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DEPT: DATA SCIENCE

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ASSIGNMENT: 1

COURSE: INFO 5502

Write a Python program that can take strings of different lengths - each string may include digits, characters, and special symbols - and then sort them - you can use any sorting algorithm that interests you. You need to define the rule for sorting and then implement the sorting function using Python - DO NOT use any existing sort function from either Python or an external module - that is, program the "sort" algorithm yourself. Using Python, visualize a list of input strings - the list must include at least 500 strings of differing lengths. Use a scatter plot to do the visualization - one dimension will be the length of each string - and the other dimension could be the order of the string in the list.

### Description:

**Sorting:** Data sorting is a method of organizing data so that it is easier to comprehend, analyze, and visualize. Data is usually sorted in ascending or descending order depending on its original values. Using loops and if-condition expressions, we can quickly sort a list of items. Any computer language, such as C, Java, or Python, may be used to implement sorting algorithms.

### Explanation about the code:

In this case, I used Bubble sort to sort 500 various lengths of strings into alphabetical order (and the output is special characters->numeric->alphabets). [Sorting\_string] is the define function, and [str] is the argument. And I used the Matplotlib Library to create a scatter plot with the length of the list as the X-axis and the length of a string as the Y-axis. I also added the xlabel, ylabel, and title functions to make it easier to read the graph.

### Python Code:

```
def Sorting_string(str):
    x=[]
    y=[]
    str=str.split()
    #print(str)
    for i in range(0,len(str)):
        b=list(str[i])
        #print(a) converting string into list of strings
        for j in range(0,len(b)):
            for k in range(j+1,len(b)):
                if b[j]>b[k]:
                    b[j],b[k]=b[k],b[j]
            z="".join(b)
        # print(z) #sorted strings
    for c in range(0,len(str)):
```

```

x.append(c)
y.append(len(str[c]))
#print(x) X is order of strings
#y is length of the strings
import matplotlib.pyplot as plt
plt.ylabel("length of strings",color="REd")
plt.xlabel("Order of strings",color="REd")
plt.title("sorting all strings")
plt.scatter(x,y,color="yellow")

```

```

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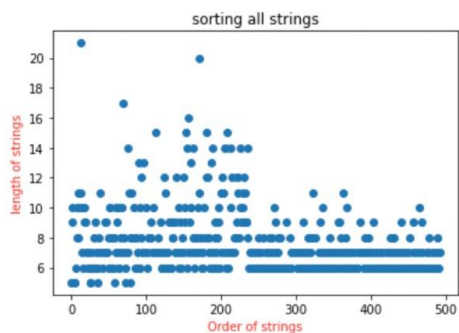
```

## Test case 1:

```

]: string("""are45 jhgdsj^%$@ GHJ546$%^ ram6$ varun teja7 venkat saiteja576 sunil%^ Vamsi*^9 deekshith#2 srikanth%^ Saiku
friut2 gujarath wtzht mht654 kolly1 hattyl2 meaty2 malayam tollyu sweaty4 runaway cinemal danger45 aeonny 12fonny""")

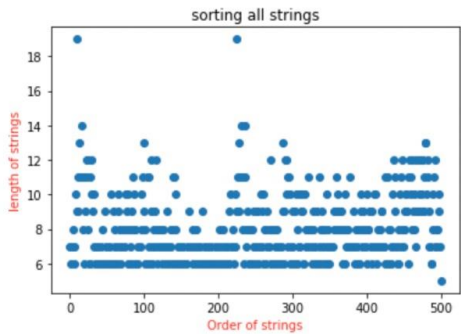
```



## Test Case2:

test case2

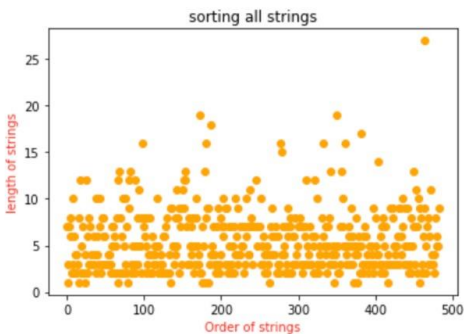
```
|: Sorting_string("""malayam toliyu sweaty4 runaway cinemal danger45 aeonny 12fonny ^&%$%^&^
GFHGFHGFHJG&^%&GVGH FGHGFHgfV TGFHYRYFHGF %^$^%&^&^ HNJGJHGFHFRFTY YTTTRFYTYTR 4354FGHFGf HGHFHFYTFGV675 656^6567
#$@%$@!$##$ DFGBDG JHGJGHYGFH ^%$^&879 JHGYUHHFDTGF %^$^%&^&^* JHGHYGHV TYFGHFYHTFGD *&^&%& UYTUJT (*&^%&^(&))
KJHJGTHJFDRD jdhfjusdfh shaivi@15 %$^$&%&$^& carlone fruit1 ABC@!sd kolly23 iconoic oreo09 pressy bronze mln2b3 silver3
sweety 12345mnbv building Bhalla. Bhalla deeds. further Avantika\'s attention roughly. lighten combat showing beauty. A
```



Test Case3:

Test Case 3

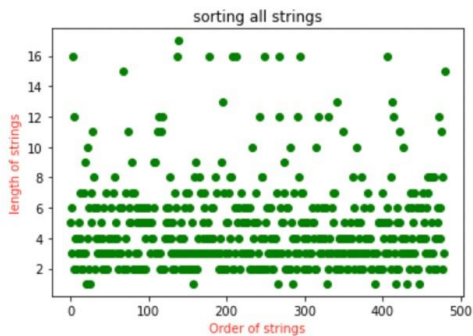
```
|: Sorting_string("""Johnson was a college football player at the University of Miami, with whom he won a national champio
An honorary member to prominence after developing the gimmick of a charismatic, boastful, trash-talker. He won his first
In 2004, he left the WWE to pursue an acting career. He returned in 2011 as a part-time performer until 2013, and made
Johnson produced and starred in the HBO series Ballers (2015–2019), which ran for five seasons and was ranked as HBO's
```



### Test Case 4:

## Test Case 4

```
Sorting_string("""After losing the Intercontinental Championship to Owen Hart on the April 28, 1997 episode of Raw Is War, Stone Cold Steve Austin joined the Nation of Dom Monaghan. At D-Generation X: In Your House, Stone Cold Steve Austin defeated the Rock in under six minutes to retain the Intercontinental Championship. The Rock and The Nation then feuded with Triple H and D-Generation X, with the two stable leaders first meeting in the main event. The Rock saw a big uptick in fan support during this time, causing him to be booked in a feud with fellow Nation member
```



### Test Case 5:

### Test Case 5

ngle won to retain the title.[124] On the December 18 episode of Raw, the Rock won the WWF Tag Team Championship with Edge in a running powerslam-like position, before the Rock countered the move on the ring apron, sending Big Show to the

