PROGRAMMING ASSIGNMENT -1 – SOLUTION

1) **WAP to print the zig-zag list**
   INPUT: 5,9,6,4,7
   OUTPUT: 9,5,4,6,7

```
inp=[char for char in input("Enter a string:") if char.isdigit()]
#inp=[1,5,3,4,6,7,8]
for i in range(0,len(inp)-1,2):
    inp[i],inp[i+1]=inp[i+1],inp[i]
print(inp)
```

2) **WAP to sort the array in the given below format**
   INPUT: 5,7,2,-8,-4,-6,-2,3,1
   OUTPUT: 1,2,3,5,7,-2,-4-6,-8

```
l=list(map(int,input().split(',')))
print('input:',l)
lp=sorted([i for i in l if i>=0])
ln=sorted([i for i in l if i<0], reverse=True)
print('output:',lp+ln)
#---------OR----------#
print('output:',sorted([i for i in l if i>=0])
      + sorted([i for i in l if i<0], reverse=True))
----------------------------------------
input: [5, 7, 2, -8, -4, -6, -2, 3, 1]
output: [1, 2, 3, 5, 7, -2, -4, -6, -8]
```

3) **WAP to sort the array in the given below format**
   INPUT: 5,7,2,-8,-4,-6,-2,3,1
   OUTPUT: 7,5,3,2,1,-2,-4-6,-8

```
l=list(map(int,input().split(',')))
print('input:',l)
lp=sorted([i for i in l if i>=0],reverse=True)
ln=sorted([i for i in l if i<0],reverse=True)
print('output:',lp+ln)
#---------OR----------#
print('output:',sorted([i for i in l if i>=0],reverse=True)
      + sorted([i for i in l if i<0], reverse=True))
----------------------------------------
input: [5, 7, 2, -8, -4, -6, -2, 3, 1]
output: [7, 5, 3, 2, 1, -2, -4, -6, -8]
```

4) **WAP to sort the array in the given below format**
INPUT: 5,7,2,-8,-4,-6,-2,3,1
OUTPUT: 7,5,3,2,1,-8,-6,-4,-2

```
l=list(map(int,input().split(',')))
print('input:',l)
lp=sorted([i for i in l if i>=0],reverse=True)
ln=sorted([i for i in l if i<0])
print('output:',lp+ln)
#---------OR----------#
print('output:',sorted([i for i in l if i>=0],reverse=True)
      + sorted([i for i in l if i<0]))
-----------------------------------------
input: [5, 7, 2, -8, -4, -6, -2, 3, 1]
output: [7, 5, 3, 2, 1, -8, -6, -4, -2]
```

5) **WAP to rearrange the elements in the list in the given below format**
INPUT: 5,7,2,-8,-4,-6,-2,3,1
OUTPUT: 5,7,2,3,-8,-1,-4,-6,-2

```
l=list(map(int,input().split(',')))
print('input:',l)
lp=sorted([i for i in l if i>=0],reverse=True)
ln=sorted([i for i in l if i<0])
f=lp+ln
for i in range(0,len(f)-1,2):
    f[i],f[i+1]=f[i+1],f[i]
print('output:',f)
#---------OR----------#
list=sorted([i for i in l if i>=0],reverse=True)
      + sorted([i for i in l if i<0])
for i in range(0,len(list)-1,2):
    list[i],list[i+1]=list[i+1],list[i]
print('output:',list)
-----------------------------------------------
input: [5, 7, 2, -8, -4, -6, -2, 3, 1]
output: [5, 7, 2, 3, -8, 1, -4, -6, -2]
```

6) **WAP to sort the array in the given below format**
INPUT: 5,7,2,-8,-4,-6,-2,3,1
OUTPUT: 5,7,2,3,-2,1,-6-4,-8

```
l=list(map(int,input().split(',')))
print('input:',l)
lp=sorted([i for i in l if i>=0],reverse=True)
ln=sorted([i for i in l if i<0],reverse=True)
f=lp+ln
for i in range(0,len(f)-1,2):
    f[i],f[i+1]=f[i+1],f[i]
print('output:',f)
#---------OR----------#
list=sorted([i for i in l if i>=0],reverse=True)
     + sorted([i for i in l if i<0],reverse=True)
for i in range(0,len(list)-1,2):
    list[i],list[i+1]=list[i+1],list[i]
print('output:',list)
```

```
--------------------------------------------------
input: [5, 7, 2, -8, -4, -6, -2, 3, 1]
output: [5, 7, 2, 3, -2, 1, -6, -4, -8]
```

7) **WAP to sort the list of elements in the reverse order**

```
inp=[1,5,3,4,6,7,8]
print('input:',inp)
inp.sort(reverse=True)
print('output',inp)
```

```
-----------------------------------------
input: [1, 5, 3, 4, 6, 7, 8]
output [8, 7, 6, 5, 4, 3, 1]
```

8) **WAP to remove all lowercase alphabets in a given string**

```
[print(char,end='') for char in input("enter a string:")
     if not (char.islower())]
```

```
-------------------------------------
enter a string:HelloWorld123!@#$
HW123!@#$
```

9) **WAP to remove all uppercase characters in a given string**

```
[print(char,end='') for char in input("enter a string:")
     if not (char.isupper())]
```

```
---------------------------------------
enter a string:HelloWorld123!@#$
elloorld123!@#$
```

10) WAP to remove all numeric characters from a given input String

```
[print(char,end='') for char in input("enter a string:")
     if not (char.isdigit())]
----------------------------------------
enter a string:HelloWorld123!@#$
HelloWorld!@#$
```

