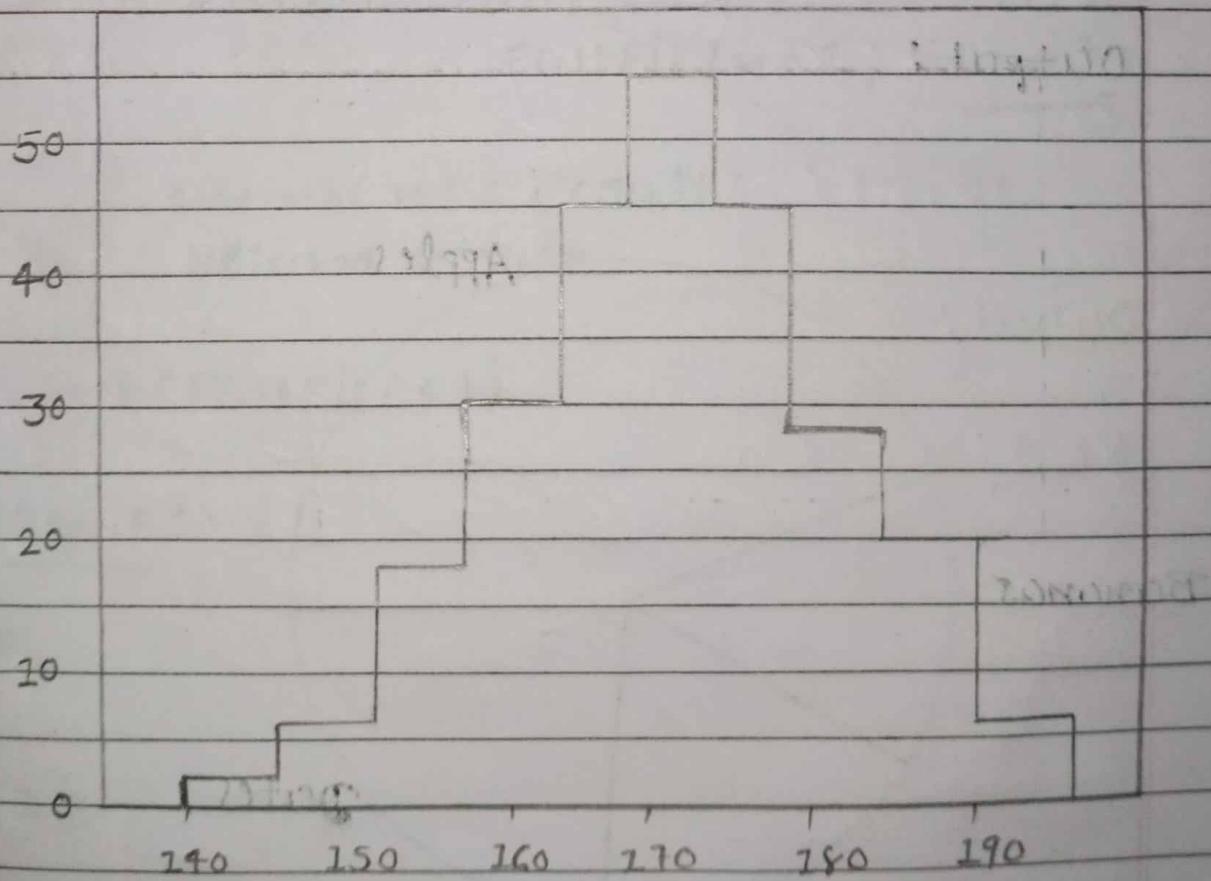


program: 200: Write a program of histogram:

```
import matplotlib.pyplot as plt
import numpy as np
x = np.random.normal(170, 70, 250)
plt.hist(x)
plt.show()
```

Output:



program : 101 : write a program of pie charts.

```
import matplotlib.pyplot as plt
```

```
import numpy as np
```

```
y = np.array([35, 25, 25, 15])
```

