

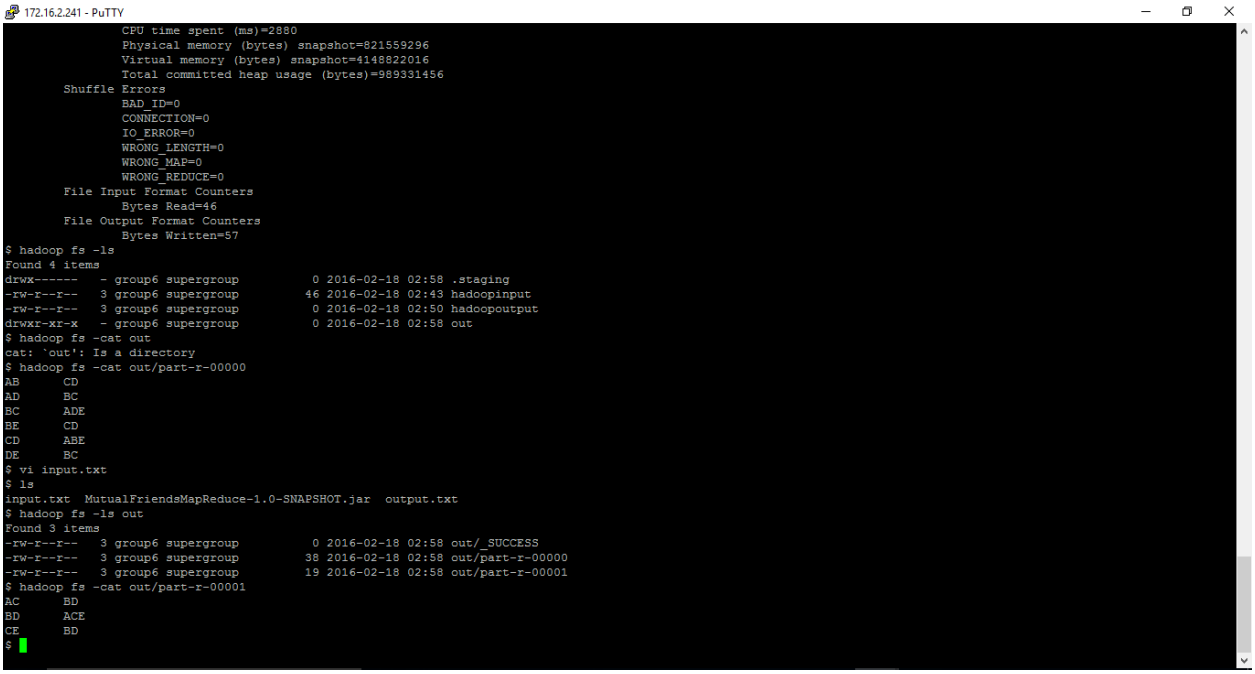

Figure 2: Hadoop Output

2: Watch App

Question:

Implement asmartwatch/smartphone application using existing speech services/image services (e.g., IBM Alchemyapi, Face++) related to your project

Description:

In our project - Tour guide, ROboMe will be taking a series of images to map the interiors of an architecture. This requires image recognition technique. We are using the OpenCV API to predict the images similarity. This will be implemented in the central server which has the database connectivity, hence this central server would be the AWS. Since we are not using any API related to face-recognition at Mobile. I have implemented the image search part which would be required for fetching similar images from the captured images. I have used Google Image Search API for searching images based on the detected object.

Reference:
I have went through the below reference code for using GoogleImageSeach API. I have not included the same code but made use of the structure mentioned in the below link https://github.com/Trindaz/android-google-image-search