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UNT ID: 11442777 DATE: 02/07/2021

ASSIGNMENT: 1 COURSE: INFO 5502

## **Question:**

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.

Submit the python program, a report to describe the sorting rule, visualization result and testing results with 5 test cases.

# **Description:**

**Sorting:** Data sorting is a process that arranges the data into meaningful and it will easy to understand, Analyze and visualize. Data is typically sorted based on original values, in their ascending or descending order. We can easily sort a list of elements by using loops and ifcondition statements. Sorting algorithms can be execute by any programming languages c, java, python.

## **Rule for sorting:**

Here I implemented the program by using Bubble sort for sorting 500 different lengths of strings based on alphabetical order (And the Output is special characters->numeric->alphabets). I have taken define function as [**order\_strings**] and the parameter is [**str**]. And I passed the list of strings which gets sorted and defined Scatter plot by using Matplotlib Library in such a way that X=axis provides the length of the list and Y-axis is defined as the length of a strings and I have included xlabel,ylabel and title functions,so that it will be easy to view the graph.

# PROGRAM FOR SORTING DIFFERENT TYPES OF STRINGS (WITH LIST INCLUDED 500 STRINGS) AND USING A SCATTER PLOT TO VISUALIZE LIST OF STRINGS

# **Python Program**

```
import matplotlib.pyplot as plt
def order_strings(str):
  f=[]
  x=\Pi
  y=[]
  for i in range(0,len(str)):
     a=list(str[i])
     for j in range(0,len(a)):
       for k in range(j+1,len(a)):
          if a[j]>a[k]:
             a[j],a[k]=a[k],a[j]
             z="".join(a)
     f.append(z)
  print(f)
  for b in range(0,len(str)):
     x.append(b)
  #print(x)
  for n in range(0,len(f)):
     q=len(f[n])
     y.append(q)
  #print(y)
  plt.xlabel("Length of the list",color="Black",size="15")
  plt.ylabel("order of each string",color="black",size="15")
  plt.title("Sorting the different length of strings in list",loc="center",size="15")
  plt.scatter(x,y,color="pink")
```

## Test case1:

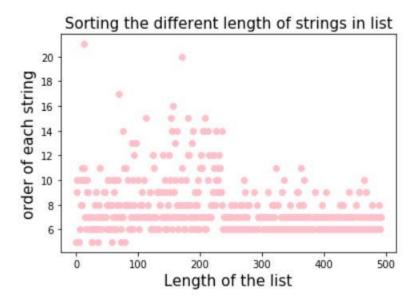
## Actual string:

 $\textbf{Sorting}(["are45","]hgdsj^%\$@","GHJ546\$\%^","ram6\$","varun","teja7","venkat","saiteja576","sunil\%^n,"Vamsi*^9","deekshith#2","srikanth\%^n,"Saikumar\%$ @","gfhfhfjfghfhgcgfdfghd","iamgoing34","tomovie","whatis","shedoing@","itoldher12","bealright","cdechu2","Elsewr2","rain123","licebc","ekuva4","!h!nn","chir u","vamsi56","\$%gvfh","zzzzzz","money%\$5","%&^%gh","&^8chjira","11fhgd","635fgjh","ghjhd","^56gfh","gdhs67^%",'Afghanistan', 'Albania', 'Algeria', 'Andorra', 'Angola', 'Antigua', 'Barbuda', 'Argentina', 'Armenia', 'Australia', 'Austrian', 'Empire', 'Azerbaijan', 'Madagascar', 'Malawi', 'Malaysia', 'Maldives', "Maligh', 'Malta', 'Marshall', 'Islands', 'Mauritania', 'Mauritius', 'Mexico', 'Micronesia', 'Moldova', 'Monaco', 'Mongolia', 'Montenegro', 'Morocco', 'Mozambique'"'kjfjkjs", "%\$65"  $gjhg", "hdjagja", "hfhjs", "^7ygtd", "87gfbsd", "gsjgfjeggsdjhf", "bcjhgcg", "djahdjuy674", "bfjhwg76", "hgfjs", "ewgu""jkfhgsf", "bjaugd56", "^%&ghhdg", "hfgbsujg", "*&ghhdg", "hfgbsujg", "*&ghhdg", "hfgbsujg", "hfghgsf", "bjaugd56", "hgghdg", "hgghdg",$ ^&hndskj","^\*&\*&^","!#@#\$#\$%","\$#%%^\*&^","&\*\*^&%","GVF%^87","HJGGJHGJGHUYg","GFHHgfyt76",'Panama', 'Argeghintina', 'Barbados','Belarus', Philghippines', 'Nassau\*', Bahrain', 'Bangladesh', 'Belgium', 'Austria', 'Guinea', Paraguay', 'Bahamas,', 'Bavaria\*', 'Austrian', 'Nicaragua', 'Nica "Barbuda', 'Azerbaijan', 'States\*', 'Piedmont-Sardin', 'Antigua', 'Albania', 'Andorra', 'Pakistan', 'Zealand', 'Algeria', 'Australia', 'Angola', 'Belize', 'Namibia', 'Empire', 'Netherlands,', 'Armenia', 'Afghanistan', 'Swoosh', 'Furiosa', 'SpeedX', 'Firebrand', 'Burner', 'Orange', 'Brimstone', 'Apollo', 'Knockout', 'Hannibal', 'Clockwork', 'Imperator', 'Furious', 'Strangeglove', 'Screech', 'Furiosa', 'Scorch', 'Roadrunner', 'Clockwork', 'Torcher', 'Hoover', 'Divebomb', 'BloodDiamond', 'Slammer', 'Dumptruck', RedOctober', 'MerlotTNTDiablo', 'Taurus', 'PearlyTailgate', 'Monster', 'LightningMcQueen', 'TheDonald', 'FerrisBueller', 'IgniteRoad', 'Ladybug', 'Squeaker', 'Indonald', 'FerrisBueller', 'Indonald', 'Summer Vacation', 'Wheezy', 'Roadkill', 'RedBull', 'Caroline', 'Sawdust', 'Craigslist', 'YosemiteSamStepchild', Gravedigger', 'Champion', 'Garbage', 'Bloody', 'Cherry', 'Michael', 'SwampThing', 'Doomsday', 'Sawbones', 'DieHardJunkyard', 'PavementFace', 'Troublemaker', 'Rosanne', 'Dynamite', 'RedHot', 'Arnold', 'HighwaytoHell', CrimsonMachine', 'Starsky', 'Jordan', 'Paycheck', 'Bloodshot', 'Vulture', 'Komoda', 'ToneZone', 'Basketcase', 'Sasquatch', 'Murder', 'TheGoon', "RonBurgundy', Nightcrawler', Bloodsoaked', Bonecrusher', CliffordtheBig', Redbull', BlazingSaddles', Magnum', BobtheDestroyer', "6757687", "778648", "8765348", "376448", "8765348", "376448", "8765348", "376448", "8765348", "376448", "8765348", "376488", "3764888", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "3764888", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "376488", "3764888", "376488", "376488", "3764888", "3764888", "3764888", "37648888", "3764888", "3764888", "3764888", "376888", "3768888", "37668888", "37688888", "376888888", "37688888", "37688888888", "3766

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## **After sorting testcase1:**

[45aer', \$%@^dghjjs', \$%456GHJ^', \$6amr', 'anruv', '7aejt', 'aekntv', '567aaeijst', '%^^ilnsu', '\*9V^aims', '#2deehhikst', '%^ahiknrst', '\$%@Saaikmru', 'cddffffffgggg ghhhhhj, '34aggiimno, 'eimootv', 'ahistw', '@deghinos', '12dehilort', 'abeghilrt', '2ccdehu', '2Eelrsw', '123ainr', '1bccei', '4aekuv', '!!hnn', '!!hnn', '56aimsv', '\$\( \) \%fghv', \\$\( \) \\( \ u', 'Aaeginnrt', 'Aaeimnrt', 'Aaailrstu', 'Aairstu', 'Aairrstu', 'Eeimpr', 'Aaabeijnrz', 'Maaaacdgrs', 'Maailw', 'Maaailsy', 'Madeilsy', 'Maghil', 'Maalt', 'Maahllrs', 'Iadlnss', 'Iadlnss', 'Maaaacdgrs', 'Maailw', 'Maaaacdgrs', 'Maaaacadgrs', 'Maaaacad Maaaiinrtu', 'Maiirstuu', 'Maciox', 'Maceiinors', 'Madloov', 'Macnoo', 'Magilnoo', 'Megnnoort', 'Mccooor', 'Mabefijjjkkmoqsuz', '\$%56gghj', 'aadghjj', 'fhhjs', '7^dgty', 'Macnoo', 'Macno %67dghs', 'deffgggghjjjss', 'bccgghj', '467addhjjuy', '67bfghjw', 'fghjs', 'effgghjksuw', '56abdgju', '%&^dgghh', 'bfgghjsu', '&&\*^dhjkns', '&&\*\*^\', '!###\$\$%@', '#\$% %&\*^\', 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'Sadstuw', 'Cagiilrsst', 'S SYacdeeehiilmmopstt', 'Gadeeggirry', 'Cahimnop', 'Gaabegr', 'Bdlooy', 'Cehrry', 'Macehil', 'STaghimnpw', 'Dadmoosy', 'Sabenosw', 'DHJaaddeiknrruy', 'FPaaceeemntv' , Tabeeklmorru', Raennos', 'Daeimnty', 'HRdeot', 'Adlnor', 'HHaeghillotwy', 'CMacehiimnnors', 'Sakrsty', 'Jadnor', 'Paccehky', 'Bdhlooost', 'Velrtuu', 'Kadmoo', TZeen noo', 'Baaceeksst', 'Saachqstu', 'Mderru', 'GTehnoo', 'BRdgnnoruuy', 'Naceghilrrtw', 'Baddeklooos', 'Bceehnorrsu', 'BCdeffghiilort', 'Rbdellu', 'BSaaddegillnsz', 'Magmn u', BDbeeehoorrstty', '5667778', '467788', '3456788', '\$% 347^^dggghh', 'GTUYdggjst', 'fghhjsy', 'ddfffhhhhiss', '6789fgh', '67dfghjk', '345678y', '46fgghhj', '78^dfgh u, BDbeechoorstty, '5667/78, '467/88, '3456788, '\$%, '347^^dggghh', 'GTUYdggyst, 'Ighlysy, 'ddffthhhhiss', '678fghh, '67dfghk, '345678y, '461gghhj, '78°dtgh, 'jirs', 'dfffghhjru', 'bcdfghhjin', 'befgghhs', '&\*78^begghhjjv, 'fijjlppqrr', '&()\*5gghv', '&\*\*867dfghhj, 'dffhhhjksu', '&&\*6^begghhj', 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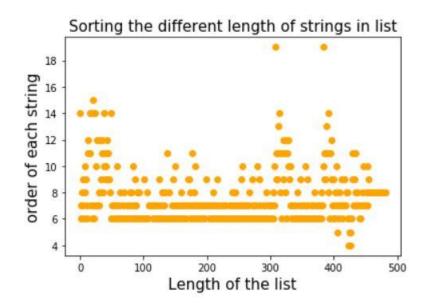
#### Test case 2:

#### **Before sorting:**

sorting(['CrimsonMachine', 'Starsky', 'Jordan', 'Paycheck', 'Bloodshot', 'Vulture', 'Komoda', 'ToneZone', 'Basketcase', 'Sasquatch', 'Murder', 'TheGoon', 'RonBurgundy', 'Nightcrawler', 'Bloodsoaked', 'Bonecrusher', 'CliffordtheBig', 'Redbull', 'BlazingSaddles', 'Magnum', 'BobtheDestroyer', "6757687", "778648", "8765348", "347%^^g""%\$hg gdh", "UYTGtgdsgj", "hgfjsyh", "hfihsdfhsdfh", "6gfh879", "76ghdfjk", "y657834", "64hgjhfg", "fhsj87 $^{\circ}$ jdrhg", "rhgfjuhdf", "sjhgdfnbchj", "djfnhgiudfhf", "shgbfheg", "\*&^87jhbgcjvhg", "qpplrfjirj", "gvgh\*(&5)", "\*&\*76hjhdfg", "hfjksdhfuh", "\*&^&6hgcjhgd", "GFUYgdyfg", "\*\*876hcjhdg", "&\*hjsgdhj", "^&djkhf87", "fngkjsdh", "fhgeuryt nbsdhf", 'mht654', 12fonny', cassty', EFghgh', hel!@lo', 'carloan', EFgh!!', 'malayam', "!!!!!!!!!!!", "^&%^% &^8\*&", 'google', 'kolly1', 'ekuva4', 'golddy4', 'hellohek', babyzz', 'aeonny', 'aug456', 'cdechu2', 'broomh', 'foxxyc', 'gujarath, '!loveu', 'july24', 'lijk2c', 'country', 'pinny1', 'bronze', 'gonny67', 'summer23', 'farmy2', 'helloby7', 'tfstool1', 'silver3', 'qa34ed', 'itsolu!123', '!missu', 'abc123894', 'sweaty4', 'pickup', 'hatty12', 'pillow23', 'cookee', 'tracj2', 'ruangry1', 'ammulu', 'drescc', '!mkoph','c1v2b3', 'sprout', 'gmail2', 'licebc', 'shaivi@15', 'cdemjy', 'doxxy1', 'madboy', 'danger45', 'piece2', 'wtztht', 'carlone', 'enjoy78', 'nastory', 'vrushi!', 'simha12', 'abc123!', 'mouth67', 'good12', 'iconoic', 'aolly3', 'A123ss', 'cdecde', 'biscuit', 'pppu78', 'work12', 'fruit'3', '12345mnbv', 'ABlmnC', 'shaivi', 'E@wrebh', 'spinach', 'gold34', 'february', 'abc66444', 'win123', 'gutarat', 'hotmail1', 'pressy', 'friut2', '!!!!\$wecgh', 'm1n2b3', 'tollyu', 'bankloan', 'denton', 'eoxxy2', 'meaty2', 'bed456', 'ABC@!sd', 'abc123444', 'sweety', 'january', 'fall34', 'Ellenb56gh', 'hapy76', 'cunning', 'cdednt', 'chicke', 'inthe!', 'hellomk', 'd1ssdr', 'runaway', 'cfrui54e', "loveboy', fruit1', 'chinni', 'spicy56', 'kukky2', 'toomuch', 'nacc7y', 'june12s', 'oreo09', 'kolly23', 'letsmeet2', 'abc12mj', 'mindtree2', 'hunger45', 'w102r3', 'fruit34', 'dntwryc', '12345abcabc', 'body67', 'summer1', 'lalita12', 'australia!', 'ab89hh', 'werfree', 'fishhy', 'spring', 'buddy15', 'mingle', 'keystr', 'swetha', 'Elsewr2', 'lolluy', 'paris@#', 'gold12', 'davb5@', 'Enmhyh', 'dance3', 'Ehonny2', 'cinema1', 'chinmayi1', '12bgabc', 'github!', 'redmond', 'rain123', 'wx!123', '12345abc', 'alron@', 'EFgh000', 'github!', 'redmond', 'rain123', 'wx!123', '12345abc', 'alron@', 'EFgh000', 'github!', 'redmond', 'rain123', 'wx!123', 'lanon@', 'github!', 'lanon@', 'github!', 'github!', 'redmond', 'rain123', 'wx!123', 'lanon@', 'github!', 'github!' 'Akka!fg', 'enkemi1', 'helloby7', 'gold12', 'doxxy1', 'hel!@lo', 'Akka!fg', 'c1v2b3', 'pinny1', 'letsmeet2', 'drescc', 'chinni', 'gonny67', '12bgabc', 'dance3', '!missu', 'chicke', 'aolly3', 'Ehonny2', 'buddy15', 'biscuit', 'golddy4', 'w1o2r3', 'fall34', 'ab89hh', 'lolluy', 'lloveu', 'dntwryc', 'EFgh000', 'foxxyc', 'cdednt', 'fishhy', 'hunger45', 'loveboy', mingle', 'bankloan', 'EFgh!!', 'pillow23', 'carloan', 'qa34ed', 'tracj2', 'eoxxy2', 'enjoy78', 'fruit34', 'good12', 'davb5@', 'shaivi@15', "%\$^&&&\$^&", 'carlone', 'fruit1', 'pillow23', 'carloan', 'qa34ed', 'tracj2', 'eoxxy2', 'enjoy78', 'fruit34', 'good12', 'davb5@', 'shaivi@15', "%\$^&&&\$^&", 'carlone', 'fruit1', 'pillow23', 'carloan', 'qa34ed', 'tracj2', 'eoxxy2', 'enjoy78', 'fruit34', 'good12', 'davb5@', 'shaivi@15', "%\$^&&&\$^&", 'carloan', 'qa34ed', 'tracj2', 'eoxxy2', 'enjoy78', 'fruit34', 'good12', 'davb5@', 'shaivi@15', "%\$^&&&&\$^&", 'carloan', 'qa34ed', 'tracj2', 'eoxxy2', 'enjoy78', 'fruit34', 'good12', 'davb5@', 'shaivi@15', 'm\$ 'ABC@!sd', 'kolly23', 'iconoic', 'oreo09', 'pressy', 'bronze', 'm1n2b3', 'silver3', 'aug456', 'ruangry1', 'piece2', 'gold34', 'bed456', 'abc123894', 'werfree', 'fruit!3', 'farmy2', 'guntur', 'madboy', 'gutarat', 'pickup', 'vijayawada', 'work12', 'sweety', '12345mnbv', 'cunning', 'babyzz', 'cdemjy', 'broomh', 'pppu78', '7620df', 'abc12mj', 'mouth67', 'spicy56', 'friut2', 'gujarath', 'wtztht', 'mht654', 'kolly1', 'hatty12', 'meaty2', 'malayam', 'tollyu', 'sweaty4', 'runaway', 'cinema1', 'danger45', 'aeonny', '12fonny', ''^& %\$ ^\*&^","GFHGFHGFHJG""&^%&GVGH","FGHGFHgfv","TGFHYRYFHGF","%^\$^%%^&^","HNJGJHGFHRFTY","YTTTRFYTYTR","4354FGHFHGf","HGH FHFYTFGV675","656^6567","#\$@%\$@!\$##\$","DFGBDG","JHGJGHHYGFH","^%\$^^&879","JHGYUHHFDTGF","%^\$^%%^&\*^\*","JHGHYGHV","TYFGH  $FYHTFGD", "*\&^\&\&", "UYTUJT", "(*\&^%^*(\&))", "KJHJGTHJFDRD", "jdhfjusdfh", 'shaivi@15', "%$^\&\&\&^\&", "carlone', 'fruit1', 'ABC@!sd', 'kolly23', 'kolly23',$ 'iconoic', 'oreo09', 'pressy', 'bronze', 'm1n2b3', 'silver3', 'aug456', 'ruangry1', 'piece2', 'gold34', 'bed456', 'abc123894', 'werfree', 'fruit!3', 'farmy2', 'guntur', 'madboy', 'gutarat', 'pickup', 'vijayawada', 'work12', 'sweety', '12345mnbv', 'cunning', 'babyzz', 'cdemjy', 'broomh', 'pppu78', '7620df', 'abc12mj', 'mouth67', 'spicy56', 'friut2', 'gujarath', 'wtztht', 'mht654', 'kolly1', 'hatty12', 'meaty2', 'malayam', 'tollyu', 'sweaty4', 'runaway', 'cinema1', 'danger45', 'aeonny', '12fonny', "\% %^\$\% \%", "GFHGFHGFHJG" "&^%&GVGH","FGHGFHgfv","TGFHYRYFHGF","%^\$^%,%^&^","HNJGJHGFHRFTY","YTTTRFYTYTR","4354FGHFHGf","HGHFHFYTFGV675","656^65 67","#\$@%\$@!\$##\$","DFGBDG","JHGJGHHYGFH","^%\$^^&879","JHGYUHHFDTGF",'n1p@1!2', '11rc!!', 'nq11nk123', 'dfgbty', 'matyt56', 'npca@245', 'ssndrela12', 'qwamgd1', 'bwecm', 'ab12c5', 'piffnk2', 'a!!!2e23', 'aaana34', 'croyt@@', 'mymm!23', 'hygg!d@23', 'tavvty', 'nnidia!', 'cam22era4', 'myeehuy67', 'heeeo00', jarrmu7', yggou#85', '!gg!mple', 'prvv12', 'HsG%', 'csadd@', 'Eedp!', 'heso', 'ldsac', 'adwb34', '!!!@!\$wehkl', 'myunfft@!', 'ABgffdh', 'cde5ff167', 'ghff112', helpeeeew12', '3ee452ac', 'c14f!44', '!meeunt', 'evffwen4', 'ODffDw4', 'cae1ml@', 'E12h@%', 'hg3h67', '133765c', 'ab33s44', 'cg3331h!', 'fgrhhsg', 'karnhhaka2', 'camvva2', 'Earrr@1', 'hirriy!', '3ff455c', 'afunty44', 'prasa33d1#', 'frdssog', 'ABc11ss23', 'cdssde2@', 'aceehiijnrv', '%&afghjs', '123acdgghr', '56ffghh', 'aaekntv', 'adgru', CDFFGGHNX', 'CDFFGGHJV', 'DFFGGJJSY', '5fgghhv', '%^rv', 'ffgh', 'aadprs', 'aeellnr', #\$4456@aaejnrtuv', 'aaikmrsu', 'eehnntv', 'bddfghhns',  $"bddfffggghhhjjssv', "bbbbdfghhhhjjvv', "dfghjj', "bddffggghjjjssv', "ddfgghjjss', "\%\%\&FGGHHHV^bv', '4455dfgjrs'])$ 