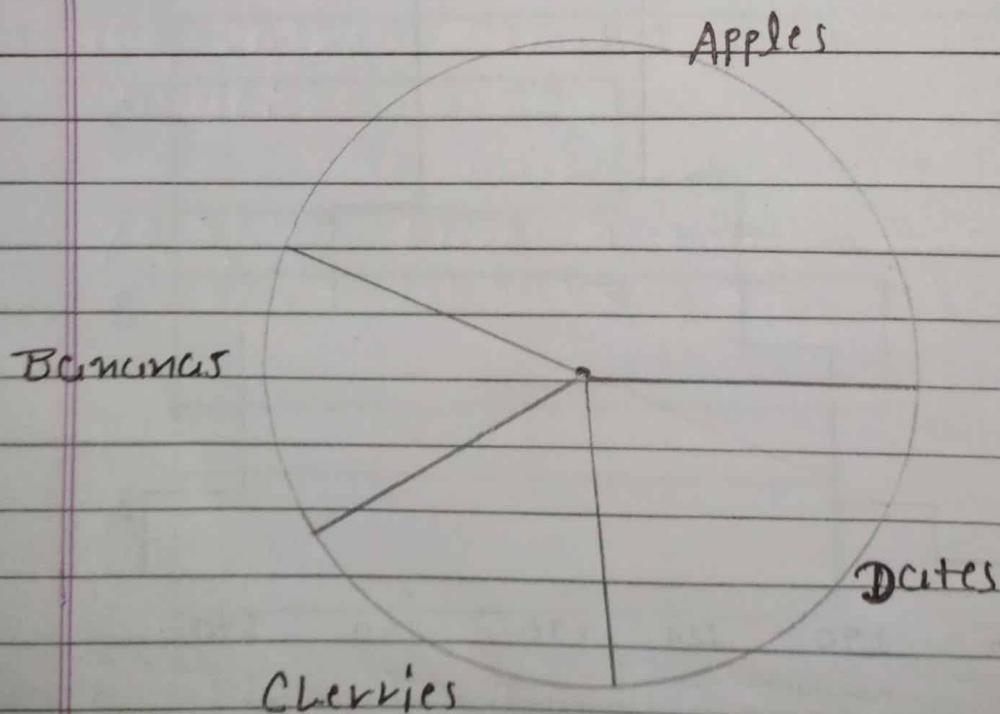
```
mylabel1 = ["Apples", "Bananas", "Cherries",  
           "Dates"]
```

```
plt.pie(y, labels=mylabel1)
```

```
plt.legend()
```

```
plt.show()
```

Output :



program : 702 : Write a program of demonstrate Fibonacci series :

```
def FASTFib(n, memo={}):
```

""" Assume n is an int  $\geq 0$ , memo used only by recursive calls.  
 Returns Fibonacci of n """

if n == 0 or n == 1:

return 1

try:

return memo[n]

except KeyError:

result = FASTFib(n-1, memo) +  
 FASTFib(n-2, memo)

memo[n] = result

return result

```
print(FASTFib(5))
```

Output :

program : 103 : Write a program of REJECT module:

import re

#if the string starts with "The" and ends with "Spain"

txt = "The rain in Spain"

x = re.search("^The", txt)

if(x):

print("YES! we have a match!")

else:

print("NO match")

Output:

YES! we have a match!

program: 104: write program of REJECT function.findall():

import re

str = "The rain in Spain"

x = re.findall("ai", str)

print(x)

Output:

['ai', 'ai']

program: 105: write a program of REJECT function.search():

import re

str = "The rain in Spain"

x = re.search("is", str)

print("The First white-space character  
is located in position: " + x.start())

Output:

The First white-space character is located  
in position: 3

```
import re
```

```
str = "The rain in Spain"
```

```
x = re.search("France", str)
```

```
print(x)
```

Output:

None

PROGRAM 7.06: WRITE A PROGRAM OF REGEX

FUNCTION: split():

```
import re
```

```
str = "The rain in Spain"
```

```
x = re.split(" ", str, 2)
```

```
print(x)
```

Output: ['The', 'rain', 'in Spain']

['The', 'rain', 'in Spain']

program: 707: write a program of REGEX function SUB():

import re

str = "The rain in Spain"

x = re.sub("is", "a", str)

print(x)

Output:

TheraininSpain

import re

str = "The rain in Spain"

x = re.sub("is", "a", str, 2)

print(x)

Output:

Therainin Spain

program : 108 : write a program of match object:

import re

str = "The rain in Spain"

x = re.search(r"\brain\b", str)

print(x)

print(x.span())

Output:

<re.Match object; span=(4, 8),

match='rain'>

(4, 8)

