```
'''Write a program to determine largest command line input
1) py  py_07_08_25.py  10   20   30.8  7  40   35.6
   What is the largest command line input ? ---> 40
   What is argv ? ---> ['prog2.py' , '10' , '20' , '30.8' , '7' , '40' , '35.6']
   What is list 'a' ? ---> [10 , 20 , 30.8 , 7 , 40 , 35.6]
   How to determine largest element of list 'a' ? ---> max(a) i.e. 40
   What is the result of max(argv[1:]) ? ---> '7'
   What is the issue with max(argv[1:])) ? --->
 Largest string is obtained but not largest number
2) py  prog2.py
   What is the output ? ---> Pls send inputs
3) py  prog2.py  'Rama'  'Sita'  'Rajesh'  'Manohar'  'Vamsi'  'Amar'
   What is the largest command line input ? ---> 'Vamsi'
4) py  prog2.py  25  'Ten'
   What is the output ? ---> Inputs can not be number and string
5) Hint1: Use for loop
6) Hint2: Use try and except
'''
import sys

if len(sys.argv) == 1:
   print("Pls send inputs")
else:
   a = []
   all_str = True
   all_num = True

   for i in sys.argv[1:]:
      try:
         val = float(i)
         a.append(val)
```

```
            all_str = False
        except ValueError:
            a.append(i)
            all_num = False

    if not all_num and not all_str:
        print("Inputs can not be number and string")
    else:
        largest = max(a)
        print("Largest command line input:", largest)
        print("argv:", sys.argv)
        print("list a:", a)
```

Write a program to determine command line input is even number or odd number

1) py prog3.py 26

   What is the output ? ---> Even number

2) py prog3.py 45

   What is the output ? ---> Odd number

3) py prog3.py

   What is the output ? ---> Pls send an integer input

4) py prog3.py 10.8

   What is the output ? ---> Pls send an integer input

5) py prog3.py Ten

   What is the output ? ---> Pls send an integer input

```
'''
import sys
for x in sys.argv[1:]:
    try:
        n = int(x)
        print(f"{n} is even" if n % 2 == 0 else f"{n} is odd")
    except:
        print("enter valid number")
```

output :

```
PS F:\> py py_07_08_25.py
PS F:\> py py_07_08_25.py 10.8
enter valid number
PS F:\> py ^C
PS F:\> py py_07_08_25.py Ten
enter valid number
PS F:\> py py_07_08_25.py 45
45 is odd
PS F:\> py py_07_08_25.py 26
26 is even
PS F:\>
```

Write a program to determine average of command line inputs

1) py prog4.py 10.8 25 True 14.6 19 False 7.4

What is argv ? --->['prog4.py' , '10.8' , '25' , 'True' , '14.6' , '19' , 'False' , '7.4']

What is list 'a' ? ---> [10.8 , 25 , True , 14.6 , 19 , False , 7.4]

How to determine sum of list elements ? ---> sum(a)

How to determine number of list elements ? ---> len(a)

2) py prog4.py

What is the output ? ---> Pls send number inputs

3) py prog4.py 25 'Ten'

What is the output ? ---> Pls send number inputs

```
import sys
try:
    a = [eval(x) for x in sys.argv[1:]]
    print("argv:", sys.argv)
    print("list a:", a)
    print("Average:", sum(a)/len(a))
except:
    print("Pls send number inputs")
'''
```

Write a program to sort command line inputs in ascending order and descending order

1) py prog5.py 10 20 15.8 5 12.6

What is argv ? ---> ['prog5.py' , '10' , '20' , '15.8' , '5' , '12.6']

What is list 'a' ? ---> [10 , 20 , 15.8 , 5 , 12.6]

How to sort list 'a' ? ---> sorted(a)

How to sort list 'a' in descending order ? ---> sorted(a , reverse = True)

2) py prog5.py 25 'Ten'

What is the output ? ---> Pls don't send number and string inputs together

```
import sys

if len(sys.argv) == 1:
    print("Pls send number inputs")
else:
    a = []
    all_num = True
    all_str = True

    for x in sys.argv[1:]:
        try:
            val = float(x)
            a.append(val)
            all_str = False
        except ValueError:
            a.append(x)
            all_num = False

    if not all_num and not all_str:
        print("Pls don't send number and string inputs together")
    else:
        print("argv:", sys.argv)
```

```
    print("list a:", a)
    print("Ascending:", sorted(a))
    print("Descending:", sorted(a, reverse=True))
'''output :
PS F:\> py  py_07_08_25.py 10   20    15.8   5   12.6
argv: ['py_07_08_25.py', '10', '20', '15.8', '5', '12.6']
list a: [10.0, 20.0, 15.8, 5.0, 12.6]
Ascending: [5.0, 10.0, 12.6, 15.8, 20.0]
Descending: [20.0, 15.8, 12.6, 10.0, 5.0]

# Find outputs  (Home  work)
print( 'green'   in   'Hyd  is  green  city')   : true
print('day'   in   'Sankar  dayal  sarma')  : true
print('Green'   in   'Hyd  is  green  city')  : else , due to casing
print('d  is'   in   'Hyd  is  green  city')  : true
print('dis'   in   'Hyd  is  green  city') : false
print('iniv'   in   'Srinivas')  : false
print('iniv'   not   in   'Srinivas')  : true

'''  (Home  work)
Slice  demo  program
0     1      2       3     4      5      6      7
R     a      m       a           R      a      o
-8   -7     -6      -5    -4     -3     -2     -1
'''
a = 'Rama Rao'
print(a [ : 7 : 2])   :   R m <space >  a
print(a [ : 7])  : Rama Rao
print(a [2 : 4]) : ma<sace>
print(a [2 : ])  : ma Rao
print(a [ : 4 ])  : Rama
```

