PYTHON

1. First 100 prime number
2. A leap year is exactly divisible by 4 except for century years (years ending with 00). The century year is a leap year only if it is perfectly divisible by 400. For example,

* 2017 is not a leap year
* 1900 is a not leap year
* 2012 is a leap year
* 2000 is a leap year

1. Given two strings s1 and s2, check if both the strings are [anagrams](https://www.geeksforgeeks.org/check-whether-two-strings-are-anagram-of-each-other/) of each other.

**Input :** s1 = "listen"

s2 = "silent"

**Output :** The strings are anagrams.

**Input :** s1 = "dad"

s2 = "bad"

**Output :** The strings aren't anagrams.

1. Check palindrome

Madam → palindrome

1. Check whether a substring present in a string

ways present in always

1. Find all possible substrings

Abcd -> a,b,c,d,ab,abc,abcd,bc,bcd,cd,d

1. Find the second highest number

10,13,14,7,4,31 -> 14

1. Most occuring number in the list

2,6,7,8,8,9,3,3,3 -> 3

1. Remove vowels and return string

How are you? -> Hw r y

1. Run length encoding problem

‘aaaabbcdda’ a4b2c1d2a1

Theory

1. What is PCA
2. What is the curse of dimensionality?
3. What are stopwords? Why is it important to clean data?
4. Two methods using which PCA find best features?
5. What is BOW and tf-idf?
6. What is naive in naive bayes?
7. What is laplace smoothing? Why do we need it?
8. What is cosine similarity?
9. Optimization equation of logistic regression and the loss used in logistic regression?
10. Why do we need L1 and L2 regularizer and difference between them
11. Explain entropy,gini impurity and information gain in a decision tree with formulas?
12. How does random forest and boosting algorithm work
13. Explain how does linear svm works and explain the loss used in svm
14. Why do we need hyperparameter tuning
15. Why do we need to balance the dataset
16. How to reduce overfitting
17. Different metrics used in evaluation, explain then with formulas and pros and cons
18. How is tuple different from other data structures
19. Difference between set and list with examples
20. Difference and similarity between set and dictionary
21. How is dictionary different from other data structures
22. Can a key be a list in a dictionary
23. Solve fibonacci series 0 1 1 2 3 5 8… nth
24. Does random forest help in reducing overfiiting? How and why?
25. What is bagging in random forest?
26. Which is faster, random forest or boosting algorithm? Why?
27. What is pandas used for ?
28. What is pdf and cdf?
29. Difference between box plot and violin plot