

Program 3:- To make use of ScrollBar widget of the GUI application.

Algorithm:-

Step 1:- Import tkinter library to use ScrollBar widget.

Step 2:- Create an object corresponding to scroll parent window and create an object from scrollbar and place it on the parent window so created.

Step 3:- Create an object of Label() method to provide a heading and place it on parent window.

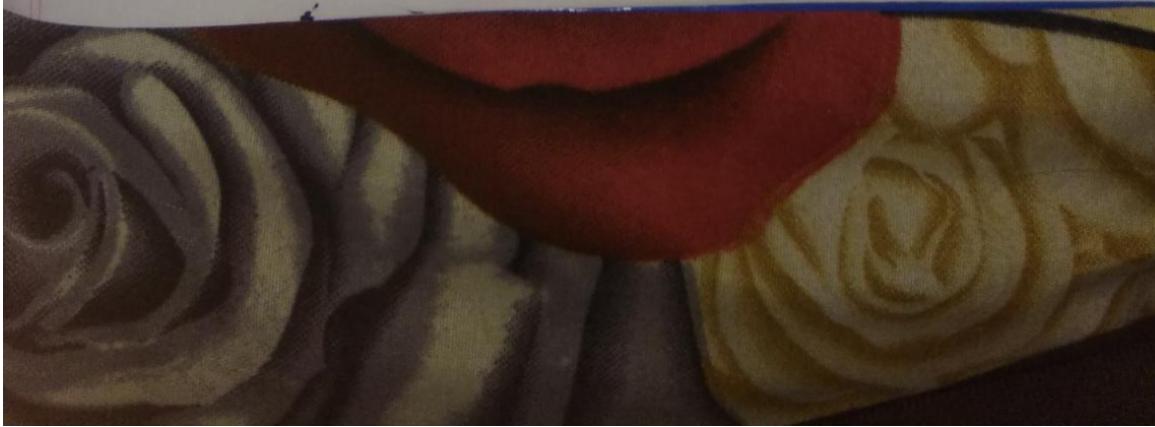
Step 4:- Create the pack() method along with object of Scrollbar method and use argument side and fill.

Step 5:- Create an object of ListBox method and place it onto parent window with attribute yscroll command.

Step 6:- Use for loop to insert values in the object of ListBox by using insert method.

Step 7:- Use config method along with scrollbar object and use command attribute.

Step 8:- Finally call the mainloop() method.



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PRACTICAL NO 2

Aim:- To study the use of iterators and Iterables.

① Simple use of iter() method :-

Create a tuple object and assign it the value or elements. Then create a iterable object to iter through the tuple with iter() method.

Now, use for conditional statement to display all the elements in the iterable object.

② Program using the iterable method for displaying the set of odd numbers :-

Step 1 :- Define a class and within that define the iter() which will initialize the first element within the container object.

Step 2 :- Now use the next() and define the logic for collecting the odd values.

Step 3 :- Define an object for the class and iter through the object.

Step 4 :- Now display the values using the for conditional statement.

CS

③ Program to demonstrate the use of IndexError.

Step 1:- Use the try block and define a list with some elements in it.

Step 2:- Use the indexing of list and print the elements of that list.

Step 3:- Now define a list which is empty. Try to print the element of list using indexing.

Step 4:- Use the except block with the IndexError keyword and print the appropriate statement.

PRACTICAL NO. 5

Aim :- Program to show draw shapes and GUI controls.

Program 1 :- To demonstrate the use of basic pack method.

Algorithm:

Step 1 : Use the tkinter library for importing the features of text widget..

Step 2 : Create a variable from a text variable and position it onto the parent window.

Step 3 : Use the pack() alongwith the object created from text method; and use the parameter.

(i) side = TOP , padx = 20 , ipadx = 40 , ipady = 50 .

Step 4 : Use the mainloop() method for triggering corresponding event.

Step 5 : Now repeat above step with a label method which takes the following argument.

Step 6 : (i) Name of - parent window.

(ii) Text attribute which defines the string.

(iii) The background colour (bg)

(iv) The foreground colour (fg)

Now use pack method with relevant attributes.

Step 5:- Open the file in append access mode.
 Write the contents to be append in the
 file by using `write()` method. ~~Print the~~
 Close the file using `close()` method.
 Now open the file in read mode and
 read the file and display the contents of
 the file.

(Q) Write a program using the file operation for reading the individual elements from the file using the conditional statement and inserting some characters within the content of the file.

Algorithm:-

Step 1:- Open the file in read mode. Read the contents of file and store it in a variable.
Step 2:- Use the while conditional statement till the length of variable is greater than zero and print the character with the content of file.

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Program 6 :- To make use of canvas widget of the GUI application.

Algorithm:-

Step 1 :- Import relevant method from the Tkinter library.

Step 2 :- Create an object from the canvas method and use the attributes height, width and background colour.

Step 3 :- Use the methods create_oval, create_line, create_arc and create_rectangle to create the lines, arc, rectangle and oval on the parent window.

Step 4 :- Use the appropriate attributes in the above methods to give a proper shape and colour to the figures.