#### **After sorting:**

[CMacchimmnors, 'Sakrsty, 'Jadnor, 'Paccehky, 'Bdhlooost,' Velrtuu', Kadmoo, 'Tzeennoo, 'Baaceeksst, 'Saachqstu,' Mderru', 'GTlehnoo', 'BRdgnnoruuy,' Nacegh lirtw', Baddeklooos', Becehnorrsu', BCdeffghillort', Rbdellu', 'BSaaddegillnsz', 'Magmnu', 'BDbeechoorsty', '5667778', '46788', '3456788', '\$487678ghhj, 'GTUYdggjst,' 'ghhjsy', 'ddfffphhhius', '6789fgh,' 6786ghhj,' 8476fghhj,' '8476fhhjins', bcdfghhjins', bdffghhjinu', betgghhj, 'Kara', 'Brbgghhj,' 'Fallydhjins', 'Bra'dfhjk,' 'Gra'dfhjk,' 'Gra'dfhk,' 'Gra'dfhk



## Test case 3:

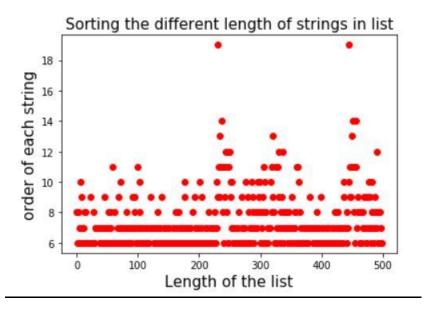
#### **Before sorting:**

sorting(['summer23', 'farmy2', 'helloby7', 'tfstool1', 'silver3', 'qa34ed', 'itsolu!123', '!missu', 'abc123894', 'sweaty4', 'pickup', 'hatty12', 'pillow23', 'cookee', 'tracj2', 'ruangry1', 'ammulu', 'drescc', '!mkoph', 'c1v2b3', 'sprout', 'gmail2', 'licebc', 'shaivi@15', 'cdemjy', 'doxxy1', 'madboy', 'danger45', 'piece2', 'wtztht', 'carlone', 'enjoy78', 'nastory', 'vrushi!', 'simha12', 'abc123!', 'mouth67', 'good12', 'iconoic', 'aolly3','A123ss', 'cdecde', 'biscuit', 'pppu78', 'work12', 'fruit13', '12345mnbv', 'ABImnC', 'shaivi', 'E@wrebh', 'spinach', 'gold34', 'february', 'abc66444', 'win123', 'gutarat', 'hotmail1', 'pressy', 'friut2', '!!!!!\$weegh', 'm1n2b3', 'tollyu', 'bankloan', 'denton', 'eoxxy2', 'meaty2', 'bed456', 'ABC@!sd', 'abc123444', 'sweety', 'january', 'fall34', 'Ellenb56gh', 'hapy76', 'cunning', 'cdednt', 'chicke', 'inthe!', 'hellomk', 'd1ssdr', 'runaway', 'cfrui54e', 'loveboy', 'fruit1', 'chinni', 'spicy56', 'kukky2', 'toomuch', 'nacc7y', 'june12s', 'ore009', 'kolly23', 'letsmeet2', 'abc12mj', 'mindtree2', 'hunger45', 'w1o2r3', 'fruit34', 'dntwryc', '12345abcabc', 'body67', 'summer1', 'lalita12', 'australia!', 'ab89hh', 'werfree', 'fishhy', 'spring', 'buddy15', 'mingle', 'keystr', 'swetha', 'Elsewr2', 'lolluy', 'paris@#', 'gold12', 'davb5@', 'Emmhyh', 'dance3', 'Ehonny2', 'cinema1, 'chinmayi1', 'l2bgabc', 'github!', 'redmond', 'rain123', 'wx1123','12345abc', 'alron@', 'EFgh000', 'Akka!fg', 'enkemi1', 'helloby7', 'gold12', 'doxxy1', 'hel!@lo', 'Akka!fg', 'c1v2b3', 'pinny1', 'letsmeet2', 'drescc', 'chinni', 'gonny67', '12bgabc', 'dance3',