11) WAP to remove all lowercase vowels from an input string

```
[print(char,end='') for char in input("enter a string:")
     if char not in 'aeiou']
----------------------------------------
enter a string:HelloWORld123!@#$
HllWORld123!@#$
```

12) WAP to remove all uppercase vowels from an input string

```
[print(char,end='') for char in input("enter a string:")
     if char not in 'AEIOU']
----------------------------------------
enter a string:HelloWORld123!@#$
HelloWRld123!@#$
```

13) WAP to remove all special characters in a given string

```
[print(i,end='') for i in input("Enter a string:")
     if i.isalpha() or i.isdigit()]
----------------------------------------
Enter a string:HelloWORld123!@#$
HelloWRld123
```

14) WAP to remove all alpha characters from a given input string

```
[print(i,end='') for i in input("Enter a string:")
     if not(i.isalpha())]
----------------------------------------
Enter a string:HelloWORld123!@#$
123!@#$
```

15) WAP to remove all alpha-numeric characters from a given input string

```
[print(i,end='') for i in input("Enter a string:")
     if not(i.isalnum())]
----------------------------------------
Enter a string:HelloWORld123!@#$
!@#$
```

16) WAP to count spaces from a given string

```
count=0
for char in input("enter a string:"):
    if char.isspace():
        count+=1
print('count of spaces',count)
#-----------OR-----------#
print('count of spaces:',(input("enter a string:")).count(' '))
-----------------------------------------
enter a string:He llo Wor ld %$# 123
count of spaces: 5
```

17) WAP to count extra spaces from a given string

```
st=input("enter a string: ")
count=0
for i in range(len(st)-1):
    if st[i].isspace() and st[i+1].isspace():
        count+=1
print('count of extra spaces: ',count)
-----------------------------------------
enter a string: Hell o  wor   ld @#    124
count of extra spaces:  6
```

18) WAP to count vowels in a given string

```
count=0
for char in input("enter a string: "):
    if char in 'aeiouAEIOU':
        count+=1
print('count of vowels: ',count)
-----------------------------------------
enter a string: The quick brown fox jumps over the lazy dog
count of vowels:  11
```

19) WAP to count all lowercase alphabets in a given string

```
count=0
for char in input("enter a string: "):
    if char.islower():
        count+=1
print('count of lowercase: ',count)
-----------------------------------------
enter a string: The Quick Brown Fox Jumps Over The lazy DOG
count of lowercase:  25
```

20) WAP to count all uppercase characters in a given string

```
count=0
for char in input("enter a string: "):
    if char.isupper():
        count+=1
print('count of uppercase: ',count)
-----------------------------------------
enter a string: The Quick Brown Fox Jumps Over The lazy DOG
count of uppercase:  10
```

21) WAP to count all numeric characters from a given input String

```
count=0
for char in input("enter a string: "):
    if char.isnumeric():
        count+=1
print('count of numeric: ',count)
-----------------------------------------
enter a string: The1Quick2Brown3Fox4Jumps6Over7The8lazy9DOG
count of numeric:  8
```

22) WAP to count all special characters in a given string

```
count=0
for char in input("enter a string: "):
    if not char.isalnum():
        count+=1
print('count of special: ',count)
-----------------------------------------------
enter a string: The!Quick@Brown#Fox$Jumps%Over&The*lazy(DOG
count of special:  8
```

23) WAP to count all alpha characters from a given input string

```
count=0
for char in input("enter a string: "):
    if char.isalpha():
        count+=1
print('count of aplha char.: ',count)
-----------------------------------------------------
enter a string: The!Quick@Brown#Fox$Jumps%Over&The*lazy(DOG
count of aplha char.:  35
```

24) WAP to count all alpha-numeric characters from a given input string

```
count=0
for char in input("enter a string: "):
    if char.isalnum():
        count+=1
print('count of aplha-numeric char.: ',count)
-----------------------------------------
enter a string: Hello123!@$World
count of aplha-numeric char.:  13
```

25) WAP to print spaces from a given string

```
[print(char,end='') for char in input("enter a string:")
if char.isspace()]
```

26) WAP to print extra spaces from a given string

```
st=input("enter a string:")
space=''
for i in range(len(s)-1):
    if st[i].isspace() and st[i+1].isspace():
        space=space+st[i]
print(space)
```

27) WAP to print all lowercase alphabets in a given string

```
[print(char,end='') for char in input("enter a string:")
     if char.islower()]
-----------------------------------------
enter a string:Hello123!@$World
elloorld
```

28) WAP to print all uppercase characters in a given string

```
[print(char,end='') for char in input("enter a string:")
     if char.isupper()]
-----------------------------------------
enter a string:Hello123!@$World
HW
```

29) WAP to print all numeric characters from a given input String

```
[print(char,end='') for char in input("enter a string:")
     if char.isnumeric()]
-----------------------------------------
enter a string:Hello123!@$World
123
```

30) WAP to print all alpha characters from a given input string

```
[print(char,end='') for char in input("enter a string:")
     if char.isalpha()]
-------------------------------------------
enter a string:Hello123!@$World
HelloWorld
```

31) WAP to print all alpha-numeric characters from a given input string

```
[print(char,end='') for char in input("enter a string:")
     if char.isalnum()]
-------------------------------------------
enter a string:Hello123!@$World
Hello123World
```

32) WAP to count alpha characters in a given string

```
count=0
for char in input('enter a string:'):
    if char.isalpha():
        count+=1
print(count)
-------------------------------------------
enter a string:Hello123!@$World
count of aplha char. 10
```