Step 5 :- Use the pack() method with the object created from the canvas method.

Step 6 :- Finally use the mainloop method to trigger the above events.

② group()
 import re
 sequence = 'Python is an interesting language'
 v = re.search('IApython', sequence)
 print(v)
 v1 = v.group()
 print(v1)
 >>> <sre.SRE_Match object at 0x02A0F00>
 python

③ Program to verify the given set of phone numbers.
 import re
 list1 = ['8004567891', '9145673210', '7865432981', '9876543201']
 for value in list1:
 if re.match(r'[8-9]{1}[0-9]{9}', value) or len(value) == 10:
 print("Criteria matched for cell number!")
 else:
 print("Criteria failed!")
 >>> Criteria matched for cell number
 Criteria matched for cell number
 Criteria failed!
 Criteria matched for cell number.

④ Counting the number of males and females.
 import re
 s = "Ms. Ritik, Ms. Rani, Ms. Priya, Mr. Jeewan"
 p = r'*[Mm]s/[Mm]r*' Jm 31
 o = re.findall(p, s)
 print(o)
 m = 0
 f = 0
 for v in o:
 if (v == 'Ms'):
 f = f + 1
 else: (Mr)
 m = m + 1
 print("No. of males is:", m)
 print("No. of females is:", f)
 >>> ['Mr', 'Ms', 'Ms', 'Mr']
 No. of males is: 2
 No. of females is: 2

Code:

```
from tkinter import *
from tkinter import messagebox
```

```
def msgbox():
    pass
```

```
    messagebox.showinfo("Action", "Do you want to continue?")
    messagebox.showerror("Error", "Can't load the process!")
```

```
root = Tk()
```

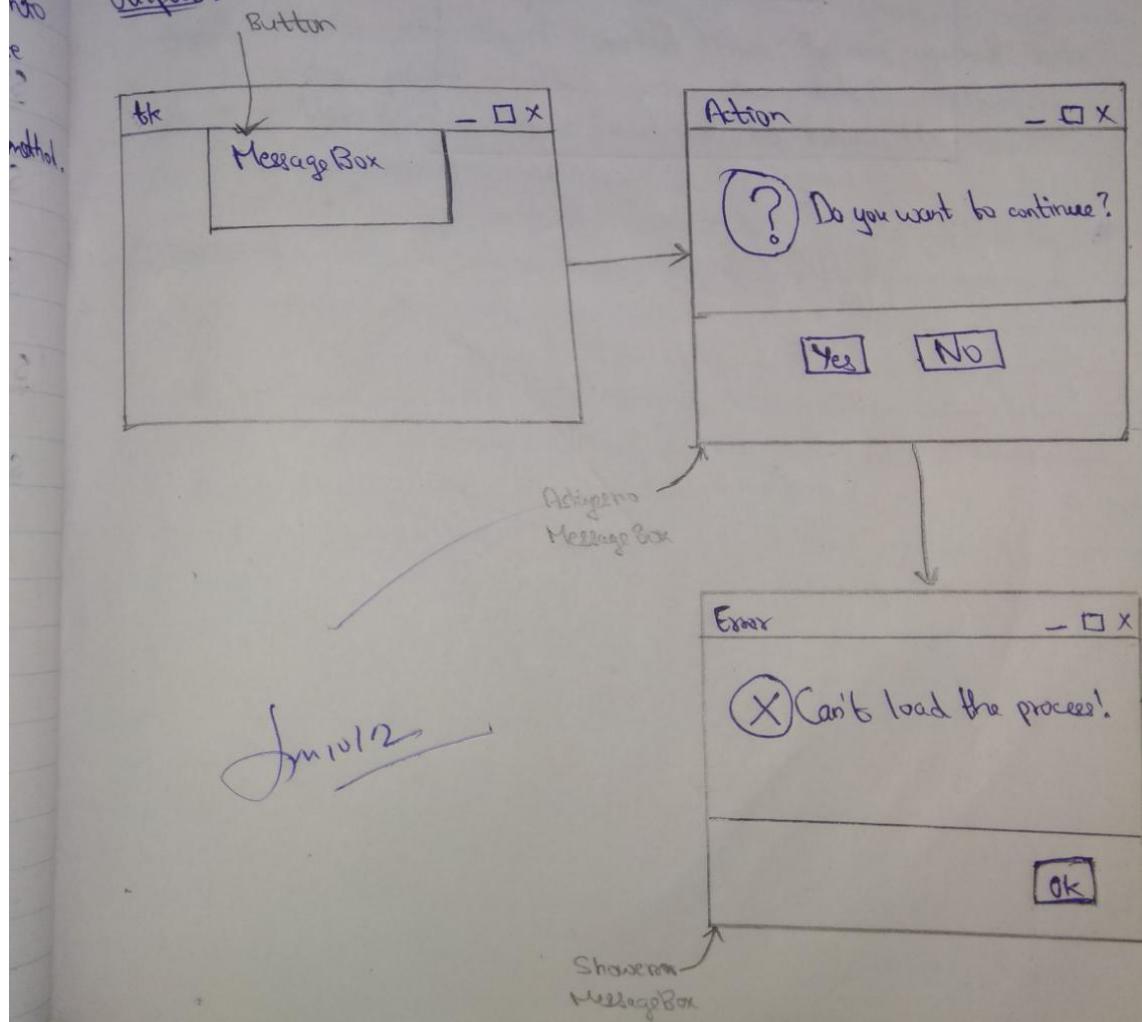
```
root.config(bg="grey")
```

```
b1 = Button(root, text="MessageBox", bg="lightblue", command=msgbox)
```

```
b1.pack()
```

```
root.mainloop()
```