print(a [: : 2]) : rm<space>a

print(a [-6 : -1]) : ma Ra

print(a [-6 :]) : ma Rao

print(a [: -4 : -1]) : R a o<space>

print(a [-3 : -1]) # a[-3 : -1 : 1] ---> string from indexes -3 to -2 in steps of 1 i.e. Ra

print(a [-3 :]) : Rao

print(a [: :]) : Rama Rao

print(a [:]) :Rama Rao

print(a [: : -1]) : R a m a R a o

print(a [: : -2]) : oRa mR

print(a [-2 : : -2]) # a[-2 : -9 : -2] ---> string from indexes -2 to -8 in steps of -2 i.e. a<space>mR

print(a [2 : 8]) : ma Rao

print(a [2 : 8 : -1]) :eroor

print(a [: -6 : -1]) : m a ' ' R a o

print(a [2 : -3]) : ma <sp>

print(a [1 : 6 : 2]) : aaR

print(a [: -5 : -5]) : oR

print(a [2 : -5]) : ma

print(a [2 : -5 : 2]) : m

print(a [: 0 : -1]) : oa Ram a

print(a [-5 : 0 : -2]) : a<sp>

'''

Write a program to concatenate two strings separated by space but swap first two characters of the two strings.

Assume that each string has a minimum of two characters

Let inputs be Java and Python

What are the outputs ? ---> Pyva<space>Jathon

Hint: Use slice

‘’’

s1 = input("Enter first string: ")

```
s2 = input("Enter second string: ")

# Swap first two characters
result = s2[:2] + s1[2:] + " " + s1[:2] + s2[2:]

print("resust is :" ,result)
'''
Output :
Enter first string: java
Enter second string: python
resust is : pyva jathon

Write a program to print first two and the last two characters of the string
Print an empty string if string has less than four characters
1) Let input be PYTHON
   What is the output ? ---> PYON
2) Let input be Hyd
   What is the output ? ---> Nothing
'''
# Take input from console
s = input("Enter a string: ")
# Check length
if len(s) < 4:
   print("")
else:
   print(s[:2] + s[-2:])
'''
Output :
Enter a string: python
pyon
PS F:\>
```

Write a program to print characters of the string in forward and reverse directions without slice

```
                                    0   1   2   3   4
Let input be              V   A   M   S   I
                                   -5  -4  -3  -2  -1
```

What are the outputs ? ---> Character at index 0 : V

Character at index 1 : A

Character at index 2 : M

Character at index 3 : S

Character at index 4 : I

Character at index -1 : I

Character at index -2 : S

Character at index -3 : M

Character at index -4 : A

Character at index -5 : V

Hint: Use two for loops

```
s = input("Enter a string: ")
for i in range(len(s)):
    print(f"Character at index {i} : {s[i]}")
for i in range(-1, -len(s)-1, -1):
    print(f"Character at index {i} : {s[i]}")
```

Write a program to print characters at even and odd indexes without slice

```
                0   1   2   3   4   5   6   7
Let input be    R   a   m   a       R   a   o
```

odd = '' + 'a' + 'a' + 'R' + 'o' = 'aaRo'

even = '' + 'R' + 'm' + ' ' + 'a' = 'Rm a'

```
s = input("Enter a string: ")
even = ""
odd = ""
for i in range(len(s)):
    if i % 2 == 0:
        even += s[i]
    else:
        odd += s[i]
print(f"even idex sum is :{even}")
print(f"odd) index sum is :{odd}")
```

output :

Enter a string: rama rao

Enter a string: ram

even idex sum is : rm

odd) index sum is : a

1) What action to be made when index is even ? --->

Concatenate the character to even object

) What action to be made when index is odd ? --->

Concatenate the characeter to odd object

3) Hint: Use single for loop

```
'''
s = input("Enter string : ")  # Example: A4B3C2$5
res = ""
for i in range(0, len(s), 2):
    res += s[i] * int(s[i+1])
print(res)
#
```

Let input be A 4 B 3 C 2 $ 5

0 1 2 3 4 5 6 7

What is the output ? ---> AAAABBBCC$$$$$

1) What is the result of 'A' * 4 ? ---> 'AAAA'

2) i a[i] a[i + 1] out

''

0 'A' '4' '' + 'A' * 4 = 'AAAA'

2 'B' '3' 'AAAA' + 'B' * 3 = 'AAAA' + 'BBB' = 'AAAABBB'

4 'C' '2' 'AAAABBB' + 'C' * 2 = 'AAAABBB' + 'CC' = 'AAAABBBCC'

6 '$' '5' 'AAAABBBCC' + '$' * 5 = 'AAAABBBCC' + '$$$$$' = 'AAAABBBCC$$$$$'

What is the difference between a[i] and a[i + 1] ? ---

a[i] is ith char of string and a[i + 1] is (i + 1)th char of string

'''

Enter any string with alternate character and digit : A4B3C2$5

Result : AAAABBBCC$$$$$

Enter any string with alternate character and digit : HYD

String should have alternate character and digi

'''

Write a program to merge two strings to form a new string

1) Let inputs be HYD and VAMSI

What is the output ? ---> HVYADMSI

0 1 2

a ---> H Y D

0 1 2 3 4

b ---> V A M S I

i a[i] b[i] c

''

0 'H' 'V' '' + 'H' + 'V' = 'HV'

1 'Y' 'A' 'HV' + 'Y' + 'A' = 'HVYA'

2 'D' 'M' 'HVYA' + 'D' + 'M' = 'HVYADM'

Concatenate remainging characters of the other string to object 'c'

What is the final result ? ---> 'HVYADMSI'

Hint: Use single while loop and slice

'''

```
a = input("Enter first string: ")
b = input("Enter second string: ")
c = ""
i = 0
while i < len(a) and i < len(b):
    c += a[i] + b[i]
    i += 1
c += a[i:] + b[i:]   # append remaining characters
print("Merged string:", c)
```

output :

Enter first string: hyd

Enter second string: vamsi

Merged string: hvyadm si

Enter first string : HYD

Enter second string : VAMSI

Result : HVYADMSI

Enter first string : SAIRAM

Enter second string : HYD

Result : SHAYIDRAM

Output : Enter first string: sairam

Enter second string: hyd

Merged string: shayidr am

PS F:\>

'''

Write a program to remove duplicate characters of the string without using set

1) Let input be RAMA RAO

What is the output ? ---> RAM<space>O

2) out = '' + 'R' = 'R' + 'A' = 'RA' + 'M' = 'RAM' + ' ' = 'RAM ' + 'O' = 'RAM O'

3) What action to be made if the character is not in out object ? --->

Concatenate the character to out object

4) What action to be made if the character is already in out object ? --- Ignore the character

5) Hint: Use not in operator

'''

```
s = input("Enter any string: ")
result= ""
for ch in s:
    if ch not in result:   # only add if not already present
        result += ch
print("String without duplicates:", result)
```

output :

Enter any string : MISSISIPI

String without duplicates : MISP

```
# len() function demo program (Home work)
print(len('Hyd'))  #  3
print(len('Rama Rao')): 8
print(len('9247')) : 4
print(len('+-$')) : 3
print(len('')):0
print(len(' ')) :1
print(len('A2#'))  :3
```

print(len(3456)): error , it’s an integer

print('Sec'. len()) : unable to express length

'''

What does len(str) do ? ---> Returns number of characters in the string

'''

chr() function demo program

print(chr(65)) # Converts unicode value 65 to 'A'

print(chr(90)) : Z

print(chr(97)) : a

print(chr(122)) :z

print(chr(48)) : 0

print(chr(57)) : 9

print(chr(36)) :$

print(chr(32)) : space

'''

What does chr() function do ? ---> Converts unicode value to character

'''

ord() function demo program

print(ord('A')) # Converts 'A' to unicode value 65

print(ord('Z')) :122

print(ord('a')) : 97

print(ord('z')) : 122

print(ord('0')) :48

print(ord('9')) :57

yes

'''

ord() function

---

1) What does ord() function do ? ---> Converts character to unicode value

2) How many unicode values exist ? ---> 512

3) What is the range of unicode values ? ---> 0 to 511

4) What are the unicode values of 'A' - 'Z' ? ---> 65 to 90

   What are the unicode values of 'a' - 'z' ? ---> 97 to 122

   What are the unicode values of '0' - '9' ? ---> 48 to 57

5) What is another name of unicode ? ---> Extended Ascii

Note: chr() and ord() are quite opposite functions

'''

'''

Let input be A4M3Z5D2

What is the output ? ---> AEMPZ_DF

0	1	2	3	4	5	6	7
A	4	M	3	Z	5	D	2

i	a[i]	a[i + 1]	out
			''
0	'A'	'4'	'' + 'A' + chr(65 + 4) = '' + 'A' + 'E' = 'AE'
2	'M'	'3'	'AE' + 'M' + chr(77 + 3) = 'AE' + 'M' + 'P' = 'AEMP'

4 'Z' '5' 'AEMP' + 'Z' + chr(90 + 5) = 'AEMP' + 'Z' + '' = 'AEMPZ'

6 'D' '2' 'AEMPZ_' + 'D' + chr(68 + 2) = 'AEMPZ_' + 'D' + 'F' = 'AEMPZ_DF'

Hint: Use chr() and ord() functions

'''

Enter any string with alternate character and digit : HYD

Pls enter string with alternate char and digit

Enter any string with alternate character and digit : A4M3Z5D2

Result : AEMPZ_DF