'!missu', 'chicke', 'aolly3', 'Ehonny2', 'buddy15', 'biscuit', 'golddy4', 'w1o2r3', 'fall34', 'ab89hh', 'lolluy', '!loveu', 'dntwryc', 'EFgh000', 'foxxyc', 'cdednt', 'fishhy', e', 'fruit1', 'ABC@'sd', 'kolly23', 'iconoic', 'oreo09', 'pressy', 'bronze', 'm1n2b3', 'silver3', 'aug456', 'ruangry1', 'piece2', 'gold34', 'bed456', 'abc123894', 'werfree', 'fruit13', 'farmy2', 'guntur', 'madboy', 'gutarat', 'pickup', 'vijayawada', 'work12', 'sweety', '12345mnbv', 'cunning', 'babyzz', 'cdemjy', 'broomh', 'pppu78', '7620df', 'abc12mj', 'mouth67', 'spicy56', 'friut2', 'gujarath', 'wtztht', 'mht654', 'kolly1', 'hatty12', 'malayam', 'tollyu', 'sweaty4', 'runaway', 'cinema1', 'danger45', 'aeonny', '12fonny',"^&%^\$\$^\*&^","GFHGFHGFHJG""&^%&GVGH","FGHGFHgfv","TGFHYRYFHGF","%^\$\%%^\&\","HNJGJHGFHRFTY","YTTTRFYTYTR","435  $HYGHV", "TYFGHFYHTFGD", "*&^&\%.", "UYTUJT", "(*&^%/^*(\&))", "KJHJGTHJFDRD", "jdhtfjusdfh", 'shaivi@15', "%$^$\&\%.", 'carlone', 'fruit1', 'fruit1'$ 'ABC@!sd', 'kolly23', 'iconoic', 'oreo09', 'pressy', 'bronze', 'm1n2b3', 'silver3', 'aug456', 'ruangry1', 'piece2', 'gold34', 'bed456', 'abc123894', 'werfree', 'fruit!3', 'farmy2', 'guntur', 'madboy', 'gutarat', 'pickup', 'vijayawada', 'work12', 'sweety', '12345mnbv', 'building', 'Bhalla.', 'Bhalla.', 'deeds.', 'further', "Avantika's", 'attention', 'roughly,', 'lighten', 'combat', 'showing', 'beauty,', 'Avantika', 'becomes', 'friends', 'Mahishmati', 'soldiers.', 'promises', "Avantika's", 'honor,', 'though', "doesn't", 'Devasena', 'important', 'Rebels', 'infiltrates', 'Mahishmati', "Bhalla's", 'erecting', 'golden', 'statue', 'statue', 'catches', 'reveals', 'briefly', 'citizen', 'Baahubali.', 'citizens', 'surrounding', 'Baahubali', 'rebelliously,', "Bhalla's", 'anger.', 'statue', 'positioned,', 'Bhalla', 'demands', 'interrogate', 'guards', 'responsible.', 'disguises', 'himself', 'called', "Bhalla's", 'quarters.', 'escapes', 'successfully', 'Devasena', 'taking', 'kingdom', 'chariot.', 'however', 'stopped', "Bhadra's", 'scouts', 'guards, ','Kattappa', 'despite', 'beheads', Bhadra', 'treated', 'Devasena.', 'Amburis', 'search', 'Rebels.', 'Kattappa', 'charges', 'familiar', 'shouts', ""Baahubali"', 'surrounding', 'tribes', "Kattappa's", 'soldiers', 'cdecde', 'biscuit', 'pppu78', 'buddy15', 'mingle', 'keystr', 'swetha', 'Elsewr2', 'lolluy', 'paris@#, 'gold12', 'davb5@', 'Enmhvh', 'dance3', 'Ehonny2', 'cinema1', 'chinmayi1', '12bgabc', 'github!', 'redmond', 'rain123', 'wx!123', '12345abc', 'alron@', 'EFgh000', 'Akka!fg', 'enkemi1', 'helloby7', 'gold12', 'doxxy1', 'hel!@lo', 'Akka!fg', 'enkemi1', 'helloby7', 'gold12', 'doxxy1', 'hell@lo', 'Akka!fg', 'enkemi1', 'helloby7', 'gold12', 'doxxy1', 'helloward', 'gold12', 'doxxy1', 'helloward', 'gold12', 'doxxy1', 'helloward', 'gold12', 'go 'c1v2b3', 'pinny1', 'letsmeet2', 'drescc', 'chinni', 'gonny67', '12bgabc', 'dance3', '!missu', 'chicke', 'aolly3', 'Ehonny2', 'buddy15', 'biscuit', 'golddy4', 'w1o2r3', 'fall34', 'ab89hh', 'lolluy', 'lloveu', 'dntwryc', 'EFgh000', 'foxxyc', 'cdednt', 'fishhy', 'hunger45', 'loveboy', 'mingle', 'bankloan', 'EFgh!!', 'pillow23', 'carloan', 'qa34ed', 'tracj2', FHJG""&^%&GVGH","FGHGFHgfv","TGFHYRYFHGF","%^\$^%%^&^","HNJGHGFHRFTY","YTTTRFYTYTR","4354FGHFHGf',"HGHFHFYTFGV675","6 56^6567", "#\$@%\$@!\$##\$","DFGBDG","JHGJGHHYGFH",'disappointment', 'however', 'obsessed', 'adventure', 'mountain', 'spends', 'trying', 'performs', 'prayer', 'hoping', 'obedient', 'trying,', 'involving', 'pouring', 'buckets', 'Lingam', 'pedestal.', 'dislodges', 'Lingam', 'showing', 'somehow', 'superhuman', 'strength.', 'carries', 'bottom', 'waterfall,', 'realizes', 'feminine', 'washed', 'further', 'motivated', 'venture', 'mountain', 'belongs', 'successfully', 'scales', 'mountain', 'Avantika', 'chased', 'soldiers', 'kingdom', 'called'])

#### After sorting:

['23emmrsu', '2afmry', '7behlloy', '1floostt', '3eilrsv', '34adeq', '!123ilostu', '!imssu', '123489abc', '4aestwy', 'cikppu', '12ahtty', '23illopw', 'ceekoo', '2acjrt', '1agnrruy', 'al mmuu', 'ccders', '!hkmop', '123bcv', 'oprstu', '2agilm', '1bccei', '15@ahiisv', 'cdejmy', '1doxxy', 'abdmoy', '45adegnr', '2ceeip', 'htttwz', 'acelnor', '78ejnoy', 'anorsty', '!hir suv', '12ahims', '!123abc', '67hmotu', '12dgoo', 'cciinoo', '3alloy', '123Ass', 'ccddee', 'bciistu', '78pppu', '12korw', '13firtu', '12345bmnv', 'ABClmn', 'ahiisv', '@Ebehrw', achinps', '34dglo', 'abefrruy', '4466abc', '123inw', 'aagrttu', '1ahilmot', 'eprssy', '2firtu', '!!!!!\$ceghw', '123bmn', 'llotuy', 'aabklnno', 'dennot', '2eoxxy', '2aemty', '456bde' '!@ABCds', '123444abc', 'eestwy', 'aajnruy', '34afll', '56Ebeghlln', '67ahpy', 'cginnnu', 'cddent', 'ccehik', '!ehint', 'ehkllmo', 'Iddrss', 'aanruwy', '45cefiru', 'beloovy', 'Ifir tu', 'chiinn', '56cipsy', '2kkkuy', 'chmootu', '7accny', '12ejnsu', '09eoor', '23klloy<sup>'</sup>, '2eeelmstt', '12abcjm', '2deeimnrt', '45eghnru', '123orw', '34firtu', 'cdnrtwy', '12345aab bcc', '67bdoy', '1emmrsu', '12aaillt', '!aaailrstu', '89abhh', 'eeefrrw', 'fhhisy', 'ginprs', '15bdduy', 'egilmn', 'ekrsty', 'aehstw', '2Eelrsw', 'Illouy', '#@aiprs', '12dglo', '5@abd v', Ehhmny', '3acden', '2Ehnnoy', '1aceimn', '1achiimny', '12abbeg', 'lbghitu', 'ddemnor', '123ainr', '!123wx', '!123wx', '@alnor', '000EFgh', '!Aafgkk', '1eeikmn', '7behll oy', '12dglo', '1doxxy', '!@ehllo', '!Aafgkk', '123bcv', '1innpy', '2eeelmstt', 'ccders', 'chiinn', '67gnnoy', '12abbcg', '3acden', 'limssu', 'ccehik', '3alloy', '2Ehnnoy', '15bddu y, 'bciistu', '4ddgloy', '123orw, '34afll', '89abhh', 'lllouy', 'elouv', 'cdnrtwy', '000EFgh', 'cfoxxy', 'cddent', 'fhhisy', '45eghnru', 'beloovy', 'egilmn', 'aabklnno', '!!EFgh', '2 3illopw', 'aaclnor', '34adeq', '2acjrt', '2eoxxy', '78ejnoy', '34firtu', '12dgoo', '5@abdv', '15@ahiisv', \$\$\$%%&&&^^, 'acelnor', '1firtu', '!@ABCds', '23klloy', 'cciinoo', '0 9eoor', 'eprssy', 'benorz', '123bmn', '3eilrsv', '456agu', '1agnrruy', '2cecip', '34dglo', '456bde', '123489abc', 'eeefrrw', '!3firtu', '2afmry', 'gnrtuu', 'abdmoy', 'aagrttu', 'cikpp u', 'aaaadijvwy', '12345bmnv', 'ceinnu', 'abbyzz', 'cdejmy', 'bhmoor', '78pppu', '0267df', '12abcjm', '67hmotu', '56cipsy', '2firtu', 'aaghjrtu', 'httwz', '456hmt', '1klloy', '12ahtty', '2aemty', 'aaalmmy', 'llotuy', '4aestwy', 'aanruwy', '1aceimn', '45adegnr', 'aennoy', '12fnnoy', '\$\$%&&\*^^^, '%&FFGGGGGGHHHHJV ^', 'FFGGHHfgv', 'FFFGGHHRTYY', '\$%%&\*^^^, 'FFGGHHJJNRTY', 'FRRTTTTTTYYY', '3445FFGGHHf, '567FFFGGHHHTVY', '5566667^', '!##\$\$\$\$\$@ @, BDDFGG, 'FGGGHHHJJY', '\$%&789^^^, 'DFFGGHHHJTUY', '\$%%%&\*\*^^^^, 'GGHHHJVY', 'DFFFGGHHTTYY', '%&&.\*', 'JTTUUY', '%&&())\*\*^ \', 'DDFGHHJJKRT', 'ddffhhjjsu', '15@ahiisv', '\$\$\$%%&&&^^, 'acelnor', 'Ifirtu', '!@ABCds', '23klloy', 'cciinoo', '09eoor', 'eprssy', 'benorz', '123bmn', '3eilrsv', '456 agu', 'lagnrruy', '2ceeip', '34dglo', '456bde', '123489abc', 'eeefrrw', '!3firtu', '2afmry', 'gnrtuu', 'abdmoy', 'aagrttu', 'cikppu', 'aaaadijvwy', '12korw', 'eestwy', '12345bmnv' agu, 'agimu', 'Baahll', 'Baahll', 'ddees', 'efnrru', "'Aaaiknstv'', 'aeinnottt', 'ghloruy', 'eghilnt', 'abemot', 'ghinosw', 'abetuy', 'Aaaiknstv', 'beemos', 'definrs', Maahhlimst', 'dellorss', 'eimoprss', "'Aaaiknstv', 'innoor', 'ghhotu', "'denost', 'Daaeensv', 'aimnoprtt', 'Rbeels', 'aefilnrstt', 'Maahhlimst', "'Baahlls'', 'ceeinrt', 'deglno', 'aesttu', 'aecenst', 'aeelrsv', 'befilry', 'ceiintz', 'Baaabhilu', 'ceiinstz', 'dginnorrsuu', 'Baaabhilu', 'beeilllorsuy', "'Baahlls'', 'aegnr', 'aesttu', 'deiinoopst', 'Baahll', 'addemns', 'aeeg inorrtt', 'adgrsu', 'beeilnoprss', 'degiisssu', 'efhilms', 'acdell', "Baahlls", 'aeqrrstu', 'accepss', 'ccefllsssuuy', Daaeensv', 'agiknt', 'dgikmno', 'achiort, 'eehorvw', 'deoppst', "Baadhrs", 'cosstu', 'adgrsu', 'Kaaapptt', 'deeipst', 'abdeehs', 'Baadhr', 'adeertt', 'Daaeensv', 'Abimrsu', 'acehrs', 'Reels', 'Kaaapptt', 'aceghrs', 'aafiilmr', 'hosstu', ""Ba aabhilu', 'dginnorrsuu', 'beirst', "'Kaaappstt", 'deilorss', 'ccddee', 'bciistu', '78pppu', '15bdduy', 'egilmn', 'ekrsty', 'aehstw', '2Eelrsw', 'lllouy', #@aiprs', '12dglo', '5@abdv', 'Ehhmny', '3acden', '2Ehnnoy', '1aceimn', '12abbcg', '!bghitu', 'ddemnor', '123ainr', '!123wx', '!23wx', '@alnor', '000EFgh', '!Aafgkk', '1eeikmn', '7behllo y', '12dglo', '1doxxy', '!@ehllo', '!Aafgkk', '123bcv', '1innpy', '2eeelmstt', 'ccders', 'chiinn', '67gnnoy', '12abbcg', '3acden', '!imssu', 'ccehik', '3alloy', '2Ehnnoy', '15bdduy ', 'bciistu', '4ddgloy', '123orw', '34afll', '89abhh', 'lllouy', 'lelouv', 'cdnrtwy', '000EFgh', 'cfoxxy', 'cddent', 'fhhisy', '45eghnru', 'beloovy', 'egilmn', 'aabklnno', '!!EFgh', '23 illopw', 'aaclnor', '34adeq', '2acjrt', '2eoxxy', '78ejnoy', '34firtu', '12dgoo', '5@abdv', '15@ahiisv', '\$\$\$%&&&^^\, '4aestwy', 'aanruwy', '1aceimn', '45adegnr', 'aennoy', '12fnnoy', '\$\$%&&\*^^\, '%&&FFFGGGGGGGHHHHJV\', 'FFGGHHRTYY', '\$\%\%\&^^\\, 'FFGGHHHJJNRTY', 'FRRTTTTTYYY', '3445FFG GHHf, '567FFFGGHHHTVY', '5566667^', '!###\$\$\$\$\@@', 'BDDFGG', 'FGGGHHHHJJY', 'adeiimnnoppstt', 'eehorvw', 'bdeeosss', 'adeenrtuv', 'aimnnotu', 'denpss', 'ginrty', 'efmoprrs', 'aeprry', 'ghinop', 'bdeeinot', ',ginrty', 'giilnnovv', 'ginopru', 'bcekstu', 'Lagimn', 'adeelpst', 'ddegiloss', 'Lagimn', 'ghinosw', 'ehmoosw', 'aehmnprsuu', 'eghnrstt', 'aceirrs', 'bmoott', 'aaefllrtw', 'aeeilrsz', 'eefimnn', 'adehsw', 'efhrrtu', 'adeimottv', 'eenrtuv', 'aimnnotu', 'beginos', 'ccefllsssuuy', 'acelss', 'aimnnotu', 'Aaaikntv ', 'acdehs', 'deilorss', 'dgikmno', 'acdell']