Output:



EE

Program 2:-

Algorithm:-

Step 1 :- Import dbm library and use the open method for creating the database by specifying name of the database along with the corresponding flag.

Step 2 :- Use the objects for accessing to given web sites.

Step 3 :- Check whether the given URL address with match with the regular ~~page~~^{name} of the pages is not equal. None then display the message from URL address else Not found.

Step 4 :- Use the close method to terminate the database library.

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Checking first number is either 8 or 9 and next numbers are in range of 0 to 9 and check whether the entered numbers are equal to 10. If criteria matches print all numbers, matches otherwise print failed.

Step 7:- Import re module, declare a string. Use the module with.findall() for finding the vowels in the string and declare the same.

Step 8:- Import re module, declare the host and domain name. Declare pattern for separating the host and domain name. Use the.findall() and print the output respectively.

Step 9:- Import re module, enter a string, use pattern to display only two elements of the particular string. Use.findall() declare two variables with initial value as zero. Use for condition and subsequently use the if condition to check whether condition satisfy. add up or else increment value and display the values subsequently.

④ group
import
seque
v = v
par
v1 =
priv
< -
pu
⑤ Prog
imp
list
for

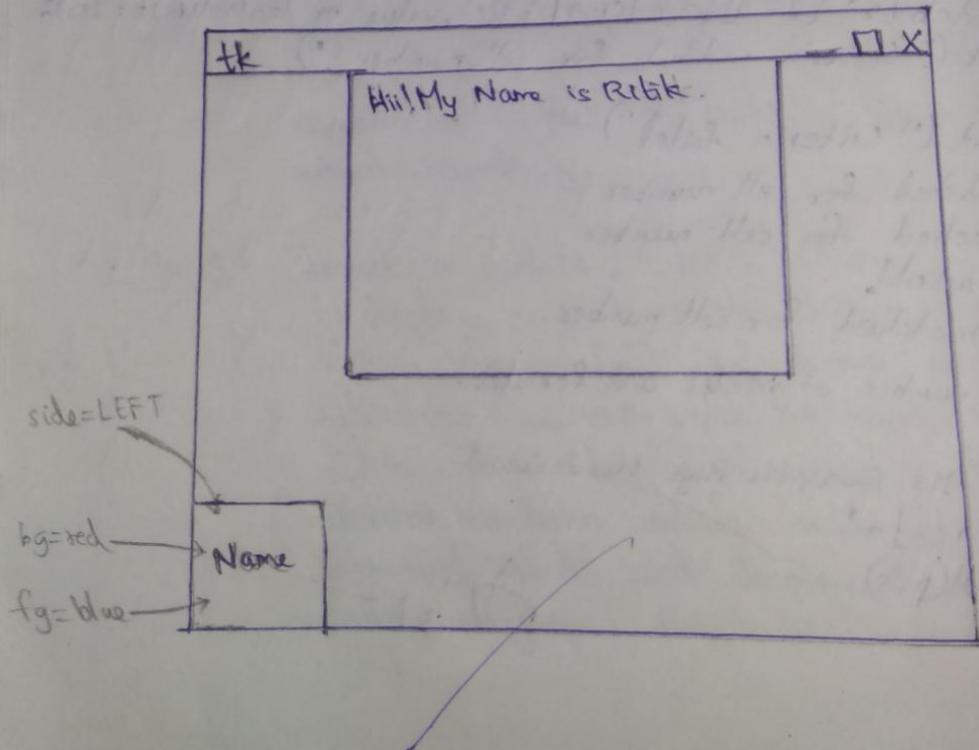
>>> Cr
C
C
⑥ Col
imp
s = "
p =
o =
pro
m
f
fo

