```
In [8]:
```

```
1  # For examples:
2
3  n = int(input())
4  for i in range(1,n+1):
5     print("11AK1A05%02d\t12AK1A05%02d\t13AK1A05%02d"%(i,i,i))
6
7
```

```
10
11AK1A0501
                 12AK1A0501
                                 13AK1A0501
11AK1A0502
                12AK1A0502
                                 13AK1A0502
11AK1A0503
                12AK1A0503
                                 13AK1A0503
11AK1A0504
                 12AK1A0504
                                 13AK1A0504
11AK1A0505
                12AK1A0505
                                 13AK1A0505
11AK1A0506
                12AK1A0506
                                 13AK1A0506
11AK1A0507
                12AK1A0507
                                 13AK1A0507
11AK1A0508
                 12AK1A0508
                                 13AK1A0508
11AK1A0509
                12AK1A0509
                                 13AK1A0509
11AK1A0510
                12AK1A0510
                                 13AK1A0510
```

### In [11]:

```
1 # 4.5001
2 # 4.5
3 # print("%.")
4 # pyformat.info -> Format Specifiers
5
6
7 n = int(input())
8 for i in range(1,n+1):
9     print("11AK1A05{:02}\t12AK1A05{:02}".format(i,i))
```

```
10
11AK1A0501
                 12AK1A0501
11AK1A0502
                 12AK1A0502
                 12AK1A0503
11AK1A0503
11AK1A0504
                12AK1A0504
11AK1A0505
                 12AK1A0505
11AK1A0506
                12AK1A0506
11AK1A0507
                 12AK1A0507
11AK1A0508
                 12AK1A0508
11AK1A0509
                 12AK1A0509
11AK1A0510
                12AK1A0510
```

## In [ ]:

```
1
   Sample Test Case:
2
   Input: Enter starting range from user: 250
3
            Enter ending range from user: 260
   Output:
4
5
        11AK1A0250
6
        . . . . . . . . . .
7
        . . . . . . . . . .
8
        11AK1A0260
```

#### In [14]:

```
1  n = 10
2  s = 0
3  for i in range(10):
4    print(i,end=" ")
5    s = s+i
6  print(s)
```

#### 0 1 2 3 4 5 6 7 8 9 45

## In [15]:

```
#print the factors of given number

#print the sum of n natural numbers

#print the even numbers in bettwen given range

#print the even numbers in bettwen given range

#print the given number is a prime or not

#print the prime numbers inbetween given range
```

## In [17]:

```
1 # range(lb,ub,step)
2 for i in range(1,10):
3 print(i,end=" ")
```

#### 1 2 3 4 5 6 7 8 9

## In [19]:

```
1 # range(lb,ub,step)
2 for i in range(1,10,2):
3    print(i,end=" ")
4 #1 2 3 4 5 6 7 8 9
```

#### 1 3 5 7 9

#### In [23]:

```
1 # 11,100
2 for i in range(5,100,5):
3     print(i,end=" ")
```

5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

#### In [25]:

```
# While:
 2
 3
         Syntax:
 4
 5
             while Condition:
 6
                  stmnts
 7
                  updation of itervariable
 8
9
   n = int(input())
10
   c = 0
11 while n!=0:
12
       c+=1
13
       n=n//10
14 print(c)
```

5344678902615565168453515468135513511355163023156123021354468613515313235315 319876543

85

## In [ ]:

```
# Input: 132465
   # Output: Given number is : 132465
            Digit Count is: 6
 3
 4
 5
   Task - 1
   # Input: 134234
 6
 7
   # Output:
        Given number is: 134234
 8
   #
9
       Digit count is: 6
        Reverse number is: 432431
10 #
        Even Digit Count is: 3
11
       Odd Digit Count is: 3
12
   #
13 #
        Even digits sum : 10
14
        Odd digits sum: 7
15
16 Task - 2
                             17
   Input: 5
18
                                        Input: 3
19
   Output:
                                        Ouput:
20
           1 1 1 1 1
21
           2 2 2 2 2
22
           3 3 3 3 3
23
           4 4 4 4 4
24
           5 5 5 5 5
25
```

```
In [ ]:
```

```
1
```