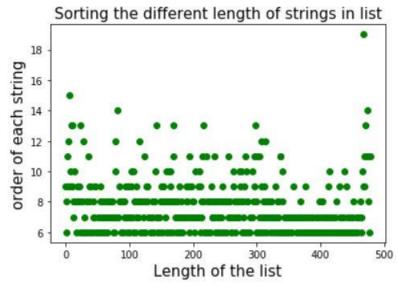
#### Test case 4:

#### **Before sorting:**

sorting(["^&&\*\*)(\*)","HJGHFT","(\*&\*^&%)","HGNUYGHJGJH","YTR%^\$^%R&^T","HJNGVHFHF","HGFHBFGHCGHFYTF","&^%&\*\*&&()","GFVBHFH GB","&\*^\*&^&%vgvfg","UTYHTFGHFGHTF","IUYTGHVHV",'Outside', 'enormous', 'waterfall,', 'Sivagami', 'carrying', 'tired,', 'injured,', 'exhausted', 'realizes', 'soldiers', 'following', 'strategically', 'places', 'swords', 'before', 'fleeing.', 'accidentally', 'caught', 'current', 'unable', 'shore.', 'Sivagami', 'Shiva,', "evil's", 'destruction', 'mistakes,', 'Mahendra', 'Baahubali', 'light.', 'drowns', 'before', 'holding', 'Mahendra', 'surface', 'villagers', 'villagers', 'Amburi', 'tribe,', 'reside', 'worship', 'Shiva.', 'leader', 'village,','discovers', 'drowned', 'evaded', 'soldiers', 'through', 'secret', 'escape', 'Sivagami', 'pointed', 'towards', 'mountain', 'before', "Sanga's", 'husband', 'realizes', 'refuses', 'worrying', 'safety.', 'decides', 'Shivudu,', 'Shivu.', 'Shivudu', 'young,', 'acrobatic,', 'adventurous,', 'hearted', "Sanga's", 'disappointment', 'however', 'obsessed', 'adventure', 'mountain', 'spends', 'trying', 'performs', 'prayer', 'hoping', 'obedient', 'trying,', 'involving', 'pouring', 'buckets', 'Lingam', 'pedestal.', 'dislodges', 'Lingam', 'showing', 'somehow', 'superhuman', 'strength.', 'carries', 'bottom', 'waterfall,','realizes', 'feminine', 'washed', 'further', 'motivated', 'venture', 'mountain', 'belongs', 'successfully', 'scales', 'mountain', 'Avantika', 'chased', 'soldiers', 'kingdom', 'called', 'Mahishmati.', 'Avantika', 'damsel', 'slaughter', 'soldiers.', 'Avantika', 'reports', "tribe's", 'leader,', 'rebels', 'hailing', 'fallen', 'kingdom', 'Kuntala.', 'Varma,', 'declares', 'liberate', 'Mahishmati', 'emperor', 'Bhallaladeva,', 'Bhalla.', 'Bhalla', 'holding', "Varma's", 'sister', 'Devasena', 'hostage,', 'torturing', 'basis.', 'Avantika', 'Kattappa,', 'rightous', 'warrior', 'residing', 'Mahishmati', 'cause.', 'confirms', 'Kattappa', 'motivation', 'royals', 'Mahishmati', 'ancestors', 'Kattappa', 'oversees', 'weapon', 'manufacturing', 'Mahishmati,', "Bhalla's", 'achieved', 'through', 'labor.', 'Kattappa', 'visited', 'weapon', 'trader', 'befriends', 'sharing', 'duties', 'Kattappa', 'skilled', 'strong', 'warrior', 'lineage', 'despite', 'general', 'commander', "Bhalla's", 'birthday', 'upcoming', 'perfect', 'opportunity', 'rescue', 'Devasena.', 'granted', 'Avantika,', 'painting', 'resting', 'earlier.', 'Though', 'accused', 'neglecting', 'beauty,', 'assures', 'mission', 'anything.', 'kingdom', 'Mahishmati', 'unjust', 'treatment', 'towards', 'citizens', 'controlling', 'obsessed', 'Bhallaladeva.', 'living', 'Bhalla', 'father', 'Bijjaladeva', 'Prince', Bhadrudu', '(alias', 'Bhadra).', "Bhalla's", 'captured', 'forest', 'strenght.', 'defeats', 'notices', 'Kattappa', 'killing', 'distracted.', 'Bhalla', 'Kattappa', 'Kattappa', 'badly,', 'wonders', 'Kattappa', 'remains', 'loyal.', 'decides', 'Kattappa', 'release', 'Devasena.', 'Bhalla', 'allows', 'Kattappa', 'refuses.', 'Kattappa', 'visits', 'Devasena', 'Devasena', 'Devasena', 'Devasena', 'Rattappa', 'refuses.', 'Kattappa', 'refuses.', 'Newasena', 'Rattappa', 'refuses.', 'Kattappa', 'refuses.', 'Rattappa', 'Ratt 'refuses', 'frustrated,', 'spending', 'building', 'Bhalla.', 'Bhalla.', 'deeds.', 'further', "Avantika's", 'attention', 'roughly.', 'lighten', 'combat', 'showing', 'beauty.', 'Avantika', becomes', 'friends', 'Mahishmati', 'soldiers.', 'promises', "Avantika's", 'honor,', 'though', "doesn't", 'Devasena', 'important', 'Rebels', 'infiltrates', 'Mahishmati', "Bhalla's", 'erecting', 'golden', 'statue', 'statue', 'catches', 'reveals', 'briefly', 'citizen', 'Baahubali.', 'citizens', 'surrounding', 'Baahubali', 'rebelliously,', "Bhalla's", 'anger.', 'statue', 'positioned,', 'Bhalla', 'demands', 'interrogate', 'guards', 'responsible.', 'disguises', 'himself', 'called', "Bhalla's", 'quarters.', 'escapes', 'successfully', 'Devasena', 'taking', kingdom', 'chariot.', 'however', 'stopped', "Bhadra's", 'scouts', 'guards,', 'Kattappa', 'despite', 'beheads', 'Bhadra', 'treated', 'Devasena.', 'Amburis', 'search', 'Rebels.', 'Kattappa', 'charges', 'familiar', 'shouts', "Baahubali", 'surrounding', 'tribes', "Kattappa's", 'soldiers', 'cdecde', 'biscuit', 'pppu78', 'buddy15', 'mingle', 'keystr', 'swetha', 'Elsewr2', 'lolluy', 'paris@#', 'gold12', 'davb5@', 'Enmhyh', 'dance3', 'Ehonny2', 'cinema1', 'chinmayi1', '12bgabc', 'github!', 'redmond', 'rain123', 'wx!123', '12345abc', 'alron@', 'EFgh000', 'Akka!fg', 'enkemi1', 'helloby7', 'gold12', 'doxxy1', 'hell@lo', 'Akka!fg', 'c1v2b3', 'pinny1', 'letsmeet2', 'drescc', 'chinni', 'gonny67', '12bgabc', 'dance3', '!missu', 'chicke', 'aolly3', 'Ehonny2', 'buddy15', 'biscuit', 'golddy4', 'w102r3', 'fall34', 'ab89hh', 'lolluy', '!loveu', 'dntwryc', 'EFgh000', 'foxxyc', 'cdednt', 'fishhy',  $\label{lem:condition} $$ \operatorname{hunger45',loveboy',mingle',bankloan',EFgh!!',pillow23',carloan',qa34ed',tracj2',eoxxy2',enjoy78',fruit34',good12',davb5@',shaivi@15',"%$^&%&%^&",carloan',qa34ed',tracj2',eoxxy2',enjoy78',fruit34',good12',davb5@',shaivi@15',"%$^&%&%^&",carloan',qa34ed',tracj2',eoxxy2',enjoy78',fruit34',good12',davb5@',shaivi@15',"%$^$&%&$^&",carloan',qa34ed',tracj2',eoxxy2',enjoy78',fruit34',good12',davb5@',shaivi@15',"%$^$&%&$^&",carloan',qa34ed',tracj2',eoxxy2',enjoy78',fruit34',good12',davb5@',shaivi@15',"%$^$&%&$^&",carloan',qa34ed',tracj2',eoxxy2',enjoy78',fruit34',good12',davb5@',shaivi@15',"%$^$&%$^&$.$ e', 'fruit1', 'ABC@!sd', 'kolly23', 'iconoic', 'oreo09', 'pressy', 'bronze', 'm1n2b3', 'silver3', 'aug456', 'ruangry1', 'piece2', 'gold34', 'bed456', 'abc123894', 'werfree', 'fruit!3', 'farmy2', 'guntur', 'madboy', 'gutarat', 'pickup', 'vijayawada', 'work12', 'sweety', '12345mnbv', 'cunning', 'babyzz', 'cdemjy', 'broomh', 'pppu78', '7620df', 'abc12mj', 'mouth67','spicy56','friut2','gujarath','wtztht','mht654','kolly1','hatty12','meaty2','malayam','tollyu','sweaty4','runaway','cinema1','danger45','aeonny','12fonny','"^&%^\$\$

## **After sorting:**

 $['\&\&())^{****'}, 'FGHHJT', '\%\&\&()^{***'}, 'GGGHHHJJNUY', '\$\%\&RRTTY^{**'}, 'FFGHHHJNV', 'BCFFFFGGGHHHHTY', '\%\&\&\&()^{***'}, 'BBFFGGHHV', '\%\&\&\&()^{***}, 'BFFGGHHV', '\%\&\&\&()^{***}, 'BFFGGHHV', '\%&\&\&()^{***}, 'BFFGGHHV', '\%&\&()^{***}, 'BFFGGHHV', '\%&&\&()^{***}, 'BFFGGHHV', '\%&&\&()^{***}, 'BFFGGHHV', '\%&&()^{***}, 'BFFGGHHV', '\%&&()^{***}, 'BFFGGHHV', '\%&()^{***}, 'BFFGGHHV', '\%&()^{**}, 'BFFGGHHV', '\%&()^{***}, 'BFFGGHHV', '\%&()^{**}, 'BFFGGHHV', '\%&()^{**}, 'BFFGGHHV', '\%&()^{**}, 'BFFGGHHV', '\%&()^{**}, 'BFFGGHYV', '\%&()^{**}, 'BFFGGHYV', '\%&()^{**}, 'BFFGGHYV', '\%&()^{**}, 'BFFGGHYV', '\%&()^{**}, 'BFFGGHYV', '\%&()^{**}, '', 'BFFGGHYV', '\%&()^{**}, '', 'BFFGGHYV', '\%&()^{**}, '\%&()^{$ \*\*\*^fggvv', 'FFFGGHHHTTTUY', 'GHHITUVVY', 'Odeistu', 'emnoorsu', ',aaefllrtw', 'Saagiimv', 'acginrry', ',deirt', ',deijnru', 'adeehstux', 'aeeilrsz', 'deilorss', 'fgillno ow', 'aacgillrstty', 'acelps', 'dorssw', 'beefor', '.eefgiln', 'aacdeillnty', 'acelhu', 'cenrrtu', 'abelnu', '.ehors', 'Saagiimv', ',Sahiv', ""eilsv", 'cdeinorsttu', ',aeikmsst', 'Maadeh nr', 'Baaabhilu', 'ghilt', 'dnorsw', 'beefor', 'dghilno', 'Maadehnr', 'acefrsu', 'aegillrsv', 'Abimru', ',beirt', 'deeirs', 'hioprsw', '.Sahiv', 'adeelr', ',aegillv', 'cdeiorssv' , 'ddenorw', 'addeev', 'deilorss', 'ghhortu', 'ceerst', 'aceeps', 'Saagiimv', 'deinopt', 'adorstw', 'aimnnotu', 'beefor', "'Saagns", 'abdhnsu', 'aeeilrsz', 'eefrssu', 'ginorrwy', 'aefst y', 'cddeeis', ',Sdhiuuv', 'Shiuv', 'Sdhiuuv', ',gnouy', ',aabcciort', ',adenorstuuv', 'adeehrt', "'Saagns", 'adeimnnoppstt', 'eehorvw', 'bdeeosss', 'adeenrtuv', 'aimnnotu', 'den pss', 'ginrty', 'efmoprrs', 'aeprry', 'ghinop', 'bdeeinot', ',ginrty', 'giilnnovv', 'ginopru', 'bcekstu', Lagimn', 'adeelpst', 'ddegiloss', 'Lagimn', 'ghinosw', 'ehmoosw', 'aehmnpr suu', 'eghnrstt', 'aceirrs', 'bmoott', 'aaefllrtw', 'aeeilrsz', 'effirmnn', 'adehsw', 'efhrrtu', 'adeimottv', 'eenrtuv', 'aimnnotu', 'beglnos', 'ccefllsssuuy', 'acelss', 'aimnnotu', 'Aaaikntv', 'acelss', 'deilorss', 'deilorss', 'deilorss', 'deilorss', 'deilorss', 'deilorss', 'aphilin, 'aeflln', dgikmno', 'Kaalntu', 'Vaamr', 'acdeelrs', 'abeeilrt', 'Maahhiimst', 'eemoprr', 'Baaadehlllv', 'Baahll', 'Baahll', 'In (Baahll', 'Baahll', 'Baahll' ttu', 'abiss', 'Aaaikntv', ',Kaaapptt', 'ghiorstu', 'aiorrrw', 'degiinrs', 'Maahhiimst', 'acesu', 'cfimnors', 'Kaaapptt', 'aiimnoottv', 'alorsy', 'Maahhiimst', 'acenorsst', 'Kaaapptt' , 'eeeorssv', 'aenopw', 'aacfgimnnrtuu', '.Maahhiimst', "'Baahlls", 'acdeehiv', 'ghhortu', '.ablor', 'Kaaapptt', 'deiistv', 'aenopw', 'aderrt', 'bdeefinrs', 'aeghinrs', 'deistv', 'aenopw', 'aderrt', 'bdeefinrs', 'aeghinrs', 'deiklls', 'gnorst', 'aiorrrw', 'aeeginr', 'acdemmnor', "'Baahlls", 'abdhirty', ',cgimnopu', 'ceefprt', 'inoopprttuy', 'ceersu', '.Daaeensv', 'adegnrt', ',Aa aikntv', 'agiinnpt', 'eginrst', 'aeeilrr', Tghhou', 'accdesu', 'ceeggilnnt', 'abetuy', 'aersssu', 'iimnoss', 'aghinnty', 'dgikmno', 'Maahhiimst', 'jnstuu', 'aeemnrttt', 'adorstw', 'ce iinstz', 'cgillnnoort', 'bdeeosss', 'Baaaadehlllv', 'giilnv', 'Baahli, 'aefhrt', 'Baaadeijjlv', 'Pceinr', 'Baddhruu', '(aails', ').Baadhr', "Baahlis", 'accdeprtu', 'eforst', '.eghnrstt', 'a deefst', 'ceinost', 'Kaaapptt', 'giiklln', 'acddeirstt', 'Baahll', 'Kaaapptt', 'kaaapptt', 'aeinorsw', 'Kaaapptt', 'aeimnrs', 'alloy', 'cddeeis', 'Kaaapptt', 'aeeelrs', 'Daaeen deerst, cenost, Kaaapptt, giklin, accderst, Baahll, Kaaapptt, Baahll, Kaaapptt, Baahll, Kaaapptt, Baahll, Kaaapptt, Baahll, Kaaapptt, Baahll, , 'acdell', "Baahlls", '.aeqrrstu', 'aceepss', 'ccefllsssuuy', 'Daaeensv', 'agiknt', 'dgikmno', 'achiort', 'eehorvw', 'deoppst', "Baadhrs", 'cosstu', ',adgrsu', 'Kaaapptt', 'deeipst', 'abdeehs', 'Baadhr', 'adeertt', '.Daaeensv', 'Abimrsu', 'acehrs', '.Rbeels', 'Kaaapptt', 'aceghrs', 'aafiilmr', 'hosstu', """Baaabhilu', 'dginnorrsuu', 'beirst', "'Kaaappstt", 'deilors s', 'ccddee', 'bciistu', '78pppu', '15bdduy', 'egilmn', 'ekrsty', 'aehstw', '2Eelrsw', 'Illouy', '#@aiprs', '12dglo', '5@abdv', 'Ehhmny', '3acden', '2Ehnnoy', '12abicg', '!bghitu', 'ddemnor', '123ainr', '!123wx', '@alnor', '000EFgh', '!Aafgkk', '1eeikmn', '7behlloy', '12dglo', '1doxxy', '!@ehllo', '!Aafgkk', '123bcv', ' linnpy', '2eeelmstt', 'ccders', 'chiinn', '67gnnoy', '12abbcg', '3acden', '!imssu', 'ccehik', '3alloy', '2Ehnnoy', '15bdduy', 'bciistu', '4ddgloy', '123orw', '34afll', '89abhh', 'lllo Thinby, Zeeeninkt, Ccdest, Chilmi, Grandy, Tzabeg, Sacteli, Hinsst, Ccelik, Salody, Zelimby, Holouvi, Colortwy, O00EFgh', Cfoxxy', Vedent', Hinsst, Ccelik, Holovy', Vegilmn', 'aabklnno', '!!EFgh', '23illopw', 'aaclnor', '34adeq', '2acjrt', '2eoxxy', '78ejno y', '34firtu', '12dgoo', '5@abdv', '15@ahiisv', '\$\$\$\%&&\chilmi, 'aclnor', '1firtu', '!@ABCds', '23klloy', 'cciinoo', '09eoor', 'eprssy', 'benorz', '123bmn', '3eilrsv', '456agu', '1agnrruy', '2ceeip', '34dglo', '456bde', '123489abc', 'eeefrrw', '13firtu', '2afmry', 'gnrtuu', 'abdmoy', 'aagrttu', 'cikppu', 'aaaadijvwy', '12korw', 'eestwy', '12345bmnv', 'cginnnu', 'abbyzz', 'cdejmy', 'bhmoor', '78pppu', '0267df', '12abcjm', '67hmotu', '56cipsy', '2firtu', 'aaghjrtu', 'htttwz', '456hmt', '1klloy', '12ahtty', '2aemty', 'aaalmmy', 'llotu у', '4aestwy', 'aanruwy', 'laceimn', '45adegnr', 'aennoy', '12fnnoy', '\$\$%&&\*^^^\, '%&&FFFGGGGGHHHHJY^', 'FFGGHHfgy', 'FFFGGHHRTYY', '\$%%&\*^^^ ^', 'FFGGHHHJNRTY', 'FRRTTTTTYYY', '3445FFGGHHf', '567FFFGGHHHTVY', '5566667^', '!##\$\$\$\$\@@', 'BDDFGG', 'FGGGHHHJJY']