Program : 107: write a program to find lower case character between "c" and "m";

import re

str = "The rain in Spain"

x = re.findall("c-m", str)

print(x)

Output:

['h', 'e', 'a', 'i', 'i', 'a', 'i']

Program : 110: write a program to find all digit from string!

import re

str = "That will be 59 dollars"

x = re.findall("d", str)

print(x)

Output: [5, 9]

[5, 9]

program :- write a program of to search for sequence that start with "he" followed by two (any) character, and ends with "o".

```
import re
```

```
str = "hello world"
```

```
x = re.findall("he..o", str)
```

```
print(x)
```

output:

```
['hello']
```

program :- write a program of check if string starts with 'Hello':

```
import re
```

```
str = "Hello world"
```

```
x = re.findall("^Hello", str)
```

if (x):

```
    print("Yes, the string start with Hello")
```

else:

```
    print("No match")
```

Output:

yes, the string starts with 'Hello'

Program: 113: write a program to check if the string ends with 'world':

```
import re
```

```
str = "Hello world"
```

```
x = re.findall("world$", str)
```

```
if(x):
```

```
    print("yes, the string ends with  
'world'")
```

```
else:
```

```
    print("No match")
```

Output:

yes, the string ends with 'world'

program: 714: write a program to check if  
the string contain "ain" followed  
by 0 or more "in" character:

import re

str = "The rain in Spain falls mainly  
in the plain!"

x = re.findall("ain\* ", str)

print(x)

if (x):

print("YES, there is at least one

match!")

else:

print("NO match")

Output:

[ 'ain', 'ain', 'ain', 'ain' ]

YES, there is at least one match!

program: 115: Write C program to check if string contains "a" followed by exactly two "l" characters:

import re

str = "The rain in Spain falls mainly  
in the plain! alike"

x = re.findall ("al+l+", str) - x

print(x)

if (x):

    print("YES, there is at least one  
    match!")

else:

    print("No match")

Output:

['all']

YES, there is at least one match!

program: write C program to check if string contain either 'fulls' or 'stays':

import re

str = "The rain in Spain falls mainly in the plain!"

x = re.findall("fulls|stays", str)

print(x)

if(x):

    print("YES, there is at least one match!")

else:

    print("NO match")

Output:

['fulls']

YES, there is at least one match!

Program: 117: Write a program to check if string has any a, r, n character:

import re

str = "The rain in Spain"

x = re.findall("arn", str)

print(x)

if(x):

print("YES, there is at least one match")

else:

print("No match")

Output:

[r, a, n, n, a, n]

YES, there is at least one match

Program: program to check string  
for character from A to Z or  
a to z :

import re

str = "8 times before 11:45 AM"

x = re.findall("[a-zA-Z]", str)

print(x)

if (x):

print("YES, at least one match")

else:

print("NO match")

Output:

[', 'i', 'm', 'e', 's', 't', 'r', 'e', 'F', 'o', 'A', 'M']

YES, at least one match !

program: 119: To check regex to retrieve all words starting with numeric digit:

import re

str = "The meeting will be conducted on 1st and 21st of every month"

result = re.findall ("1d1w]\*", str)

print(result)

Output:

[ '1st', '21st' ]

program: 120: write a program to create regex to retrieve all words having 5 character length using findall

import re

str = "one two three four five six seven eight nine ten"

result = re.findall ("1w{5}1b", str)

print(result)

# retrieve 3, 4, 5 length character of  
; like in word:

```
result=re.findall(r"\w{3,5}\w",  
str)  
print(result)
```

Output:

['three', 'seven']

['one', 'two', 'three', 'four', 'five',  
'six', 'seven']

program: 121: write a program to retrieve  
the phonetic number of person:

```
import re
```

str="XYZ GIC: 9664858420"

```
result=re.search(r"\d+", str)
```

```
print(result.group(1))
```

# only name but not number from  
string:

```
result=re.search(r"ID+",str)
```

```
print(result.group(1))
```

Output:

9664858420

XYZ CIC:

Program: 7.2.2: Write a program to find all words starting with 'an' or 'ak':

```
import re
```

```
str="unil akhil anant anum arundhati  
ankur okruti"
```

```
result=re.findall(r"^(a[AkK])[w]*",str)
```

```
print(result)
```