# **Strings**

```
In [30]:
```

```
1 dir(str)
```

```
Out[30]:
['__add__',
'__class__',
    ___contains__',
    _delattr___',
    dir__',
    _doc__
    _eq___'
    format__',
    _ge__',
    _getattribute___',
    _getitem__',
   _getnewargs__',
    _gt__',
   _hash__',
_init__',
    _init_subclass__',
    _iter__',
    le__'
    _le__',
_len__',
    _lt__'
    mod
    mul
    ne___
    _new__'
    _reduce_
    _reduce_ex_
    _repr_
   _rmod__
    _rmul___'
    setattr_
   _sizeof_
 '__str__',
 __subclasshook__',
 'capitalize',
 'casefold',
 'center',
 'count',
 'encode',
 'endswith',
 'expandtabs',
 'find',
 'format',
 'format_map',
 'index',
 'isalnum',
 'isalpha',
 'isascii',
 'isdecimal',
 'isdigit',
 'isidentifier',
 'islower',
 'isnumeric',
 'isprintable',
 'isspace',
```

```
'istitle',
 'isupper',
 'join',
'ljust',
 'lower',
 'lstrip',
 'maketrans',
 'partition',
 'replace',
 'rfind',
 'rindex',
 'rjust',
 'rpartition',
 'rsplit',
 'rstrip',
 'split',
 'splitlines',
 'startswith',
 'strip',
 'swapcase',
 'title',
 'translate',
 'upper',
 'zfill']
In [31]:
 1 s
Out[31]:
'ramu'
In [32]:
 1 s[0:2]
Out[32]:
'ra'
In [35]:
 1 s[2:5]
Out[35]:
'mu'
In [36]:
 1 s = 'fohohfghtph12'
```

```
In [42]:
 1 s[-2:]
Out[42]:
'12'
In [43]:
 1 s[len(s)//2]
Out[43]:
'g'
In [44]:
 1 s[::-1]
Out[44]:
'21hpthgfhohof'
In [45]:
 1 s[0:len(s):2]
Out[45]:
'fhhgth2'
In [46]:
 1 s
Out[46]:
'fohohfghtph12'
In [47]:
 1 s[4:10]
Out[47]:
'hfghtp'
In [48]:
 1 s.capitalize()
Out[48]:
'Fohohfghtph12'
```

```
In [49]:
 1 s.casefold()
Out[49]:
'fohohfghtph12'
In [55]:
 1 s.center(5)
Out[55]:
'fohohfghtph12'
In [56]:
 1 s =""
In [57]:
 1 s=s+'r'
In [58]:
 1 s
Out[58]:
'r'
In [62]:
 1 s='ramu'
In [64]:
 1 s.replace('a','j')
Out[64]:
'rjmu'
In [65]:
 1 s.count('j')
Out[65]:
0
```

```
In [66]:
 1 s
Out[66]:
'ramu'
In [67]:
 1 s.count('a')
Out[67]:
In [68]:
 1 s = '437657834832'
In [69]:
 1 s.count('7')
Out[69]:
2
In [70]:
 1 s[0]="6"
                                           Traceback (most recent call last)
TypeError
<ipython-input-70-f97275ea236d> in <module>
----> 1 s[0]="6"
TypeError: 'str' object does not support item assignment
In [71]:
 1 s.endswith('2')
Out[71]:
True
In [72]:
 1 s.startswith('91')
Out[72]:
False
```

```
In [73]:
 1 s = 'hriuhdTREtr'
 2 s.swapcase()
Out[73]:
'HRIUHDtreTR'
In [75]:
 1 s.islower()
Out[75]:
False
In [76]:
 1 s
Out[76]:
'hriuhdTREtr'
In [77]:
 1 s.islower()
Out[77]:
False
In [78]:
 1 s.casefold()
Out[78]:
'hriuhdtretr'
In [79]:
 1 s.islower()
Out[79]:
False
In [80]:
 1 s
Out[80]:
'hriuhdTREtr'
```

```
In [85]:
 1 s =s.casefold()
 2 print(s)
hriuhdtretr
In [86]:
 1 s.islower()
Out[86]:
True
In [90]:
 1 s.index('')
                                          Traceback (most recent call last)
ValueError
<ipython-input-90-664193e3e34f> in <module>
----> 1 s.index('2')
ValueError: substring not found
In [102]:
 1 s = ' lk fg '
 2 s = s.strip()
 3 print(s)
 4 | s="".join(" ")
lk fg
In [95]:
 1 s =s.join(' ')
 2 print(s)
In [105]:
 1 d = "sdasd a asd asd"
 2 d = "".join(d)
 3 d
Out[105]:
'sdasd a asd asd'
In [107]:
 1 | s = 'jhgfdgsd jdfhl'
```

```
In [110]:
```

```
1 #'' or ""
2 s = "python"
3 # if you want acces the charcters from
4 # the string here we are having a three ways to access
5 #1.By using positive indexing
6 #2.By using negative indexing
7 #3.By using for loop also we can also
```