## Test case 5:

## **Before sorting:**

sorting(['beheads', 'belongs', 'birthday', 'biscuit', 'biscuit', 'bottom', 'briefly', 'bronze', 'broomh', 'buckets', 'buddy15', 'buddy15', 'building', 'c1v2b3', 'called', 'caple ured', 'carloan', 'carloan', 'carlone', 'carrying', 'catches', 'caught', 'cause.', 'cdecde', 'cdednt', 'cdemjy', 'charges', 'chariot.', 'chased', 'chicke', 'chinmayi1', 'chinni', 'cinema1', 'cinema1', 'citizens', 'combat', 'combat', 'combat', 'confirms', 'controlling', 'cunning', 'cunrent', 'dansel', 'dance3', 'dance3', 'dance3', 'dance3', 'dance3', 'dasper45', 'davb5@', 'de cides', 'decides', 'deeds.', 'deeds.', 'defeats', 'demands', 'despite', 'destruction', 'disappointment', 'discovers', 'disguises', 'dislodges', 'distracted.', 'dntwryc', "doe sn't", 'doxxy1', 'drescc', 'drowned', 'drowns', 'duties', 'earlier.', 'emperor', 'enjoy78', 'enkemi1', 'enormous', 'eoxxy2', 'erecting', 'escape', 'escapes', 'evaded', "evil's", 'exhau sted', 'falla14', 'fallen', 'familiar', 'farmy2', 'father', 'feminine', 'fishhy', 'fleeing.', 'following', 'forest', 'foxxyc', 'friends', 'friut12', 'fruit13', 'fruit14', 'frustrated,', 'further', 'general', 'github!', 'gold12', 'gold34', 'gold34', 'golden', 'gonny67', 'good12', 'granted', 'guards,', 'guards,', 'gujarath', 'guntur', 'gularat', 'hailing', 'hatty1 2', 'hearted', 'hell@lo', 'hell@lo', 'helloby7', 'himself', 'holding', 'holding', 'honor,','hoping', 'however', 'however', 'however', 'humger45', 'husband', 'iconoic', 'important', 'infiltrates', '

injured,','interrogate', 'involving', 'keystr', 'killing', 'kingdom', 'kingdom', 'kingdom', 'kolly1', 'kolly23', 'labor.', 'leader', 'leader,', 'letsmeet2', 'liberate', 'light.', 'I ighten', 'lineage', 'living', 'lolluy', 'lolluy', 'loveboy', 'loyal.', 'm1n2b3', 'madboy', 'malayam', 'manufacturing', 'meaty2', 'mht654', 'mingle', 'mingle', 'mission', 'mistakes,', motivated', 'motivation', 'mountain', 'mou s', 'painting', 'paris@#', 'pedestal.', 'perfect', 'performs', 'pickup', 'piece2', 'pillow23', 'pinny1', 'places', 'pointed', 'positioned,', 'pouring', 'pppu78', 'pppu78', 'prayer', 'pressy ', 'promises', 'qa34ed', 'quarters.', 'rain123', 'realizes', 'realizes', 'rebelliously,', 'rebels', 'redmond', 'refuses', 'refuses', 'refuses', 'release', 'remains', 'reports', 'rescu e', 'reside', 'residing', 'responsible.', 'resting', 'reveals', 'rightous', 'royals', 'ruangry1', 'runaway', 'safety.', 'scales', 'scouts', 'search', 'secret', 'shaivi@15', 'sharing' , 'shore.', 'shouts', 'showing', 'showing', 'silver3', 'sister', 'skilled', 'slaughter', 'soldiers', ' 'spicy56', 'statue', 'statue', 'statue', 'stopped', 'strategically', 'strength.', 'strong', 'successfully', 'successfully', 'superhuman', 'surface', 'surrounding', 'mighty', '(Prabhas),', 'aspires', 'waterfall', 'parbat)', "what's", 'there.', 'curiosity', 'mother', 'dangerous.', 'failed', 'attempts', 'finally', 'Looking', '(Tamannaah', 'Avantika), ' mysterious', 'discovers', 'unlike', 'dreams,', 'rebellious', 'warrior', 'fighting', 'against', 'Bhallala', 'Daggubati), ', 'captured', 'Devasena', '(Anushka', 'Shetty)', 'years.', 'indulge s', 'guerrilla', 'warfare', 'against', 'rescue', 'queen.', 'initially', 'doubts', "shiva's", 'intentions, ', seeing', 'realises', 'innocent.', 'pledges', 'mission.', 'sneaks', 'Bhallala', "deva's ", 'Mahismathi', 'kingdom', 'rescue', 'Devasena', 'almost', 'manages', 'caught.', "kingo's", 'kattapa', 'attacks', 'strength,', 'realises', 'Amarendra', 'Bahubaali's", '(Prabhas', 'de serving', 'Mahismathi', 'kingdom.', 'flashback', 'Amarendra', 'Baahubali', 'Bhallala', 'cousin', 'brother.', 'Though', "Bhallala's", 'father', 'Bajjala', '(Nasser)', 'brother,', "Shiv a's", 'grandfather', 'crowned', 'worthy.', 'Bajjala', 'resents', 'decision.', 'brother', 'Bajjala', 'wishes', 'Bhallala', 'emperor', "king's", 'before', "(Shiva's", 'father', 'Amarendra', Baahubali)', 'another', 'kingdom.', "Bajjala's", 'Sivagami', '(Ramya)', 'feisty,', 'impartial.', 'raises', 'children', 'Bhallala', 'Baahubali', 'proclaims', 'whoever', 'proves', 'deservi ng', crowned', 'Bajjala', "Bhallala's", 'tactics', 'witnessing', 'battle', 'against', 'Kalkeyas', '(tribal', 'rivals)', 'Sivagami', 'announces', Baahubali', 'people.', 'sharing', 'Kattapa ', 'interrupted', 'asked', 'father', 'strong', '(Baahubali)', 'killed', 'Kattapa,', 'betrayed', 'life.'", 'GJHGFHF", "^&%\*&\*\*", "HGHJGJHGJY", "I&Y^UYGFYTRT", "TUHGV HNFYHG", "&^\*%\$\*&()", "UYGTHFG", "(\*&^%\$)", "(\*&^%)", "!@#\$%^", "KUJHYGJH", "%\$%^&\*&HJG", "6786786ghfh", "&^GHFHF", "JHGJHGHGt76t", "JYH GHJGF","(\*&^%\$)","IUYTHGFD","IKUJHYFGT",")(\*&^%\$#@)","GFDXFFVCGF","UYTHGFHFt","T^%^&%","#\$%#\$%\$fghf","VCGFTGHFCVGH","CVHGFYHGFG","%^^%fghf675","YTRFTHGFHTGF","IKUYTGFD","\$5f5ytr45","?FGBHFVhgf","HVGHFHTG","\*1&^U\$RFDGH","TFGBCGF","UYTHGVHYF"," ^%&\*\*%&5","GVVHGFGHV","FTFTFHGFYUTg,"HGFYTFGVHF","A&%RTRFY&^TR","NBBJHYTGHY","HGBHYGHBg","\*&^%&\*Qbhjg","NHVHGFHGVG","VNBGFHVFH","GVNBFHVGHFV65","67576VCFGHF54","HGHJGJHGJY","I&Y^UYGFYTRT","TUHGVHNFYHG',"&^\*%\$\*&()","UYGTHFG","(\* &^%\$)","(\*&^%)","!@#\$%^","KUJHYGJH","%\$%^&\*&HJG","6786786ghfh","&^GHFHF","JHGJHGHGt76t","JYHGHJGF","(\*&^%\$)","IUYTHGFD","IKUJH YFGT",")(\*&^%\$#@)","GFDXFFVCGF","UYTHGFHFt","T^%^&%","#\$%#\$%\$fghf","VCGFTGHFCVGH","CVHGFYHGFG","%^^%fghf675","YTRFTHGFH TGF", "IKUYTGFD", "\$5f5ytr45", "?FGBHFVhgf"])

#### **After sorting:**

['abdeehs', 'beglnos', 'abdhirty', 'bciistu', 'bciistu', 'bmoott', 'befilry', 'benorz', 'bhmoor', 'bcekstu', '15bdduy', '15bdduy', 'bdgiilnu', '123bcv', 'acdell', 'ac aclnor', 'acelnor', 'aceirrs', 'acginrry', 'accehst', 'acghtu', 'acesu', 'cddee', 'cddent', 'cdejmy', 'aceghrs', 'achiort', 'acehs', 'ccehik', 'lachiimny', 'chiinn', 'laceimn', 'lacei mn', 'ceiinstz', 'ceiinstz', 'ceiinstz', 'acdem', 'acdemmnor', 'cfimnors', 'cgillnnoort', 'cginnnu', 'cenrrtu', 'adelms', '3acden', '3acden', '45adegnr', '5@abdv', '5@abdv', 'cddee is', 'cddeeis', 'acdeelrs', 'ddees', 'adeefst', 'addemns', 'deeipst', 'deeipst', 'cdeinorsttu', 'adeiimnnoppstt', 'cdeiorssv', 'degiisssu', 'ddegiloss', 'acddeirstt', 'cdnrtwy', "'denost 'Idoxxy', 'ccders', 'ddenorw', 'dnorsw', 'deistu', '.aeeilrr', 'eemoprr', '78ejnoy', '1eeikmn', 'emnoorsu', '2eoxxy', 'ceeginrt', 'aceeps', 'aceepss', 'addeev', "'eilsv", 'adeehstu x', 34afil', 'aefiln', 'aafiilmr', '2afmry', 'aefhrt', 'eefiimnn', 'fhhisy', 'eefgiln', 'fgillnoow', 'eforst', 'cfoxxy', 'definrs', '2firtu', '13firtu', '14firtu', '34firtu', 'adefrrsttu', 'efhrrtu', 'efhrrtu', 'aeeglnr', '!bghitu', '12dglo', '12dglo', '34dglo', '4ddgloy', 'deglno', '67gnnoy', '12dgoo', 'adegnrt', 'adgrsu', 'aadgrsu', 'aaghirtu', 'gnrtuu', 'aagritu', 'aghiiln', '12ahtt y', 'adeehrt', '!@ehllo', '7behlloy', 'efhilms', 'dghilno', 'dghilno', 'hnoor', 'ghinop', 'aeghost', 'eehorvw', '45eghnru', 'abdhnsu', 'cciinoo', 'aimnoprtt', 'aefiilnrstt', deijnru', 'aeeginorrtt', 'giilnnovv', 'ekrsty', 'giiklln', 'dgikmno', 'dgikmno', 'dgikmno', 'lklloy', '23klloy', 'ablor', 'adeelr', 'adeelr', 'aeelmstt', 'abeeilrt', 'ghilt', , 'eghilnt', 'aeegiln', 'giilnv', 'Illouy', 'Illouy', 'beloovy', 'alloy', '123bmn', 'abdmoy', 'aaalmmy', 'aacfgimnnrtuu', '2aemty', '456hmt', 'egilmn', 'egilmn', 'imnoss', 'aeikmss t', 'adeimottv', 'aiimnoottv', 'aimnnotu', 'aimnnotu', 'aimnnotu', 'aimnnotu', 'aimnnotu', 'ceeggilnnt', 'ceeggilnnt', 'bdeeinot', 'bdeeosss', 'bdeeosss', 'inoopprttuy', '09eoor', 'eee orssv', 'agiinnpt', #@aiprs', 'adeelpst', 'ceefprt', 'efmoprrs', 'cikppu', '2ceeip', '23illopw', 'linnpy', 'acelps', 'deinoopst', 'ginopru', '78pppu', '78pppu', 'aeprry', eprssy', 'eimoprss', '34adeq', 'aeqrrstu', '123ainr', 'aeeilrsz', 'aeeilrsz', 'aeeilrsz', 'beeilllorsuy', 'beelrs', 'ddemnor', 'eefrssu', 'eefrssu', 'aeeirss', 'aeeinrs', 'aeeirsz', 'aeeirsz', 'deeirsz', 'deeirsz', 'deeirsz', 'deeirsz', 'aeeirsz', 'aeei 'denpss', '56cipsy', 'aesttu', 'aesttu', 'deoppst', 'aacegillrstty', 'eghnrstt', 'eghnrstt', 'gnorst', 'ccefllsssuuy', 'ccefllsssuuy', 'aehmnprsuu', 'deinnorrsuu', 'deinnorrsuu', 'ghimty', '(), Paabhrs', 'aeiprss', 'aaefllrtw', 'aabprt', "'ahstw", 'eehrt', 'ciiorstuy', 'ehmort', 'adegnorsu', 'adefil, 'aempsttt', 'afillny', 'Lgiknoo', '(Taaaahmnn', ') Aaaikntv', 'eimorsstuy', 'cdeiorssv', 'eiklnu', ',ademrs', 'beeillorsu', 'aiorrrw', 'fgghiint', 'aaginst', 'Baaahlll', '),Daabggitu', 'acdeprtu', 'Daaeensv', '(Aahknsu', ')Sehtty', '.ae rsy', 'degilnsu', 'aegillrru', 'aaefrrw', 'aaginst', 'ceersu', '.eenqu', 'aiiillnty', 'bdostu', "'ahissv", ',eiinnnostt', 'eegins', 'aeeilrss', '.ceinnnot', 'deeglps', '.iimnoss', 'aeknss', 'Baa ahlll', "'adesv", 'Maahhiimst', 'dgikmno', 'ceersu', 'Daaeensv', 'Daaeensv', 'aaegmns', '.acghtu', "'giknso", 'aaakstt', 'aackstt', ',eghnrstt', 'aeeilrss', 'Aaademnrr', "'Baaabhil su", (Paabhrs', 'deeginrsv', 'Maahhiimst', 'dgikmno', 'aabcfhkls', 'Aaademnrr', 'Baaabhilu', 'Baaahlll', 'cinosu', 'behorrt', 'Tghhou', "'Baaahllls", 'aefhrt', 'Baaajjil', '()Naer Y, 'CFFGGGHHYV', '%%567^^fgh', 'FFFGGHHRTTTY, 'DFGIKTUY, '\$4555fnty', 'BFFGHVfgh', 'FGGHHHTUV', '\$6.\*\*\*556fnty, 'BFFGGHHTUV', '\$6.\*\*\*556fnty, 'BFFGGHHTUV', '\$6.\*\*\*556fnty, 'BFFGGHHTUV', '\$6.\*\*\*556fnty, 'BFFGGHHTUV', '\$6.\*\*\*556fnty, 'BFFGGHHTUV', 'BFFGGHTHTU', 'BFFGGHTHTU', 'BFFGGHT UY', '\$4555frty', '?BFFGHVfgh']