D
>>> C
N
N

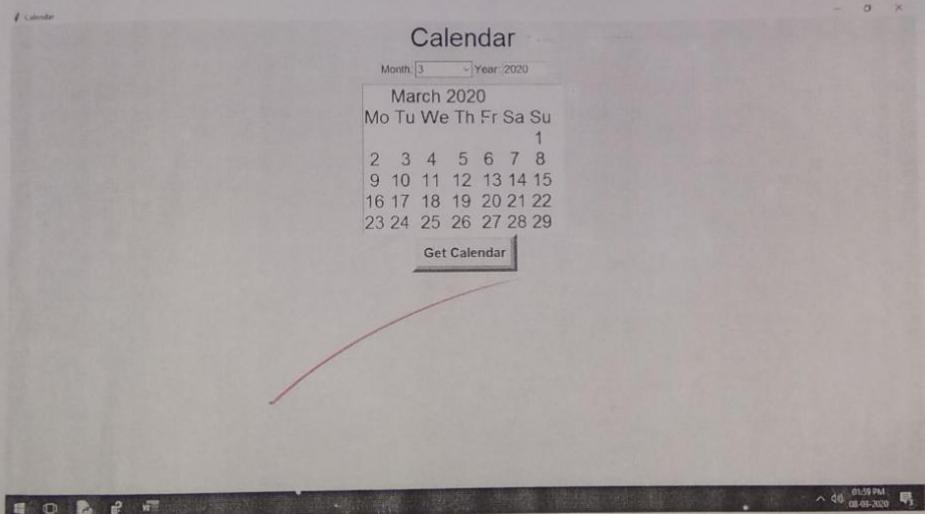
Code:-

```
from tkinter import *
root = Tk()
t1 = Text(root)
t1.insert(END, "Hi! My Name is Ritik")
t1.pack(side=TOP, padx=20, pady=30, ipadx=40, ipady=50)
l = Label(root, text="Name", bg="red", fg="blue")
l.pack(side=LEFT, padx=10, ipadx=20, ipady=30)
root.mainloop()
```

Output:-



```
Button(self.master,command=self.getcal,text='Get Calendar',font=("",15,'bold'),bd=10).pack()  
if __name__=='__main__':  
    root=Tk()  
    main(root)  
    root.title('Calendar')  
    root.mainloop()
```

OUTPUT :

Dr 17

PRACTICAL NO. 6

Aim: To demonstrate the use of basic database commands.

Program :-

Algorithm:-

Step 1 :- Import the corresponding library for taking database connection.

Step 2 :- Now create connection objects using sqlite3 library and connecting method for creating the new database.

Step 3 :- Now create the cursor objects using cursor method from the connection objects created above.

Step 4 :- Now use the execute method for creating the table with the column name and respective datatype.

Step 5 :- Now with the cursor objects use insert statements for entering the values co-ordinating into the different field considering the datatypes.

Step 6 :- Use the commit method to complete the transaction.

Step 7 :- Use the execute statement alongwith the cursor objects for accessing the value from the database using select/from/where clause.

Step 8 :- Finally use the fetchall method for displaying the value from the table using the cursor objects.

Step 9 :- Use the execute method at and the drop table syntax for terminating the database and finally use the close method.

Code / Output :-

③ class myclass:-

```
def __iter__(self):
    self.num=1
    return self

def __next__(self):
    if self.num<=20:
        num=self.num
        self.num+=1
        return num
    else:
        raise StopIteration
```

```
obj=myclass()
myiter=iter(obj)
for i in myiter:
    print(i)
```

```
>>>
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

Code:-

```
>>> import os, sqlite3  
>>> connection = sqlite3.connect("student.db")  
>>> c1 = connection.cursor()  
>>> c1.execute("Create table student (Name, RNO, DOB)  
>>> c1.execute("Create table student (Name INTEGER, RNO INTEGER)")  
>>> c1.execute("Insert into student values ('RITIK', 1773)")  
>>> c1.execute("Insert into student values ('ADARSH', 1731)")  
>>> connection.commit()  
>>> c1.execute("Select * from student")  
>>> c1.fetchall()  
>>> c1.execute("Drop table student")
```

Output:-

[('RITIK', 1773), ('ADARSH', 1731)]

Dr. Mira

Code :-