## In [114]:

```
1 #1.By using positive indexing
2 print(s)
3 s[0]#It gives first character of string
4 s[1]#It gives second character of the string
5 s[2]
```

#### python

#### Out[114]:

't'

#### In [118]:

```
1 #2.By using negative indexing
2 s[-1]#It gives last character of string
3 s[-2]
```

#### Out[118]:

'o'

#### In [119]:

```
#If you want find the string length there is predefined
# method called len()
print(len(s))
```

6

## In [123]:

```
1 #3.By using for loop also we can also
2 for i in range(len(s)):
3 print(s[i],end = "")
```

python

```
In [124]:
 1 s
Out[124]:
'python'
In [126]:
 1 s[0:3]
Out[126]:
'pyt'
In [127]:
 1 s1 = "Python Programming"
 2 len(s1)
Out[127]:
18
In [129]:
 1 s1[0:6]
Out[129]:
'Python'
In [131]:
 1 s1[6:]
Out[131]:
' Programming'
In [132]:
 1 s1[:6]
Out[132]:
'Python'
In [133]:
 1 s1[0:6:1]
Out[133]:
'Python'
```

```
In [134]:
 1 s1[::2]
Out[134]:
'Pto rgamn'
In [137]:
 1 s1[18:0:-1]
Out[137]:
'gnimmargorP nohty'
In [138]:
 1 s1[::-1]
Out[138]:
'gnimmargorP nohtyP'
In [141]:
 1 #check the given string is palindrome or not
 2 s = input()
 3 rs = s[::-1]
 4 if s == rs:
        print("Palindrome")
   else:
 6
 7
        print("not Palindrome")
 8
   li
liril
Palindrome
```

Out[141]:

5

```
In [142]:
```

```
1 dir(str)
```

```
Out[142]:
```

```
['__add__',
'__class__',
    _contains__',
_delattr__',
    _
dir__',
    _doc__
    _eq__'
    _format___',
    _ge__',
    _getattribute___',
    _getitem__',
    _getnewargs__',
    _gt__',
   _hash__',
_init__',
    _init_subclass__',
    _iter__',
    _le__',
_len__',
    _
_lt__';
    mod_
    mul
    _ne__',
    _reduce_
    _reduce_ex__',
    repr_
   __rmod___
  __rmul__',
    _setattr___
 '__sizeof__
 '__str__',
 __subclasshook__',
 'capitalize',
 'casefold',
 'center',
 'count',
 'encode',
 'endswith',
 'expandtabs',
 'find',
 'format',
 'format_map',
 'index',
 'isalnum',
 'isalpha',
 'isascii',
 'isdecimal',
 'isdigit',
 'isidentifier',
 'islower',
 'isnumeric',
 'isprintable',
 'isspace',
```

```
'istitle',
 'isupper',
 'join',
'ljust',
 'lower',
 'lstrip',
 'maketrans',
 'partition',
 'replace',
 'rfind',
 'rindex',
 'rjust',
 'rpartition',
 'rsplit',
 'rstrip',
 'split',
 'splitlines',
 'startswith',
 'strip',
 'swapcase',
 'title',
 'translate',
 'upper',
 'zfill']
In [143]:
 1 s
Out[143]:
'liril'
In [144]:
 1 s = "python"
In [145]:
 1 s
Out[145]:
'python'
In [146]:
 1 s.capitalize()
Out[146]:
'Python'
```

```
In [148]:

1   s1 = "python programming"
2   s1

Out[148]:
  'python programming'

In [149]:

1   s1.capitalize()
```

