README

Methodology:

- First, we have applied preprocessing on each document, like converting it into lower-case, taking only letters, tokenizing, lemmatization, and removing stopwords, and storing it into a JSON(preprocessData.json) file.
- The preprocessData.json file is used to create the indexing,inverted index and posting of the document and then store it into indexing.json, invertedIndexing.json and postinglist.json file.
- In indexing, we create a dictionary; Here, the key is word and value is a dictionary in which key is the document file, and the count is the word frequency in that document Like this:

{word: {key1:count1, key2:count2}, word2:{key1:count1}}

- In Inverted indexing we created a dictionary, in this dictionary, key is the word, and the and value is the index we provide to that word; here, we start indexing from 101.
- In the posting, we create a dictionary, and in this dictionary, the key is the index of the word and value is a dictionary, and the key is a document, and value is how many times that word comes in that document.

• Queries:

And merge:

We are simply matching in both the lists. If matches then increase in i and j of both list and store in the document list and if list[i] < list[j] then increase in i and else increase in j. And when any of the list end operations is terminated. And on increase the compare for all the operation.

OR merge:

In this, we are simply matching in both the lists. If both are the same at i and j index, then append the document in doc list and increase compare. If the first list index i value is smaller than the other, we will store it in doc and increase it. If vice-versa, then increase j and store the document of the second list that index document in doc and increase compare. If anyone ends, the other one will append all its documents in the doc.

AND NOT merge:

The AND NOT function we are checking if it is true for i and false case for j then we will print the title of i doc, Else we will move to the next index.

OR NOT merge:

The OR_NOT function is considering all the titles we will only consider query "i or not j" as "not i and j" and extract these titles from all title lists.

PreProcessing Steps:

- Using a listdir() function to list all the files and sending this list to the "def preprocessing data(files)" function and "files" are the list of files.
- In "def preprocessing data(files)," first, we create a dictionary named as preprocessedData this dictionary contains the file name as key and preprocessed data as values.
- Ignoring FARNON, SRE, index, and all "." files like ".header."
- Sending the file for preprocessing in lower-case to function "preprocessing."
- "def preprocessing(texts)" function, this function follows the following steps:
 - String of lower case
 - o Remove all the non-letters
 - Tokenizations of words
 - Removing stopwords
 - Apply Lemmatization.

Adding the screenshot of preprocessedData.json:

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(*100west.st*! [*nascewer*, "trial*, "propert, "freewer*, "need, "support", "notine, "year, "notine, "year, "pressioe*, "pres

Here we were attaching the screenshot of 467 files that are preprocessed

```
thewave has processed 430
tinsoldr.txt has processed 431
wisteria.txt has processed 432
sucker.txt has processed 433
tuc mees has processed 434
withdraw.cyb has processed 435
vainsong.txt has processed 436
tailbear.txt has processed 437
textfile.primer has processed 438
weeprncs.txt has processed 439
thanksg has processed 440
the-tree.txt has processed 441
vgilante.txt has processed 442
telefone.txt has processed 443
uglyduck.txt has processed 444
stsgreek has processed 445
tree.txt has processed 446
wolflamb.txt has processed 447
wrt has processed 448
sre07.txt has processed 449
sre02.txt has processed 450
sre04.txt has processed 451
sre05.txt has processed 452
sre_feqh.txt has processed 453
sre01.txt has processed 454
sre06.txt has processed 455
yukon.txt has processed 456
sre08.txt has processed 457
sre finl.txt has processed 458
srex.txt has processed 459
sre10.txt has processed 460
sre03.txt has processed 461
sre_sei.txt has processed 462
wombat.und has processed 463
zombies.txt has processed 464
sre09.txt has processed 465
write has processed 466
sretrade.txt has processed 467
```

Indexing:

- Based on each document's word count, we will create an inverted index and posting list.
- The posting list includes the Document key, and no. of time word appears in that document.
- We have saved the indexing, inverted index, and posting it into .JSON file and pushed it to the repository.

Inverted Indexing:

• We have provided an index for each word, and we have started the index with 101 and store the inverted index into the invertedIndexing.json file.

Posting:

• In the posting, we create a dictionary, and in this dictionary, the key is the index of the word and value is a dictionary, and the key is a document, and value is how many times that word comes in that document and store this into postinglist.json file.

Here we have attached the screenshot of how all JSON files look.

Indexing.json:

("hazemart' ['100west.cat'] 6, "acctic.cat'] 6, "Breakal.asc'] 6, "Breakal.asc'] 7, "Goldens, Cat'] 8, "Establishment 8, "Maleman.cat') 8,

invertedIndexing.json:

("Sherewar") 15, "Trial") 15, "project" 150, "project" 150, "Remart" 15, "Remart" 15, "Support" 150, "Recording") 157, "Mest" 150, "protected" 151, "propried 151, "proprie

Posting.json:

Posting.json:

(*101*) (*pykeria.set*) 5, *100**st.set*) 4, *macrio.set*) 4, *Toreads.set*) 1, *Toreads.set*) 1, *Toreads.set*) 1, *Toreads.set*) 2, *Toreads.set*) 3, *Toread

Assumptions:

- From index.html file, taken the file name and their titles then stored in the title_stories.txt and on that title_stories.txt file remove the expelled data and store it in the same file title_stories.txt
- Attached the title_stories.txt and python file in the repository and the screen shot also.
- We have started the inverted index from 101.

title_stories,json

("100west.txt" "Doing 100 West by 35 Borth by Jim Frentice [1890]", "150mll.txt"; The Story of the Sly Fow, "16.1we", "A mast bomb with a language Parcet", "16.1we", "Two Days in a Frenches [1890]", "15.1we", "Englishment of Marginesting the Future of American Technology by M. Fambors (Dansauy S. 1892), "20.1we", "Maginesting the Future of American Technology by M. Fambors, "Story of the Slave Report of Story of the Slave Report of Story of