```
from tkinter import *
def sel1():
    selection = "Ritik"
    label.config(text=selection)
def sel2():
    selection = "ABHISHEK"
    label.config(text=selection)
def sel3():
    selection = "SHIVAM"
    label.config(text=selection)
def sel4():
    selection = "JEEVAN"
    label.config(text=selection)
root = Tk()
var = IntVar()
l1 = Label(root, text="Select any roll number :")
l1.pack(side=TOP)
r1 = Radiobutton(root, text="1771", variable=var, value=0, command=sel1)
r1.pack(anchor=N)
r2 = Radiobutton(root, text="1772", variable=var, value=1, command=sel2)
r2.pack(anchor=N)
r3 = Radiobutton(root, text="1773", variable=var, value=2, command=sel3)
r3.pack(anchor=N)
r4 = Radiobutton(root, text="1774", variable=var, value=3, command=sel4)
r4.pack(anchor=N)
label = Label(root)
label.pack(side=BOTTOM)
root.mainloop()
```

(a) Write a program for finding the length of the different lines that exist within the given file.

Algorithm :-

- Step 1 :- Open the created file in the read mode
- Step 2 :- Use the readlines() method and store it in the variable.
- Step 3 :- Use the for conditional statement and print the length of each line in the file.

PRACTICAL NO. 4

Aim:- Programs to demonstrate use of regular expressions.

Step 1:- Import re module declare pattern and declare sequence use match method with declare arguments if argument matched then print the same otherwise print pattern not found.

Step 2:- Import re module, declare pattern with literal and meta character. Declare string value. Use the.findall() with arguments and print the same.

st

Step 3:- Import re module , declare pattern with meta character, use the split() and print the output.

Step 4:- Import re module , declare string and accordingly declare pattern replace the blank space with no space. Use sub() with 3 arguments and print the string without spaces.

Step 5:- Import re module , declare a sequence , use search method for finding, subsequently use the group() with dot operator as search() gives memory location , using group() it will show up the matched string.

Step 6:- Import re module , declare list with numbers . Use the conditional statement, here used the for conditional statement . Use if condition for

Code / Output:

② try:
fileobj = open("abc.txt", "w")
fileobj.write("Python is an interpreted language.\nPython is an indented language")
except IOError:
 print("There is an environment error")
else:
 print("Operation Successful")
»» Operation Successful

② while True:
try:
 fileobj = open("abc.txt", "w")
 fileobj.write("Python is an indented language\nPython is an
interpreted language")
 a = int(input("Enter a number:"))
 print(a)
 break
except IOError:
 print("There is an environment error")
except ValueError:
 print("The value is invalid")
»»
Enter a number: abc
The value is invalid
Enter a number: pqr
The value is invalid
Enter a number: 73

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Program 5: To make use of Spinbox method of the GUI application.

Algorithm:

- Step 1: Import relevant method from tkinter library.
- Step 2: Create an object from the Tk() for the parent window.
- Step 3: Create an object from Spinbox method.
- Step 4 :- Place the object created from Spinbox method onto the parent window using the pack() method.
- Step 5 : Use the mainloop method to trigger the corresponding events.

Program 6:

③ Program using the iterable object to display set of first 20 numbers.

Step 1:- Define iter() with an argument and initialize it to the first value.

Step 2:- For extracting the next element from the container, use the next() with an argument and compare the no. of elements required in a container by using the conditional statement.

Step 3:- Now create an object from the given class and pass this object as an argument to the iter() method.

Step 4:- Now using the conditional statement display all the values from the given container.

PRACTICAL NO. 3

Aim:- Programs to demonstrate exception handling

① Program for demonstrating the use of IOError.

Step 1:- Use the try block to define the normal course of action. For eg:- Define the file object and open the file in the write or read mode and write some content onto the file.

Step 2:- Use the except block with the I/O error as an environment error and convey the appropriate message to the user, else display the message that the operation is carried out successfully.

② Program to demonstrate the multiple exceptions viz. IOError and ValueError.

Step 1:- Use the try block and define the fileobject and open the file in write or read mode and write some content onto the file.

Step 2:- Also, accept the value from the user and if it is a valid value, display the entered value and terminate the condition by using the break statement.

Step 3:- Define the except blocks for IOError and ValueError

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- ④ Program to display the elements of list as even or odd.
- Step 1 :- Define a function named as evenodd with an argument which would be an integer.
- Step 2 :- Define the logic for determining the numbers as even or odd and return even or odd appropriately.
- Step 3 :- Declare a list variable and define all the numbers that you want in the list.
- Step 4 :- Use map() method with the above function and the list variable, as arguments.
- Step 5 :- Print the result.

- ⑤ Program for printing the square and cube of given set of numbers using the map().
- Step 1 :- Define a square function with an argument and return the square of the number.
- Step 2 :- Define a function cube with an argument and return the cube of the number.
- Step 3 :- Declare a list variable and call the functions square and cube in the list.
- Step 4 :- Use for conditional statement and use the map() to find the square and cube given set of numbers.

Mini Project

- * The following mini-project is based on GUI components of python.

Info:- The project consist of the use of tkinter library with 6 widgets used in it. The name of the project is Calendar generator.

In this project the user has to enter the year and select the month to see the corresponding calendar of the year and month.

PRACTICAL NO. 1

Aim:- To study different modes of file operation.

Step 1:- Create a file object by using the open() method and use the write access mode followed by writing some contents onto the file and then close the file.

Step 2:- Now open the file in the read mode and use the read method , readline() method and readlines() method . Store the output in the variable and finally display the contents of that variable.

Step 3:- Now use the file object for finding the name of the file , mode in which the file is being opened and whether the file is still open or closed. Use the respective attributes for performing above operations.

Step 4:- Use the tell() method for finding the current position of the pointer in the file and then display that particular position and now use the seek() method with the appropriate arguments .

CODE :