# Out[149]:

'Python programming'

#### In [150]:

```
1 s1.title()
```

#### Out[150]:

'Python Programming'

## In [151]:

```
1 s = "Hello Good Afternoon"
2 print(s)
```

Hello Good Afternoon

#### In [152]:

```
1 for i in s:
2    print(i,end = " ")
```

Hello Good Afternoon

#### In [153]:

```
for i in range(len(s)):
    print(s[i],end=" ")
```

Hello Good Afternoon

## In [156]:

```
1 s = "hello"
2 s*3
```

#### Out[156]:

'hello hello hello '

```
In [157]:
```

```
1 s.count('l')
```

## Out[157]:

2

# **Collections in Python**

- List
- Tuple
- Dictionary
- Set

#### List

- List is colletion of hetrogenious data and it is mutable(changable)
- · List will support indexing
- If you want create the list here we are having two ways i.e 1.By using square braces [] and 2.by using list() predefined method

# In [165]:

```
#Declarion of list
#Syntax: varible_name = [value1, value2,.....]

li = [1,2,"Python",55.4,True,"APSSDC"]

print(li)

print(type(li))

#If you want to acces the list elements here we are having a

#three ways to access

#1.By using positive Indexing

#2.By using negative Indexing

#3.By using loop
```

```
[1, 2, 'Python', 55.4, True, 'APSSDC']
<class 'list'>
```

#### In [162]:

```
1 #1.By using positive Indexing
2 li[0]#It gives first element of the list
3 li[1]#It gives second element of the list
4 li[2]#It gives third element from the list
```

#### Out[162]:

'Python'

```
In [164]:
```

```
1 #2.By using negative Indexing
2 li[-1]#It gives last element from the list
3 li[-2]
```

## Out[164]:

True

#### In [166]:

```
1 #If you want know the length of list there
2 # is a predefined method called len()
3 len(li)
```

#### Out[166]:

6

#### In [167]:

```
1 #3.By using loop
2 for i in range(len(li)):
3 print(li[i])
```

1 2 Python 55.4 True APSSDC

## In [168]:

```
1 for i in li:
2 print(i)
```

1 2 Python 55.4 True APSSDC

#### In [174]:

```
1 #List Slicing
2 print(li)
3 li[0:5:2]
```

[1, 2, 'Python', 55.4, True, 'APSSDC']

## Out[174]:

[1, 'Python', True]

```
In [175]:

1 | li[::-1]

Out[175]:
['APSSDC', True, 55.4, 'Python', 2, 1]

In [176]:

1 | myli = []
```

```
12/4/2019
                                                               04-12-2019
  In [178]:
    1 \#myLi[0] = 1
    2 dir(list)
  Out[178]:
  ['__add__',
      __class__',
       _contains___',
       _delattr__',
       _delitem___'
       _dir__',
       _
_doc___',
       _eq__',
      _format__',
       _ge__',
      _getattribute__',
       _getitem__',
      _<sub>___</sub>gt___',
       _hash_
       _iadd__',
_imul__',
_init__',
       _init_subclass___',
       _iter__',
      _le__',
_len__'
       _
_lt__',
       mul
       _ne__ '
       _ne___',
_new___',
       _reduce__',
      __reduce_ex__',
     __repr__'
       _reversed__',
      _rmul__',
    '__setattr__',
'__setitem__',
      __sizeof___',
      _str__',
    '__subclasshook__',
    'append',
    'clear',
    'copy',
    'count',
    'extend',
    'index',
    'insert',
    'pop',
    'remove',
    'reverse',
    'sort']
```

#### In [179]:

```
myli.append(1)
```

```
In [180]:
 1 myli
Out[180]:
[1]
In [181]:
 1 myli.append(60)
In [182]:
 1 myli
Out[182]:
[1, 60]
In [183]:
   for i in range(10,20):
        myli.append(i)
 2
 3
   myli
Out[183]:
[1, 60, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]
In [184]:
 1 | #If you want find the maximum elemnt in the list there is a
 2 # predefined method called max()
 3 max(myli)
Out[184]:
60
In [190]:
 1 #If you want find the minimum elemnt in the list there is a
 2 # predefined method called min()
 3
    min(myli)
 4
Out[190]:
1
In [192]:
 1 # m = ["APSSDC", "apssdc", "Python"]
 2 # min(m)
 3 \mid \# max(m)
 4 # dir(list)
```

```
In [201]:
 1 \mid 1i = [1,20,40,20,1,70,80]
 2 li.count(20)
Out[201]:
2
In [203]:
 1 li.sort()
In [204]:
 1 li
Out[204]:
[1, 1, 20, 20, 40, 70, 80]
In [205]:
 1 li
Out[205]:
[1, 1, 20, 20, 40, 70, 80]
In [214]:
 1 \mid s = [40, 20, 50, 70, 80]
 2 s = sorted(s,reverse = True)
In [215]:
 1 s
Out[215]:
[80, 70, 50, 40, 20]
In [217]:
 1 s.index(80)
Out[217]:
0
In [218]:
 1 myli.clear()
```

```
In [219]:
 1 myli
Out[219]:
[]
In [220]:
 1 s
Out[220]:
[80, 70, 50, 40, 20]
In [221]:
 1 s.pop()
Out[221]:
20
In [222]:
 1 s
Out[222]:
[80, 70, 50, 40]
In [224]:
 1 s.insert(3,90)
In [225]:
 1 s
Out[225]:
[80, 70, 50, 90, 40]
In [226]:
 1 s.remove(50)
In [227]:
 1 s
Out[227]:
[80, 70, 90, 40]
```

```
In [228]:
 1 li
Out[228]:
[1, 1, 20, 20, 40, 70, 80]
In [229]:
 1 s.extend(li)
In [230]:
 1 s
Out[230]:
[80, 70, 90, 40, 1, 1, 20, 20, 40, 70, 80]
In [231]:
 1 | li
Out[231]:
[1, 1, 20, 20, 40, 70, 80]
In [233]:
 1 \mid n = li.copy()
In [234]:
 1 n
Out[234]:
[1, 1, 20, 20, 40, 70, 80]
In [235]:
 1 k = "Good Afternoon APSSDC"
 2 k
Out[235]:
```

<sup>&#</sup>x27;Good Afternoon APSSDC'

```
In [236]:
 1 list(k)
Out[236]:
['G',
 'o',
 'o',
 'd',
 'A',
 't',
 'e',
 'r',
 'n',
 'o',
 'o',
 'n',
 , ٔ '
 'A',
 'P',
 'S',
 'S',
 'D',
 'C']
In [237]:
 1 b = k.split(" ")
 2
   b
Out[237]:
['Good', 'Afternoon', 'APSSDC']
In [238]:
 1 a = k.split()
 2 a
Out[238]:
['Good', 'Afternoon', 'APSSDC']
In [239]:
 1 s = "Hello-Apssdc-How-are-you"
 2 n = s.split("-")
```

```
In [240]:
  1 n
Out[240]:
['Hello', 'Apssdc', 'How', 'are', 'you']
In [243]:
 1 s = "Hello-Apssdc-How-are-you"
 2 n = s.split("e")
In [244]:
Out[244]:
['H', 'llo-Apssdc-How-ar', '-you']
In [245]:
  1 # 10 30 40 70 90 60
 2 1 = input().split()
  3
    | 1
10 30 40 70 90 60
Out[245]:
['10', '30', '40', '70', '90', '60']
In [250]:
    #li = [20,80,100,101,700,500,700,500,20,10] find the max valu in the list
    li = [20,80,100,101,700,500,700,500,20,10]
  3
    unique = []
 4
    for i in li:
  5
         if i not in unique:
             unique.append(i)
 6
 7
    print(unique)
  8
    sli = sorted(unique, reverse = True)
    print(sli[1])
[20, 80, 100, 101, 700, 500, 10]
500
In [251]:
 1 k = input().split()
  2 k
40 20 80 50
Out[251]:
['40', '20', '80', '50']
```

```
In [253]:
    intvalues = []
 2
    for i in k:
        intvalues.append(int(i))
 3
 4 print(intvalues)
[40, 20, 80, 50]
In [254]:
    intvalues
Out[254]:
[40, 20, 80, 50]
In [255]:
   sum(intvalues)
Out[255]:
190
In [256]:
 1
   intvalues
Out[256]:
[40, 20, 80, 50]
In [257]:
   intvalues.clear()
In [258]:
    intvalues
Out[258]:
[]
In [ ]:
 1
```

# **Tuple**

- · Tuple is a collection of hetrogenious data and it accepts indexing also
- Tuple is Immutable (It cann't be changable)
- Declaration of tuple : By using normal paranthesis i.e '()'

```
In [263]:
```

```
#Creation of tuple
#Variblename = (Value1, valu2,....)
#If you want to create the tuple here we are having three ways i.e
# 1.tuple()
# 2.variblename = ()
# 3.comma seperated values(Ex:1,2,3,4,5)
```

#### In [264]:

```
1 1,2,3,4,5
```

## Out[264]:

```
(1, 2, 3, 4, 5)
```

#### In [265]:

```
1 t = ("Mastan",12,50.5,True,"APSSDC")
2 t
```

## Out[265]:

```
('Mastan', 12, 50.5, True, 'APSSDC')
```

#### In [266]:

```
1 #Accessing elements from tuple
2 #If you want to access the lements from the tuple here we are
3 # having a three ways i.e:
4 # 1.By using Positive Indexing
5 # 2.By using negative Indexing
6 # 3.By using for loop
```

#### In [270]:

```
# 1.By using Positive Indexing
print(type(t))
t[0]#It gives first element from the tuple
t[1]#It gives second element from the tuple
```

#### <class 'tuple'>

## Out[270]:

12

```
In [271]:

1  # 2.By using negative Indexing
2  t[-1]#It gives last element from the tuple

Out[271]:
'APSSDC'

In [273]:

1  t[0:3]

Out[273]:
('Mastan', 12, 50.5)

In [274]:
1  t[::-1]

Out[274]:
('APSSDC', True, 50.5, 12, 'Mastan')
```

```
In [275]:
  1 dir(tuple)
Out[275]:
['__add__',
'__class__',
     _contains__',
_delattr__',
     _dir__',
    _doc__',
_eq__',
     _format___',
    _ge__',
     _getattribute___',
    _getitem__',
    _getnewargs__',
    _6`
_gt__',
    _hash__',
_init__',
     _init_subclass___',
     _iter__',
    _le__',
_len__',
_lt__',
_mul__',
     _ne__',
    _new__',
    _reduce__',
     _reduce_ex__',
     _repr__
    _repr__',
_rmul__',
 '__setattr__',
'__sizeof__',
    _
_str__',
 '__subclasshook__',
 'count',
 'index']
In [277]:
  1 t.index('Mastan')
Out[277]:
0
In [278]:
  1 t.count('APSSDC')
Out[278]:
1
```

```
In [279]:
 1 | v = ()
In [280]:
 1 type(v)
Out[280]:
tuple
In [282]:
 1 40,50,70
Out[282]:
(40, 50, 70)
In [283]:
   for i in t:
 1
 2
         print(i)
Mastan
12
50.5
True
APSSDC
In [285]:
 1 \mid 1i = [10,30,40,50]
 2 s = tuple(li)
In [286]:
 1 s
Out[286]:
(10, 30, 40, 50)
In [287]:
 1 list(s)
Out[287]:
[10, 30, 40, 50]
In [ ]:
  1
```