

Assignment 1

January 28, 2025

Instructions

1. Try to be more creative and logical
 2. Whenever there is a trade offs questions, do think in all perspectives.
 3. Plagiarism will not be tolerated. References should be provided in all questions.
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1 Trade offs (10 Marks)

Explain atleast 5 trade offs we discussed in the class.

2 Search (15 Marks)

You have a huge data set and it is in unsorted order. Which search do you prefer ?

Hint : This is a trade off question

3 Return vs Yield (15 Marks)

Write a function which generates 100 random numbers. Use both return and yield, explain what you observe ?

4 MergeSort (25 Marks)

Use the above function and store the 100 numbers in a list.

- Perform merge sort as usual
- Use Batch Processing we did in the above exercises
- Can you try to attempt MapReduce Paradigm for this ?

5 Big Data Usecase - mini (35 Marks)

INR is weak or USD is strong ?

- Collect the INR to USD data for the past X years
 - Find the source of the data
 - Write a python script to collect the data
 - Else get the data by copying from the website and store it in csv
- Analyze the trend - Whether INR is weak or USD is strong ?
 - Device an algorithm to find the peaks
 - Compare with other currencies (Euros vs USD)
 - Figure out whether INR is weak or USD is strong
- Use Batch Processing for the above as we did in the above exercises
- Use MapReduce paradigm

Do use your creativity and logical mind to come up with the solution and code.

Recommended Actions :

- Collect the data through python script
- You can use your own algorithm

6 Bonus Question

Create a github account, and place your codes in the github and share the link

* If you get above 90 then this bonus question will be considered and can be awarded upto full marks.