```
from tkinter import *
from tkinter import ttk
import calendar

class main:
    def __init__(self,master):
        self.master=master
        self.month=IntVar()
        self.year=IntVar()
        self.months=(1,2,3,4,5,6,7,8,9,10,11,12)
        self.widgets()

    def getcal(self):
        m=self.month.get()
        y=self.year.get()
        cal=calendar.month(y,m,2,1)
        self.area.delete(0.0,END)
        self.area.insert(0.0,cal)

    def widgets(self):
        Label(self.master,text="Calendar",font=("consolas10bold",30)).pack()
        f=Frame(self.master,padx=10,pady=10)
        Label(f,text="Month:",font=("consolas10bold",13)).grid()
        mon=ttk.Combobox(f,width=7,font=("consolas10bold",13),values=self.months,
                          textvariable=self.month)
        mon.grid(row=0,column=1)
        mon.current(0)
        Label(f,text="Year:",font=("consolas10bold",13)).grid(row=0,column=2)
        Entry(f,width=7,font=("consolas10bold",13),textvariable=self.year).grid(row=0,column=3)
        f.pack()
        self.area=Text(self.master,font=(" ",20),width=20,height=7)
        self.area.pack()
```

Code / Output:-

① `fileobj = open("RitikV.txt", "w")
fileobj.write("My name is Ritik Vishwakarma. I am 18 years
old. I study in Thakur College of Science
and Commerce.")`

`fileobj.close()`

② `fileobj = open("RitikV.txt", "r")
r1 = fileobj.read(16)
fileobj.close()
fileobj = open("RitikV.txt", "r")
r2 = fileobj.readline()
fileobj.close()
fileobj = open("RitikV.txt", "r")
r3 = fileobj.readlines()
fileobj.close()
print("The output of read() method upto 16 characters is : ", r1)
print("The output of readline() method is : ", r2)
print("The output of readlines() method is : ", r3)`

>>>
The output of read() method upto 16 characters is : My name is Ritik
The output of readline() method is : My name is Ritik Vishwakarma
The output of readlines() method is : [My name is Ritik Vishwakarma,
'I am 18 years old. I study in Thakur College of Science
and Commerce.]

③ `a = fileobj.name
b = fileobj.closed
c = fileobj.mode
print("The output of name attribute is : ", a)
print("The output of closed attribute is : ", b)
print("The output of mode attribute is : ", c)`

>>>
The output of name attribute is : RitikV.txt
The output of closed attribute is : True
The output of mode attribute is : r

Code / Output :-

① mytuple1 = ("Banana", "Orange", "Apple")
myiter1 = iter(mytuple1)
for i in myiter1:
 print(i)

>>>
Banana
Orange
Apple.

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Jr allM19

② class odd:

```
def __iter__(self):  
    self.num=1  
    return self  
def __next__(self):  
    if self.num <= 25:  
        num = self.num  
        self.num+=2  
        return num
```

else:

raise StopIteration

```
obj = odd()  
myiter = iter(obj)  
for i in myiter:  
    print(i)
```

>>>
1
3
5
7
9
11
13
15
17
19
21
23
25

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Program 1: To demonstrate use of MessageBox method of the GUI application.

Algorithm:

- Step 1: Import relevant method from tkinter library.
- Step 2: Define a function and use MessageBox alongwith different methods available which contains one or more arguments.
- Step 3: Create an object from Button method and place it onto the parent window with text and command attribute specified.
- Step 4: Use pack() method and finally use the mainloop() method.

Code Output:-

③ try:

list1 = [4, 19, 26, 73, 33]

e1 = list1[2]

print(e1)

list2 = []

e2 = list2[1]

print(e2)

except IndexError:

print("The index is out of range")

>>

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The Index is out of range.

Ans

Code:-

```

import dbm
db=dbm.open("db1", flag="c")
if db["www"]!=None:
    print("URL found")
else:
    print("URL not found")

```

OutputCode:-

```

import dbm
db=dbm.open("database1", flag="c")
db["wwwatcsc.org.in"]="tcs"
if db["wwwatcsc.org.in"]!=None:
    print("URL found")
else:
    print("URL not found")

```

db.close()

Output :-