Output:

```
['unil', 'akhil', 'anant', 'ankur', 'okruti']
```

program: 123: write a program of retrieve DATE OF Birth using REJEX:

```
import re
```

```
str = "XYZ 33 03-10-1985 GLC 30  
14-05-1987"
```

```
result = re.findall(r"\d{2}-\d{2}-\d{4}", str)
```

```
print(result)
```

Output:

```
[ '03-10-1985', '14-05-1987' ]
```

Program: 124: write program to create REJEX to search out the ending OF string by ignoring case:

```
import re
```

```
str = "Hello World"
```

```
res = re.search(r"world", str, re.IGNORECASE)
```

if res:

    print("String ends with 'world'")

else:

    print("String does not end with 'world'")

Output:

String ends with 'world'

Program: 125: Write a program to create  
REGEX to retrieve marks and  
name from given string:

str = "Rahul got 95 marks, Vijay got  
55 marks, where Vikas got 98  
marks"

# Extract only mark having 2 digit

marks = re.findall("\d\d\d", str)

print(marks)

# Extract name starting with Capital letter

```
names = re.findall ("[A-Z][a-zA-Z]*", str)
print (names)
```

Output:

```
[ '95', '55', '98' ]
```

```
[ 'Razul', 'Vijay', 'vikas' ]
```

### RegEx in Files [IMP]

program: write a program to read email-id from txt file:

```
import re
```

# Open the file for reading

```
f = open ("mail1.txt", "r")
```

# Repeat for each line of the file

```
for line in f:
```

```
res = re.findall(r"15+@15+", line)
```

```
# display if there are some elements  
# in result
```

```
if len(res) > 0:  
    print(res)  
# close the file  
f.close()
```

Output:

```
['jaytipsolanki885@gmail.com']
```

```
['xyzabc 8989@gmail.com']
```

program:127: write a program to retrieve data  
from file using regex and then  
write data into file:

```
import re  
# open the files
```

```
f1=open("salaries.txt","r")
```

```
f2=open("new.txt","w")
```

```
for line in f1:
```

```
res1 = re.search(r"\d{4} \d{2}\d{2}", line)
# extract id no from F1
res2 = re.search(r"\d{4}, \d{2}\d{2}\d{3}", line) # extract salary
print(res1.group(), res2.group())
# display
F2.write(res1.group() + "1t")
F2.write(res2.group() + "1n")
```

F1.close()

Output:

```
1010 8989.25
1011 7878.05
1012 5878.07
```

new.txt:

```
1010 ("8989.25", "1n")
1011 ("7878.05", "1n")
1012 ("5878.07", "1n")
```

program: 128: write a program of to retrieve info. From HTML file using regex:

### breakfast.html

```
<html>
<table border="1">
    <tr align="center">
        <td> 1 <td> . . .
        <td> Roli <td>
        <td> 50.00 <td>
    </tr>
```

```
<tr align="center">
    <td> 2 <td> . . .
    <td> Chappati <td>
    <td> 20.00 <td>
</tr>
```

```
<tr align="center">
    <td> 3 <td>
    <td> Tee <td>
    <td> 10.00 <td>
```

```
</tr>
```

```
</table>
</html>
```

```
import urllib.request
```

```
import re
```

```
url = 'file:///F:/python/lbreakfast.html'
```

```
req = urllib.request.Request(url)
```

```
resp = urllib.request.urlopen(req)
```

```
respData = resp.read()
```

```
paragraphs = re.findall(r'<td>(.*)?
```

```
<td>', str(respData))
```

```
<td>aa..</td>
```

```
for eachP in paragraphs:
```

```
print(eachP)
```

Output:

1

Roti

50.00

2

Chappati

20.00

3

Tee  
10.00

program:129: write a program of extract id, domain and suffix from email address:

import re

#open the file reading

emails = "jaydipsolanki8856@gmail.com

lakeslforu@gmail.com

jeff42@amazon.com "

pattern = '( \w+ ) @ ([A-Z0-9]+) \. ([A-Z]{2,4})'

result = re.findall(pattern, emails, flags=re.IGNORECASE)

print(result)

Output:

[('jaydipsolanki8856', 'gmail', 'com'),  
 ('lakeslforu', 'gmail', 'com'),  
 ('jeff42', 'amazon', 'com')]