```

>>
URL found

```

Dr. OM

Q) Code / Output :-

Q) def evenodd(n):
 if n%2 == 0:
 return "Even"
 else:
 return "Odd"
listnum=[0,4,5,7,9,11,13,5,20,9,25]
list1=list(map(evenodd, listnum))
print(list1)

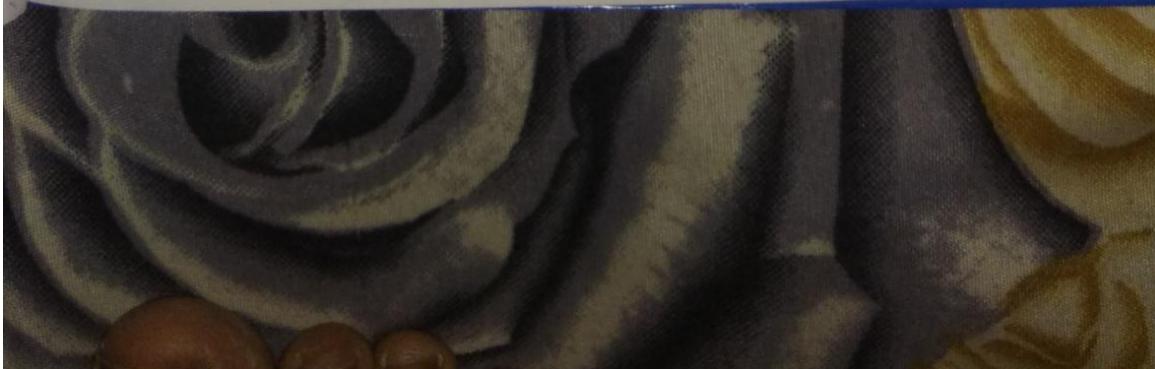
=> ['Even', 'Even', 'Odd', 'Odd', 'Odd', 'Odd', 'Odd', 'Odd',
 'Even', 'Odd', 'Odd']

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Q) def square(x):
 return (x**2)
def cube(x):
 return (x**3)
func1=[square, cube]
for r in range(5):
 valueout=list(map(lambda x: r(x), func1))
 print(valueout)

>>>
[1, 1]
[4, 8]
[9, 27]
[16, 64]

Pycharm.



④ with open("RitikV.txt", "r") as fileobj:
 fileobj.read(10)
 pos = fileobj.tell()
 print("The current position of pointer in file is :", pos)
fileobj = open("RitikV.txt", "r")
seek = fileobj.seek(20, 0)
print("The output of seek() method is : ", seek)
fileobj.close()

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>>>
The current position of pointer in file is : 10
The output of seek() method is : 20

⑤ fileobj = open("RitikV.txt", "a")
 fileobj.write("Kandivali (East), Mumbai 400101.")
 fileobj.close()
fileobj = open("RitikV.txt", "r")
a1 = fileobj.read()
print("The file after appending is : ", a1)
fileobj.close()

>>>
The file after appending is : My name is Ritik Vishwakarma.
I am 18 years old.
I study in Thakur College of Science and Commerce, Kandivali
(East), Mumbai 400101.

Jr allz

① match()

```
C import re  
pattern=r"FYCS"  
sequence="FYCS represents computer science stream"  
if re.match(pattern, sequence):  
    print("Matched pattern found!")  
else:  
    print("NOT FOUND!")
```

»» Matched pattern found!

② Segregation of numerical values

```
> import re  
pattern=r"\d+"  
string="hello123, howdy789, 45howru"  
output=re.findall(pattern, string)  
print(output)  
»» ['123', '789', '45']
```

③ split()

```
import re  
pattern=r'\d+'  
string='hello123+, howdy789, 45howru'  
output=re.split(pattern, string)  
print(output)  
»» ['hello', 'howdy', 'howru']
```

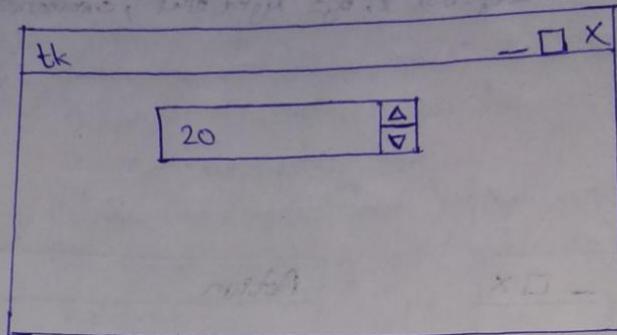
④ no-space:

```
> import re  
string='abc def ghi'  
pattern=r'\s+'  
replace=''  
ns=re.sub(pattern, replace, string)  
print(ns)  
»» abcdefghi
```

Code:

```
from tkinter import *
root = Tk()
s1 = Spinbox(root, from_=0, to=20)
s1.pack(padx=30, pady=30, ipadx=5, ipady=5)
root.mainloop()
```

Output:



Question: Is this correct? (?

[OK] [Cancel]

Is this correct? (X)

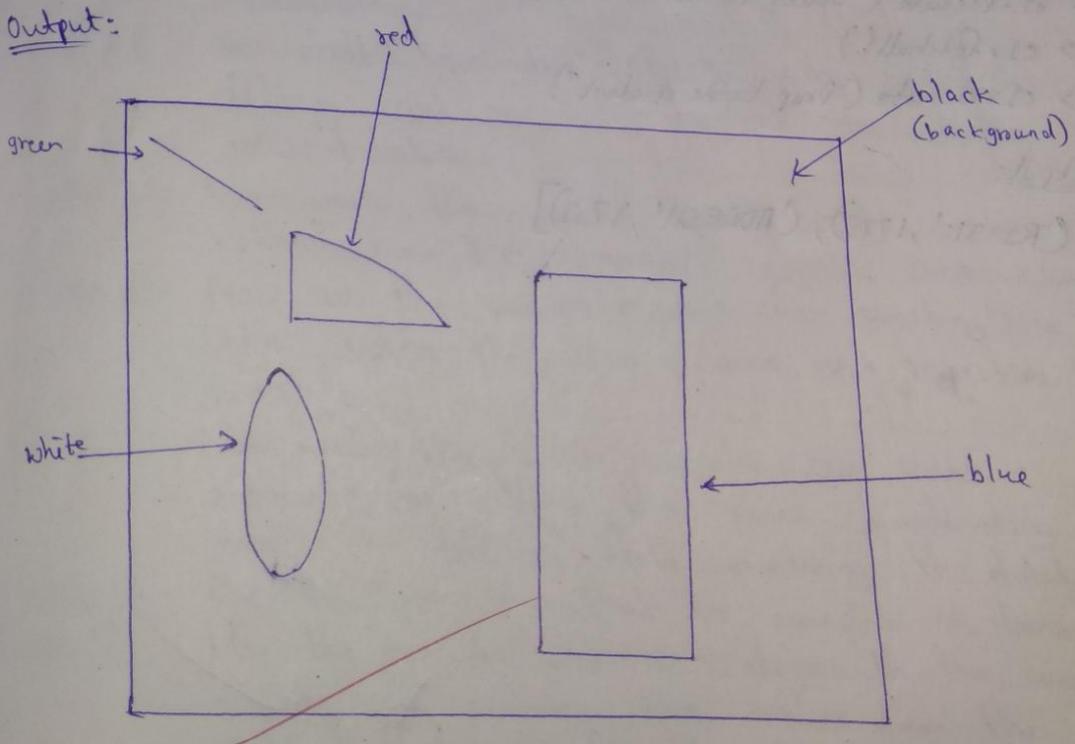
[OK]

Code:

```

from tkinter import *
root = Tk()
c1 = Canvas(root, height=500, width=500, bg="black")
oval = c1.create_oval(120, 140, 150, 250, fill="white")
line = c1.create_line(10, 40, 50, 60, fill="green")
arc = c1.create_arc(10, 140, 150, 60, fill="red")
rect = c1.create_rectangle(250, 100, 350, 400, fill="blue")
c1.pack()
root.mainloop()

```

Output:

Jn 17/02

(a) with `open('RitikV.txt', 'r')` as `g:`

```
for i in range(1, 10):
    print(g.read(1))
    if g.read(1) == '\n':
        break
```

`for i in range(1, 10):`

```
    c = g.read(1)
    if len(c) > 0:
        print(c, end=" ")
        c = g.read(1)
```

`>>>`

```
M*y*n*a*m*c*i*s*:R*i*t*i*k*v*i*
*h*w*a*k*a*y*m*a.* *
*I*a*m*1*8*y*c*a*y*s*0*1*d.* *
*I*s*t*u*d*y*i*n*T*h*a*k*u*y*C*0*
*l*e*g*c*o*f*S*c*i*e*n*c*c* *a*n*d*
*C*0*m*m*c*y*c*c*. *
```

(b) with `open("RitikV.txt", "r")` as `fileobj:`

```
r1 = fileobj.readlines()
print("\n")
for line in r1:
    print(len(line))
```

`>>>`

31

20

50

Q.8.
Program 2: To make use of RadioButton widget for selection of one of options.

Algorithm:-

Step 1:- Use the tkinter method to import the relevant method.

Step 2:- Define a function which tells user about given selection made from multiple options available.

Step 3:- Use the config() method along with label() method and call the variable as an argument within method.

Step 4:- Now define the parent window and define option using control variable.

Step 5:- Now create object of RadioButton which will take the following arguments:

(i) Positioning on Parent window.

(ii) Text Variable.

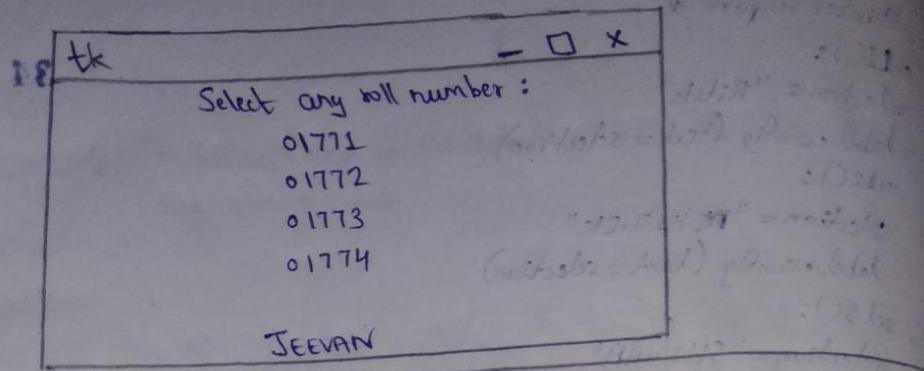
(iii) Define variable argument.

(iv) Corresponding value and triggers the given function.

Step 6:- Now call the pack method for corresponding Radio object ~~see~~ created and specify argument as an anchor attribute.

Step 7:- Now define a label object and place it onto parent window using pack() method and finally use mainloop() method.

Output:



Code:

```

from tkinter import *
root = Tk()
root.geometry("500x400")
l = Label(root, text="B Batch Roll Numbers:", bg="black", fg="white")
l.pack()
scroll = Scrollbar(root)
scroll.pack(side=RIGHT, fill=Y)
mylist = Listbox(root, yscrollcommand=scroll.set, bg="light blue")
for num in range(41, 81):
    mylist.insert(END, "*Roll Number: " + str(num))
mylist.pack(side=LEFT, fill=BOTH)
scroll.config(command=mylist.yview)
root.mainloop()

```

Output:

