COMPUTER SCIENCE

PRACTICAL FILE

2020-2021

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SUBMITTED TO:
MS. SWATI NARANG

COMPUTER SCIENCE

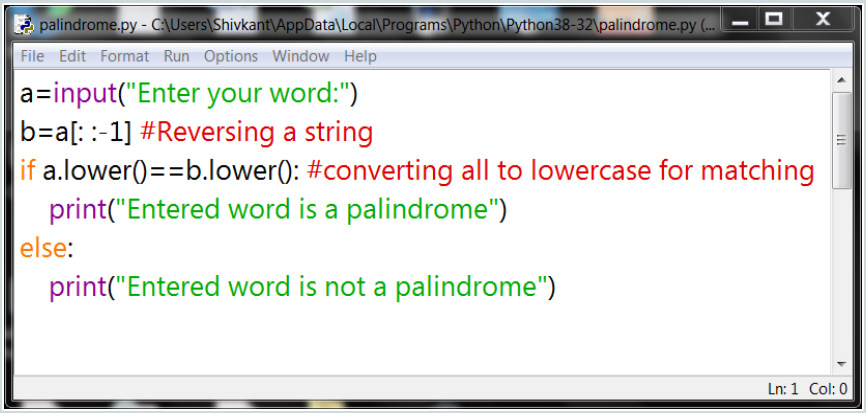
PRACTICAL FILE

2020-2021

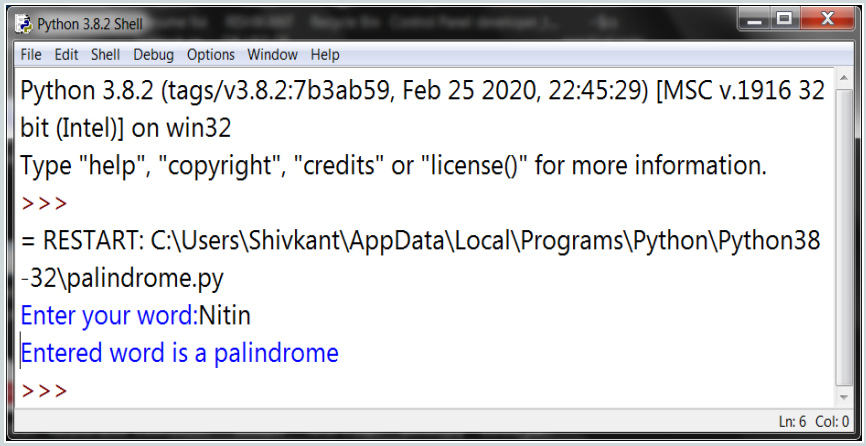
PYTHON PROGRAMS

Python Programs

1. Write a python program to show entered string is a palindrome or not.



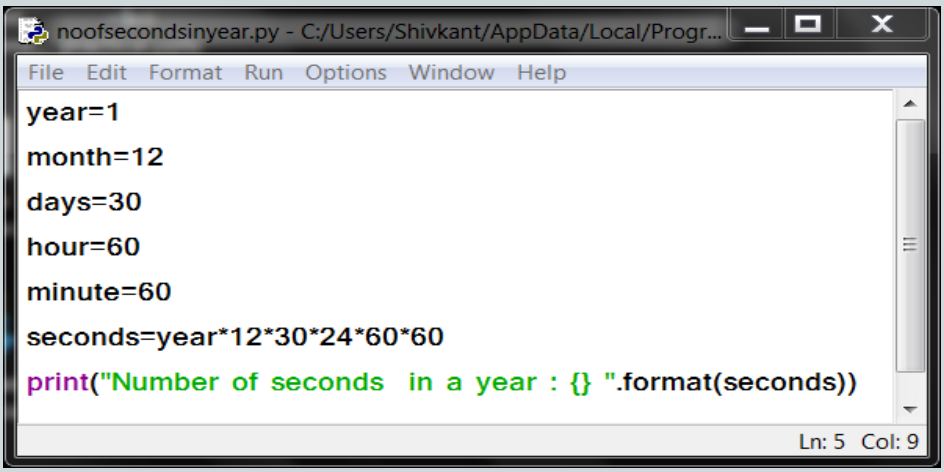
Source Code



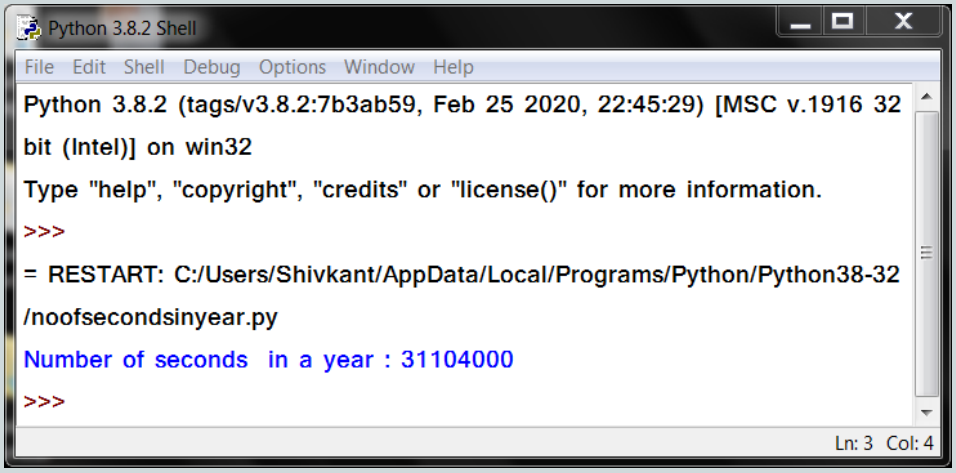
Output

Python Programs

2. Write a python program that calculates and print number of seconds in a year .



Source Code



Output

Python Programs

3. One foot equal 12 inches . Write a function that accepts a length written in feet as an arguement and returns this length written in inches .Write a second function that asks the user for a number of feet and returns this value . Write a third function that accepts a number of inches and displays this to screen . Using these three functions to write a program that asks the user for a number of feet and tells them corresponding numbe.r of inches

*footinch.py - C:/Users/Shivkant/AppData/Local/Programs/Python/Python...

File Edit Format Run Options Window Help

```
def feet_to_inch(feet):
    inch=feet*12
    return inch

def display_feet(__feet):
    return(__feet)

def _inch(inches):
    print(inches)
feet_input=float(input("Enter number of feet: "))
calc_inches=feet_to_inch(feet_input)
print("No of inches in  {} feet  => {} ".format(feet_input,calc_inches))
```

Ln: 10 Col: 15

Source Code

Python 3.8.2 Shell

File Edit Shell Debug Options Window Help

```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.19
16 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
55= RESTART: C:/Users/Shivkant/AppData/Local/Programs/Python/Pyth
on38-32/footinch.py
Enter number of feet: 5
No of inches in  5 feet  => 60
>>>
```

Ln: 7 Col: 4

Output

Python Programs

4) Write a program that reads an integer N from the keyboard and displays the sum of the numbers from N to (2*N) if N is non negative . If N is a negative number ,then its the sum of the number from (2*N) to N . The starting and ending points are included in the sum.

sum.py - C:/Users/Shivkant/AppData/Loc...

File Edit Format Run Options Window Help

```
N=int(input("Enter number :"))
sum1=sum2=0
if N>0:
    upper_limit=(2*N)+1
    for i in range(N,upper_limit):
        sum1+=i
    print("Sum is",sum1)

elif N<0:
    upper_lim=N+1
    for j in range(2*N,upper_lim):
        sum2+=j
    print("Sum is",sum2)
```

Ln: 13 Col: 4

Source Code

Output

Command Prompt

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporati

C:\Users\Shivkant>python C:\Users\Shiv
8-32\sum.py
Enter number :5
Sum is 45

C:\Users\Shivkant>
```

Command Prompt

```
C:\Users\Shivkant>
C:\Users\Shivkant>
C:\Users\Shivkant>
C:\Users\Shivkant>python C:\Users\Shiv
8-32\sum.py
Enter number :-5
Sum is -45

C:\Users\Shivkant>
```

Python Programs

5) Write a program that takes any two lists L and M of the same size and ads their element together to form a new list N whose elements are sum of the correspomnding elements in L and M .For instance if L=[3,1,4] and M=[1,5,9], then N should equal to [4,6,13]

*listaddn.py - C:/Users/Shivkant/...

File Edit Format Run Options Window Help

```
l3=[]
_sum_=0
l1=[1,5,8]
l2=[4,8,12]
len_list=len(l1)
for i in range(len_list):
    _sum_=l1[i]+l2[i]
    l3.append(_sum_)
    _sum_=0
print("L1 : ",l1)
print('L2: ',l2)
print('New list : ',l3)
```

Ln: 1 Col: 6

Source Code

Python 3.8.2 Shell

File Edit Shell Debug Options Window Help

```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25
2020, 22:45:29) [MSC v.1916 32 bit (Intel)]
on win32
Type "help", "copyright", "credits" or "licens
e()" for more information.
>>>
= RESTART: C:/Users/Shivkant/AppData/Loc
al/Programs/Python/Python38-32/listaddn.py
L1 :  [1, 5, 8]
L2:  [4, 8, 12]
New list :  [5, 13, 20]
>>>
```

Ln: 8 Col: 4

Output

Python Programs

6. Write a program that prompts the user to type some sentence(s) followed by enter .It should then print orignal sentence and the following statistics related to the sentence.
(i) Number of words
(ii)Number of characters (including whitespace and punctuation)
(iii)Percentage of characters that are alpha numeric .

sentence.py - C:/Users/Shivkant/AppData/Local/Prog...

File Edit Format Run Options Window Help

```
ct_alnum=0
sen=input("Type sentence : ")
print(sen)
no_of_char=len(sen)
l1=sen.split()
word_ct=0
for i in l1:
    word_ct+=1 #no of words
for j in l1:
    if j.isalnum():
        ct_alnum+=1
r_alnum=(ct_alnum)/(no_of_char)
print("Number of words :",word_ct)
print("Number of characters :",no_of_char)
print("% of alphanumeric characters:",(r_alnum*100))
```

Ln: 15 Col: 8

Source Code

```
Type sentence : I love python 3000
I love python 3000
Number of words : 4
Number of characters : 18
Percentage of alphanumeric characters: 22.2222222222222
```

Output

Python Programs

7. Write a program that rotates the elements of a list so that the element at first index moves to the second index,the element in second index moves to the third index ,etc and the element in the last index moves to the first index .

Source Code

```
lis=eval(input('Enter list : '))
last=lis[-1]
for i in range(len(lis)-1,0,-1):
    lis[i]=lis[i-1]
lis[0]=last
print(lis)
```

Output

```
Enter list : [1,2,3,4]
[4, 1, 2, 3]
>>>
```

Python Programs

8. Write a program to have following functions :
(i) A function that takes a number as a argument and calculates cube for it . The function does not return a value . If there is no value passed to the function in function call , the function should calculate value of 2 .
(ii) a function that takes two char aguements and returns True if both the arguments are equal otherwise false .

cube.py - C:/Users/Shivkant/AppData/Local/Programs/Python/Python38...

File Edit Format Run Options Window Help

```
def cube(a=2):
    return a**3


def check(char1,char2):
    if char1==char2:
        return True
    else:
        return False
res=cube()
print("If no arguement provided : ",res)
n=int(input("Enter number "))
print('Cube of given number is',cube(n))
c1=input('Enter 1st character: ')
c2=input('Enter 2nd character: ')
resp=check(c1,c2)
print(resp)
```

Ln: 16 Col: 11

Python 3.8.2 Shell

File Edit Shell Debug Options Window Help

```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC
v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more informat
ion.
>>>
= RESTART: C:/Users/Shivkant/AppData/Local/Programs/Python/P
ython38-32/cube.py =
If no arguement provided :  8
Enter number 5
Cube of given number is 125
Enter 1st character: Ravi
Enter 2nd character: Ravi
True
```

Ln: 11 Col: 4

Source Code

Output

Python Programs

9. Write a function that recieves two numbers and generates a random number from that range. Using this function , the main program should be able to print three numbers randomly.

*randgen.py - C:/Users/...

File Edit Format Run Options Window Help

```
import random
def randgen(n1,n2):
    a=random.randint(n1,n2)
    return a
n1=int(input("Enter number :"))
n2=int(input("Enter number :"))
for i in range(3):
    ran_no=randgen(n1,n2)
    print(ran_no)
```

Ln: 6 Col: 27

Source Code

```
= RESTART: C:/Users/Shivkant/AppData/Loc
/Programs/Python/Python38-32/randgen.py
Enter number :2
Enter number :10
10
3
2
```

Output

Python Programs

10. Write a function that take two numbers and reurns the number that has minimum ones digit.

onechecker.py - C:/Users/Shivkant/AppData/Local/Pr...

File Edit Format Run Options Window Help

```
def one_checker(n1,n2):
    first_n=n1%10
    sec_n=n2%10
    if first_n<sec_n:
        return n1
    elif first_n>sec_n:
        return n2
    else:
        return "Ones digit of both numbers are same"
n1=int(input("Enter 1st no: "))
n2=int(input("Enter 2nd no: "))
res=one_checker(n1,n2)
print(res,"has minimum one's value ")
```

Ln: 10 Col: 31

Source Code

```
8-32\onechecker.py
Enter 1st no: 2344
Enter 2nd no: 3458
2344 has minimum one's value
```

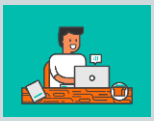
Output

Python Programs

11. Write a menu driven program to input string from user and perform all string functions.

```
T='y'
while T=='y' or T=='Y':
  def menu():
      print('**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**')
      print('1. For capitalize() ')
      print('2. For lower() ')
      print('3. For upper()')
      print('4. For swapcase() ')
      print('5. For title() ')
      print('6. For count()')
      print('7. For find() ')
      print('0 To exit ....')

  menu()
  temp=input("Enter your string:")
  choice=int(input("Enter your choice: "))

  if choice==0:
    exit()
  menu()
  temp=input("Enter your string:")
  choice=int(input("Enter your choice: "))

  if choice==0:
     exit()

  elif choice==1:
     res1=temp.capitalize()
     print(res1)

  elif choice==2:
     res2=temp.lower()
     print(res2)

  elif choice==3:
     res3=temp.upper()
     print(res3)

  elif choice==4:
     res4=temp.swapcase()
     print(res4)

  elif choice==5:
     res5=temp.title()
     print(res5)

  elif choice==6:
     ele=input('Element to count:')
     res6=temp.count(ele)
     print(res6)

  else:
     ele=input('Enter element to found:')
     res7=temp.find(ele)
     print('Element found at position', res7+1

  T=input("Press y to continue, n to exit : ")
```

Python Programs



OUTPUT

```
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:computer technology
Enter your choice: 1
Computer technology
Press y to continue, n to exit : y
```

Choice==1

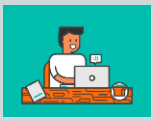
```
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:TECHNOLOGY
Enter your choice: 2
technology
Press y to continue, n to exit : y
```

Choice==2

```
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:tech
Enter your choice: 3
TECH
Press y to continue, n to exit : y
```

Choice==3

Python Programs



OUTPUT

```
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:cOmPuter
Enter your choice: 4
CoMpUTER
Press y to continue, n to exit : y
```

Choice==4

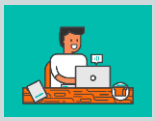
```
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:i love programming
Enter your choice: 5
I Love Programming
Press y to continue, n to exit : y
```

Choice==5

```
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:Apple
Enter your choice: 6
Element to count:p
2
Press y to continue, n to exit : y
```

Choice==6

Python Programs



OUTPUT

```
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:TECHNOLOGICAL
Enter your choice: 7
Enter element to found:H
Element found at position 4
Press y to continue, n to exit : Y
```

Choice==7

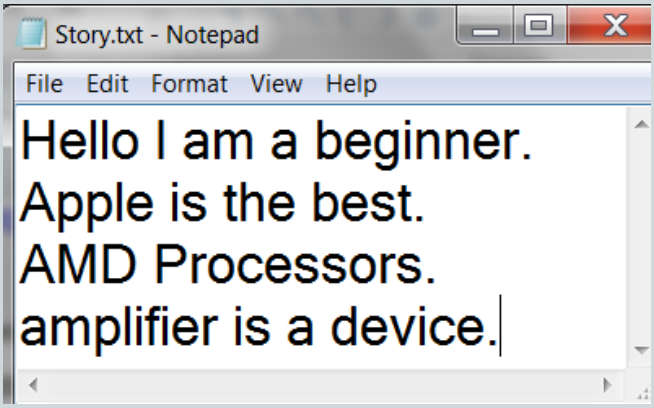
```
Press y to continue, n to exit : Y
**MENU DRIVEN PROGRAM FOR STRING MANIPULATION**
1. For capitalize()
2. For lower()
3. For upper()
4. For swapcase()
5. For title()
6. For count()
7. For find()
0 To exit ....
Enter your string:Cloud_computer
Enter your choice: 0

C:\Users\Shivkant>
```

Choice==0

Python Programs

12. Write a function in python to count number of lines in a text file "STORY.TXT" which is starting with an alphabet 'A".

```
def CountA(filename):
    ct=0
    with open(filename) as f:
        con=f.readlines()
        for i in con:
            if i[0]=="A":
                ct+=1
    return ct
res=CountA("story.txt")
print('Total lines starting with A is: ',res)
```



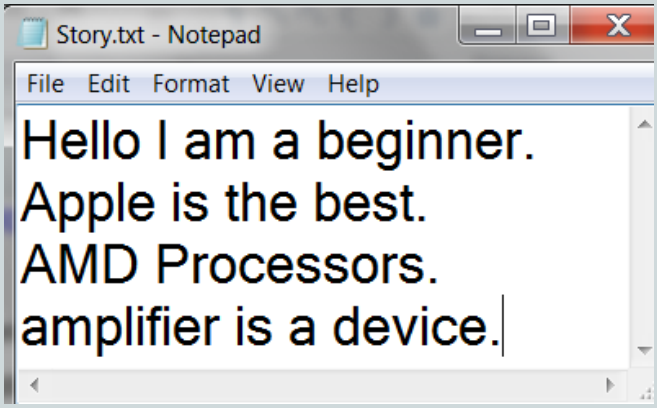

```
Total lines starting with A is:  2
>>>
```

OUTPUT

SOURCE CODE

Python Programs

13. Write a function/method DISPAYWORDS() in python to read lines from a text file "STORY.TXT" and display those words which are less than 4 characters.




```
def DISPLAYWORDS(filename):
    ct=0
    file=open(filename)
    line=file.read()
    list_word=line.split()
    for word in list_word:
        if len(word)<4:
            print(word)
    file.close()
DISPLAYWORDS('Story.txt')
```

```
I
am
a
is
the
AMD
is
a
>>>
```

SOURCE CODE

OUTPUT

Python Programs

14. Write a function addrecord() to add a new record to the binary file "student" using list . The list should consist of student number, student name and marks of the student .

addrec.py - C:/Users/Shivkant/AppData/Local/...

File Edit Format Run Options Window Help

```
import pickle
def addrecord(list1):
    with open('student.dat','wb') as fo:
        pickle.dump(list1,fo)
list1=[]
stu_no=int(input("Enter Student Number:"))
stu_name=input("Enter Student Name:")
stu_marks=int(input("Enter Student Marks:"))
list1.extend([stu_no,stu_name,stu_marks])
addrecord(list1)
print("Recod added Successfully!")
```

Ln: 19 Col: 12

```
= RESTART: C:/Users/Shivkant/AppData/Loc
al/Programs/Python/Python38-32/addrec.py
Enter Student Number:45
Enter Student Name:Suman
Enter Student Marks:99
Recod added Successfully!
```

student.dat - Notepad

File Edit Format View Help

€ ♦]"(K-Œ Suman"Kce.

SOURCE CODE

OUTPUT

Python Programs

15. Write a program to save the dictionary records to the student.csv file

Sno,Student,Subject
1, Shilpa,English
2,Sakshi,Computer
3,Sahil, Chemistry

csvwriting.py - C:/Users/Shivkant/AppData/Local/Pr...

File Edit Format Run Options Window Help

```
import csv
with open('student.csv','a') as csvfile:
    mywriter=csv.writer(csvfile)
    mywriter.writerow(['Sno','Student','Subject'])
    mywriter.writerow([1,'Shilpa','English'])
    mywriter.writerow([2,"Sakshi",'Computer'])
    mywriter.writerow([3,"Sahil","Chemistry"])
    print("Records added Successfully !")
```

Ln: 4 Col: 49

SOURCE CODE

```
38-32/csvwriting.py
Records added Successfully !
>>>
```

student.csv - Notepad

File Edit Format View Help

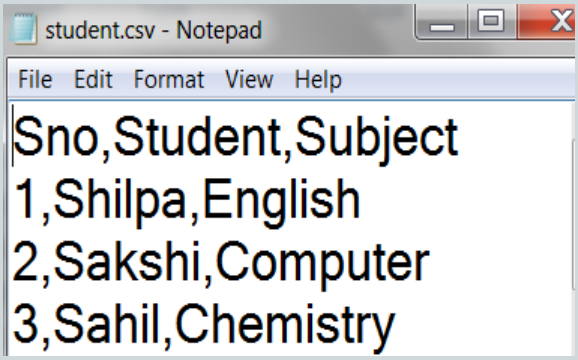
```
Sno,Student,Subject
1,Shilpa,English
2,Sakshi,Computer
3,Sahil,Chemistry
```

OUTPUT

Python Programs

16. Write a program to read the content of student.csv file in dictionary .

```
import csv
with open('student.csv') as f:
    csv_f=csv.DictReader(f)
    for row in csv_f:
        print(row)
```

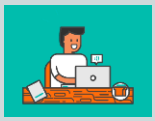


Source Code

```
= RESTART: C:/Users/Shivkant/AppData/Local/Prograr
{'Sno': '1', 'Student': 'Shilpa', 'Subject': 'English'}
{'Sno': '2', 'Student': 'Sakshi', 'Subject': 'Computer'}
{'Sno': '3', 'Student': 'Sahil', 'Subject': 'Chemistry'}
>>>
```

Output

Python Programs

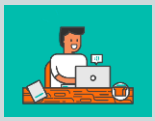


17. Write a python program using method to create the list of numeric values and search the number in the list using the Binary Search Technique .

```
def Bsearch(key,lst):
    low=0
    high=len(lst)-1
    while low<=high:
        mid=(high+low)//2  # Getting middle value in array
        if lst[mid]==key:
            return mid
        elif key<lst[mid]: # if key<middle element means higher index needs
            #to be modified as right side wasted
            high=mid-1
        else: #if key>middle element means left side waste and lower index needs
            #to be  modified as mid+1
            low=mid+1
    else:
        return -1
l=[]
n=int(input('Enter how many items:'))
for i  in range(n):
    a=int(input('Enter integer: '))
    l.append(a)
key=int(input("Enter value to be search in array :"))
print(l)
a=Bsearch(key,l)
if a==-1:
    print("Element not foiund in array")
else:
    print(f'Element found at position {a+1}')
```

```
print(f'Element found at position {a+1}')
```

Python Programs



OUTPUT

```
Enter how many items:4
Enter integer: 2
Enter integer: 3
Enter integer: 4
Enter integer: 6
Enter value to be search in array :4
[2, 3, 4, 6]
Element found at position 3
```

Python Programs

18. Write a python program that accepts a list X of integers and sets all the negative element to the left and all the positive elements to the right of the list.

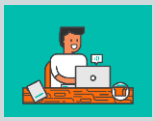
Source Code

```
l=[]
n=int(input('Enter no of elements in list:'))
for i in range(n):
    a=int(input('Enter integer:'))
    l.append(a)
    l.sort()
print('Your list is' , l)
```

Output

```
Enter no of elements in list:4
Enter integer:-2
Enter integer:5
Enter integer:-6
Enter integer:10
Your list is [-6, -2, 5, 10]
>>>
```

Python Programs



19. Write a menu driven program in python to implement the varioius methods of insertion and deletion in a list

```
T='y'
while T=='y' or T=='Y':
    def menu():
        print("*Menu Driven Insertion and Deletion in LIST*")
        print('1. Using insert() ')
        print('2. Using append() ')
        print('3. Using extend() ')
        print('4. Using pop() ')
        print('5. Using remove() ')
        print('6. Using delete  command ')
        print('7. Type 0 to exit')
    menu()
    l=eval(input('Enter your list here:'))
    ch=int(input('Enter your choice:'))
    if ch==0:
        exit()
    elif ch==1:
        ele=eval(input('Enter element to be inserted:'))
        idx=int(input('Enter position to insert element :'))
        l.insert(idx-1,ele)
        print('Element Inserted !',l)
    elif ch==2:
        el=eval(input('Enter element to be inserted:'))
        l.append(el)
        print('Element appended!',l)
    elif ch==3:
        l1=eval(input("Enter list to be inserted:"))
        l.extend(l1)
        print('List inserted!',l)

    elif ch==4:
        print('Pop will by default remove element at last!')
        chi=input('Do you want to change if yes, type "y", otherwise hit enter :')
        if chi=='y':
            idx=int(input('Enter new position : '))
            del l[idx-1]
            print('Element from your given position has been removed!!',l)

        else:
            l.pop()
            print('Element popped successfully!',l)
    elif ch==5:
        el=eval(input('Enter element to be removed:'))
        l.remove(el)
        print('Element removed Successfully!!',l)
    else :
        id=int(input('Enter position of element to be removed:'))
        del l[id-1]
        print('Deleted successfully from given position',l)
    T=input("Want to continue type 'Y' /  'y'  :" )
```

SOURCE CODE

```
*Menu Driven Insertion and Deletion in LIST*
1. Using insert()
2. Using append()
3. Using extend()
4. Using pop()
5. Using remove()
6. Using delete  command
7. Type 0 to exit
Enter your list here:[34,56,67,89,90]
Enter your choice:1
Enter element to be inserted:10
Enter position to insert element :1
Element Inserted ! [10, 34, 56, 67, 89, 90]
Want to continue type 'Y' /  'y'  :y
```

Choice==1

```
Want to continue type 'Y' /  'y'  :y
*Menu Driven Insertion and Deletion in LIST*
1. Using insert()
2. Using append()
3. Using extend()
4. Using pop()
5. Using remove()
6. Using delete  command
7. Type 0 to exit
Enter your list here:[34,56,67,89,90]
Enter your choice:2
Enter element to be inserted:1000
Element appended! [34, 56, 67, 89, 90, 1000]
Want to continue type 'Y' /  'y'  :y
```

Choice==2

```
Want to continue type 'Y' /  'y'  :y
*Menu Driven Insertion and Deletion in LIST*
1. Using insert()
2. Using append()
3. Using extend()
4. Using pop()
5. Using remove()
6. Using delete  command
7. Type 0 to exit
Enter your list here:[34,56,67,89,90]
Enter your choice:3
Enter list to be inserted:[4,5]
List inserted! [34, 56, 67, 89, 90, 4, 5]
Want to continue type 'Y' /  'y'  :y
```

Choice==3

```
Want to continue type 'Y' /  'y'  :y
*Menu Driven Insertion and Deletion in LIST*
1. Using insert()
2. Using append()
3. Using extend()
4. Using pop()
5. Using remove()
6. Using delete  command
7. Type 0 to exit
Enter your list here:[34,56,67,89,90]
Enter your choice:4
Pop will by default remove element at last!
Do you want to change if yes, type "y", otherwise hit enter :
Element popped successfully! [34, 56, 67, 89]
Want to continue type 'Y' /  'y'  :y
```

Choice==4

```
Want to continue type 'Y' /  'y'  :y
*Menu Driven Insertion and Deletion in LIST*
1. Using insert()
2. Using append()
3. Using extend()
4. Using pop()
5. Using remove()
6. Using delete  command
7. Type 0 to exit
Enter your list here:[34,56,67,89,90]
Enter your choice:5
Enter element to be removed:34
Element removed Successfully!! [56, 67, 89, 90]
Want to continue type 'Y' /  'y'  :y
```

Choice==5

```
*Menu Driven Insertion and Deletion in LIST*
1. Using insert()
2. Using append()
3. Using extend()
4. Using pop()
5. Using remove()
6. Using delete  command
7. Type 0 to exit
Enter your list here:[34,56,67,89,90]
Enter your choice:6
Enter position of element to be removed:3
Deleted successfully from given position [34, 56, 89, 90]
Want to continue type 'Y' /  'y'  :y
```

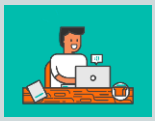
Choice==6

```
Want to continue type 'Y' /  'y'  :y
*Menu Driven Insertion and Deletion in LIST*
1. Using insert()
2. Using append()
3. Using extend()
4. Using pop()
5. Using remove()
6. Using delete  command
7. Type 0 to exit
Enter your list here:[34,56,67,89,90]
Enter your choice:0
>>>
```

Choice==7
THAT IS
TYPE 0 TO
EXIT..

OUTPUT SCREENS

Python Programs



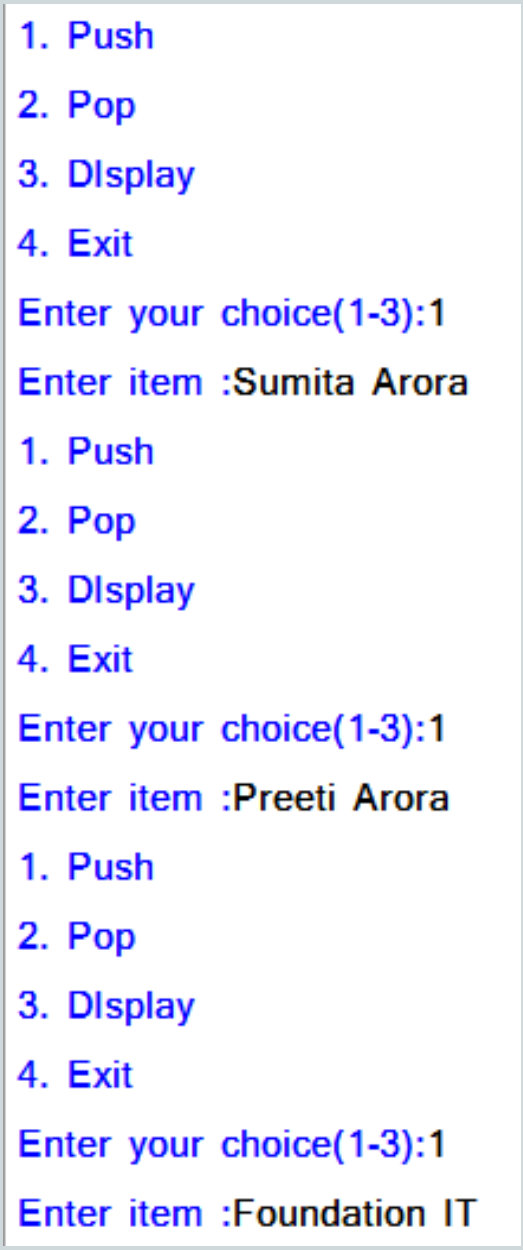
20. Write a menu driven program using function Push(), Pop() and Display() to implement the stack . The program will store the name of the books .

```
def isEmpty(stk):
    if stk==[]:
        return True
    else:
        return False
def Push(stk,item):
    stk.append(item)
    top=len(stk)-1
def Pop(stk):
    if isEmpty(stk):
        return "Underflow"
    else:
        item=stk.pop()
        if len(stk)==0:
            top=None
        else:
            top=len(stk)-1
        return item
def Display(stk):
    if isEmpty(stk):
        print('Stack Empty')
    else:
        top=len(stk)-1
        i=len(stk)-1
        while i>=0:
            print(stk[i])
            i-=1
```

```
stk=[]
top=None
while True:
    print('1. Push')
    print('2. Pop')
    print('3. DIsplay')
    print('4. Exit')
    ch=int(input("Enter your choice(1-3):"))
    if ch==1:
        item=(input("Enter item :"))
        Push(stk,item)
    elif ch==2:
        item=Pop(stk)
        if item=="Underflow":
            print("Underflow stack is Empty")
        else:
            print("Popped item is :",item)

    elif ch==3:
        Display(stk)
    else:
        exit()
```

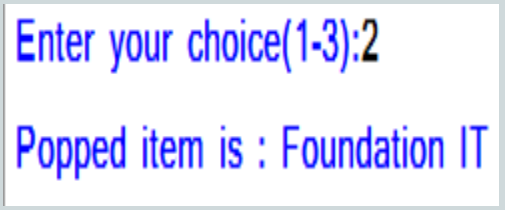
Source Code

OUTPUT SCREENS

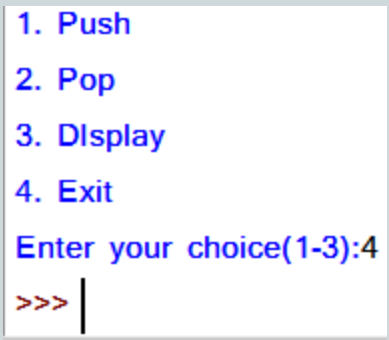


Push

Dispay



Pop



Exit

COMPUTER SCIENCE

PRACTICAL FILE

2020-2021

MYSQL QUESTIONS

1. Write SQL commands for (a) to (f) and write the output of (g) on the basis of table HOSPITAL.

HOSPITAL

No	*Name*	*Age*	*Department*	*DateofAdm*	*Charges*	*Gender*
1	*Arpit*	*62*	*Surgery*	*1998-01-21*	*300*	*M*
2	*Zarina*	*22*	*ENT*	*1997-12-12*	*250*	*F*
3	*Kareem*	*32*	*Orthopaedic*	*1998-02-19*	*200*	*M*
4	*Arun*	*12*	*Surgery*	*1998-01-11*	*300*	*M*
5	*Zubeem*	*30*	*ENT*	*1998-01-12*	*250*	*M*
6	*Ketaki*	*16*	*ENT*	*1998-02-24*	*250*	*F*
7	*Ankita*	*29*	*Cardiology*	*1998-02-20*	*800*	*F*
8	*Zareen*	*45*	*Gynaecology*	*1998-02-22*	*300*	*F*
9	*Kush*	*19*	*Cardiology*	*1998-01-13*	*800*	*M*
10	*Shilpa*	*23*	*Nuclear Medicine*	*1998-02-21*	*400*	*F*

(a) **To select all the information of patients of cardiology department.**

⇨

```
mysql> Select * from HOSPITAL where Department="Cardiology;"
+----+--------+-----+------------+------------+---------+--------+
| No |  Name  | Age | Department | DateofAdm  | Charges | Gender |
+----+--------+-----+------------+------------+---------+--------+
| 7  | Ankita |  29 | Cardiology | 1998-02-20 |   800   |   F    |
| 9  |  Kush  |  19 | Cardiology | 1998-01-13 |   800   |   M    |
+----+--------+-----+------------+------------+---------+--------+
```

(b) To list the names of female patients who are in ENT department.

```
mysql> Select name from Hospital where Department="ENT" and Gender="F";
+--------+
|  Name  |
+--------+
| Zarina |
| Ketaki |
+--------+
```

(c) To list names of all patients with their date of admission in ascending order.

```
mysql> Select Name,DateofAdm from Hospital order by DateofAdm;
+---------+------------+
|   Name  |    Date    |
+---------+------------+
|  Zarina | 1997-12-12 |
|   Arun  | 1998-01-11 |
|  Zubeem | 1998-01-12 |
|   Kush  | 1998-01-13 |
|  Arpit  | 1998-01-21 |
|  Kareem | 1998-02-19 |
|  Ankita | 1998-02-20 |
| Shiilpa | 1998-02-21 |
|  Zareen | 1998-02-22 |
|  Ketaki | 1998-02-24 |
+---------+------------+
```

(d) To display patients name, charges, age of only female patients.

```
mysql> Select name ,Charges,Age from hospital where Gender="F";
+--------+---------+-----+
|  Name  | Charges | Age |
+--------+---------+-----+
| Zarina |   250   |  22 |
| Ketaki |   250   |  16 |
| Ankita |   800   |  29 |
| Zareen |   300   |  45 |
| Shilpa |   400   |  23 |
+--------+---------+-----+
```

(e) To count the number of patient with age < 30.

```
mysql> Select Count(Name) from Hospital where age<30;
+-------------+
| Count(Name) |
+-------------+
|      6      |
+-------------+
```

(f) To insert new row in the HOSPITAL table with the following data
11, Aftab,60, Surgery, 1998-02-25, 300, M

```
mysql> insert into Hospital values(11, "Aftab",60, "Surgery", "1998-02-25", 300,
 "M")
Query OK, 1 row affected (0.047 sec)
```

(g) Give the output of the following statements:

i. Select count(Distinct Charges) from Hospital;

```
mysql> Select Count(Distinct Charges) from Hospital;
+-------------------------+
| Count(Distinct Charges) |
+-------------------------+
|                       5 |
+-------------------------+
```

ii. Select min(age) from Hospital where gender = "F";

```
mysql> Select min(age) from Hospital where gender = "F";
+----------+
| min(age) |
+----------+
|       16 |
+----------+
```

iii. Select sum(charges) from Hospital where department = "ENT";

```
mysql> Select sum(charges) from Hospital where department = "ENT";
+--------------+
| sum(charges) |
+--------------+
|          750 |
+--------------+
```

iv. Select avg(charges) from Hospital where DateOfAdm < '1998-02-12';

```
mysql> Select avg(charges) from Hospital where DateOfAdm < `1998-02-12';
+--------------+
| avg(charges) |
+--------------+
|        380.0 |
+--------------+
```

2. Given the following table :

EMPLOYEE

EmpNo	Ename	Job	MGR	HireDate	Sal	Comm	Dept
7369	Sunita Sharma	Clerk	7902	17-DEC-80	2800		20
7499	Ashok Singhal	Salesman	7698	20-FEB-81	3600	300	30
7521	Rohit Rana	Salesman	7698	22-FEB-81	5250	500	30
7566	Jyoti Lamba	Manager	7839	02-APR-81	4975		20
7654	Martin.S	Salesman	7698	28-SEP-81	6250	1400	30
7698	Binod Goel	Manager	7839	01-MAY-81	5850		30
7782	Chetan Gupta	Manager	7839	09-JUN-81	2450		10
7788	Sudhir Rawat	Analyst	7566	19-APR-87	5000		20
7839	Kawita Sharma	President	-	17-NOV-81	5000		10
7844	Tushar Tiwari	Salesman	7698	08-SEP-81	4500	0	30
7876	Anand Rathi	Clerk	7788	23-MAY-87	6100		20
7900	Jagdeep Rana	Clerk	7698	03-DEC-81	4950		30
7902	Summits Vats	Manager	7566	03-DEC-81	3500	3600	20
7934	Manoj Kaushik	Clerk	7782	23-JAN-82	5300		10

(I) To convert designation into lowercase.

```
mysql> Select LCASE(Job) "Designation" from EMPLOYEE;
+-------------+
| Designation |
+-------------+
|    clerk    |
|   salesman  |
|   salesman  |
|   manager   |
|   salesman  |
|   manager   |
|   manager   |
|   analyst   |
|  president  |
|   salesman  |
|    clerk    |
|    clerk    |
|   manager   |
|    clerk    |
+-------------+
```

(II) To list the name and employee number by converting the name into uppercase.

```
mysql> Select UCASE(Ename) ,EmpNo from EMPLOYEE;
+---------------+-------+
|  UCASE(Ename) | EmpNo |
+---------------+-------+
| SUNITA SHARMA |  7369 |
| ASHOK SINGHAL |  7499 |
|   ROHIT RANA  |  7521 |
|  JYOTI LAMBA  |  7566 |
|    MARTIN.S   |  7654 |
|   BINOD GOEL  |  7698 |
|  CHETAN GUPTA |  7782 |
|  SUDHIR RAWAT |  7788 |
| KAWITA SHARMA |  7839 |
| TUSHAR TIWARI |  7844 |
|  ANAND RATHI  |  7876 |
|  JAGDEEP RANA |  7900 |
|  SUMMITS VATS |  7902 |
| MANOJ KAUSHIK |  7934 |
+---------------+-------+
```

(III) To list position of charcter "a" in the name employees.

```
mysql> select INSTR(ename,"a") from employee;
+------------------+
| INSTR(ename,"a") |
+------------------+
|                6 |
|                1 |
|                8 |
|                8 |
|                2 |
|                0 |
|                5 |
|                9 |
|                2 |
|                5 |
|                1 |
|                2 |
|               10 |
|                2 |
+------------------+
14 rows in set (0.00 sec)
```

(IV) Display first three characters of the field JOB.

```
mysql> Select SUBSTR(Job,1,3) from Employee;
+-----------------+
| SUBSTR(Job,1,3) |
+-----------------+
|       cle       |
|       sal       |
|       sal       |
|       man       |
|       sal       |
|       man       |
|       man       |
|       ana       |
|       pre       |
|       sal       |
|       cle       |
|       cle       |
|       man       |
|       cle       |
+-----------------+
```

3. Given the following table :

MOV

No	*TITLE*	*TYPE*	*RATING*	*Stars*	*QTY*	*PRICE*
1	*Gone with the Wind*	*Drama*	*G*	*Gable*	*4*	*39.95*

2	*Friday the 13th*	*Horror*	*R*	*Jason*	*2*	*69.95*
3	*Top Gun*	*Drama*	*PG*	*Tom Cruise*	*7*	*49.95*
4	*Splash*	*Comedy*	*PG13*	*Tom Hanks*	*3*	*29.95*
5	*Independence Day*	*Drama*	*R*	*Turner*	*3*	*19.95*
6	*Risky Business*	*Comedy*	*R*	*Tom Cruise*	*2*	*44.95*
7	*Cocoon*	*Scifi*	*PG*	*Ameche*	*2*	*31.95*
8	*Crocodile Dundee*	*Comedy*	*PG13*	*Harris*	*2*	*69.95*
9	*101 Dalmations*	*Comedy*	*G*	*Bow Wow*	*3*	*59.95*
10	*Tootsie*	*Comedy*	*PG*	*Hoffman*	*1*	*29.95*

Give the output of following SQL commands on the basis of table MOV.

(I) SELECT AVG(price) From Mov WHERE Price < 30;

```
mysql> SELECT AVG(price) From mov WHERE price < 30;
+------------------+
| AVG(price)       |
+------------------+
| 26.61666742960612 |
+------------------+
1 row in set (0.06 sec)
```

(II) SELECT MAX(Price) FROM Mov Where Price > 30;

```
mysql> SELECT MAX(price) FROM mov WHERE price>30;
+------------+
| MAX(price) |
+------------+
|      69.95 |
+------------+
1 row in set (0.03 sec)
```

(III) SELECT SUM(Price * Qty) From MOV Where Qty < 4;

```
mysql> SELECT SUM(price*Qty) from mov where Qty<4;
+------------------+
| SUM(price*Qty)   |
+------------------+
| 793.0999984741211 |
+------------------+
1 row in set (0.04 sec)
```

(IV) SELECT COUNT(DISTINCT Type) From Mov;

```
mysql> SELECT COUNT(DISTINCT Type) from mov;
+----------------------+
| COUNT(DISTINCT Type) |
+----------------------+
|                    4 |
+----------------------+
1 row in set (0.07 sec)
```

4. Create table as per following table Chart:

COLUMN NAME	*Cust_ID*	*Cust_Name*	*Cust_Address1*	*Cust_Address2*	*PINCODE*	*Cust_Phone*
DATATYPE	*NUMBER*	*VARCHAR*	*VARCHAR*	*VARCHAR*	*NUMBER*	*VARCHAR*
LENGTH	*7*	*30*	*20*	*30*	*6*	*10*

```
mysql> create table customer
    -> (Cust_ID int,
    -> Cust_Name varchar(30),
    -> Cust_Address1 varchar(20),
    -> Cust_Address2 varchar(30),
    -> Pincode int,
    -> Cust_Phone varchar(10));
Query OK, 0 rows affected (0.52 sec)
```

```
mysql> desc customer;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| Cust_ID       | int         | YES  |     | NULL    |       |
| Cust_Name     | varchar(30) | YES  |     | NULL    |       |
| Cust_Address1 | varchar(20) | YES  |     | NULL    |       |
| Cust_Address2 | varchar(30) | YES  |     | NULL    |       |
| Pincode       | int         | YES  |     | NULL    |       |
| Cust_Phone    | varchar(10) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

A). Add one more column Email of datatype VARCHAR and SIZE 30 to the table Customer

```
mysql>  Alter table Customer
    -> Add EMAIL VARCHAR(30);
Query OK, 0 rows affected (0.047 sec)
```

B). Add one more column CustomerIncomeGroup of data type VARCHAR(10).

```
mysql>  Alter table Customer
    -> Add CustomerIncomeGroup VARCHAR(10);
Query OK, 0 rows affected (0.047 sec)
```

C). Drop the column CustomerIncomeGroup from table Customer.

```
mysql> Alter table Customer
    -> Drop column CustomerIncomeGroup;
Query OK, 0 rows affected (0.047 sec)
```

5. *Write SQL commands to create table HOSPITAL with following specification:*

(a) (Pno, WardNo, Pname, Dept, PAge, Disease, DOA)

```
mysql> create table Hospital
    -> (Pno int,
    -> WardNo varchar(5),
    -> PName varchar(30),
    -> Dept varchar(20),
    -> PAge char(3),
    -> Disease varchar(25),
    -> DOA date);
Query OK, 0 rows affected (0.95 sec)
```

(b) Write a command to describe structure of above table?

```
mysql> desc hospital;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| Pno     | int         | YES  |     | NULL    |       |
| WardNo  | varchar(5)  | YES  |     | NULL    |       |
| PName   | varchar(30) | YES  |     | NULL    |       |
| Dept    | varchar(20) | YES  |     | NULL    |       |
| PAge    | char(3)     | YES  |     | NULL    |       |
| Disease | varchar(25) | YES  |     | NULL    |       |
| DOA     | date        | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

(c) ***Add one more column in the above table as Address of type char (20).***

```
mysql> alter table hospital
    -> add (Address char(20));
Query OK, 0 rows affected (0.89 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

(d) Modify the column Address as char(25).

```
mysql> alter table hospital
    -> modify Address char(25);
Query OK, 0 rows affected (1.51 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

(e) Drop the column Address.

```
mysql> alter table hospital
    -> drop column Address;
Query OK, 0 rows affected (0.98 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

(f) ***Change the name of Address to Home_Address.***

```
mysql> alter table hospital
    -> change column Address Home_Address char(25);
Query OK, 0 rows affected (0.51 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

(g) Delete all rows of the table HOSPITAL.

```
mysql> delete from hospital;
Query OK, 0 rows affected (0.05 sec)
```

(h) Increase the size of age column to 3 digits.

```
mysql> alter table hospital
    -> modify PAge char(3);
Query OK, 0 rows affected (0.21 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

(i) Add primary key constraint on column PNo of table HOSPITAL.

```
mysql> alter table hospital
    -> add primary key (PNo);
Query OK, 0 rows affected (1.25 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

(j) Remove Department column of HOSPITAL table.

```
mysql> alter table hospital
    -> drop column Dept;
Query OK, 0 rows affected (1.25 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

6. Create table Employee as per following Tale Instance Chart.

Column Name	*EmpID*	*EmpName*	*EmpAddress*	*EmpPhone*	*EmpSal*	*DeptID*
Key Type	*Primary*					*Foreign*
Nulls/Unique		*NOT NULL*				
Fk Table						*Department*
Fk Column						*Dept_ID*
Datatype	*NUMBER*	*VARCHAR*	*VARCHAR*	*VARCHAR*	*NUMBER*	*VARCHAR*
Length	*6*	*20*	*30*	*10*	*9,2*	*2*

```
mysql> create table emp
    -> (EmpID int Primary Key,
    -> Empname varchar(20) Not Null,
    -> EmpAddress varchar(30),
    -> EmpPhone varchar(10),
    -> EmpSal int,
    -> DeptID varchar(30) references department (Dept_id));
Query OK, 0 rows affected (0.54 sec)

mysql> Desc emp;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| EmpID      | int         | NO   | PRI | NULL    |       |
| Empname    | varchar(20) | NO   |     | NULL    |       |
| EmpAddress | varchar(30) | YES  |     | NULL    |       |
| EmpPhone   | varchar(10) | YES  |     | NULL    |       |
| EmpSal     | int         | YES  |     | NULL    |       |
| DeptID     | varchar(30) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

7. Consider the following tables Item and Customer. Write SQL commands for the statements (i) to (iv) and give output for SQL queries (v) to (vii)

RELATION: ITEM

Item_Id	ItemName	Manufacturer	Price
PC01	Personal Computer	ABC	35000
LC05	Laptop	ABC	55000
PC03	Personal Computer	XYZ	32000
PC06	Personal Computer	COMP	37000
LC03	Laptop	PQR	57000

RELATION:CUSTOMER

C_Id	CustomerName	City	Item_Id
01	N Roy	Delhi	LC03
06	H Singh	Mumbai	PC03
12	R Pandey	Delhi	PC06
15	C Sharma	Delhi	LC03
16	K Aggarwal	Bangalore	PC01

i) To display the details of those customer whose city is Delhi.

```
mysql> select * from customer
    -> where city = 'Delhi';
+------+--------------+-------+---------+
| c_id | CustomerName | City  | Item_id |
+------+--------------+-------+---------+
| 1    | N Roy        | Delhi | LC03    |
| 12   | R Pandey     | Delhi | PC06    |
| 15   | C Sharma     | Delhi | LC03    |
+------+--------------+-------+---------+
3 rows in set (0.00 sec)
```

ii) To display the details of items whose price is in the range of 35000 to 55000

```
mysql> Select * from Item where Price between 35000 and 55000;
+---------+------------------+--------------+-------+
| Item_Id |      ItemName    | Manufacturer | Price |
+---------+------------------+--------------+-------+
|   PC01  | Personal Computer |     ABC      | 35000 |
|   LC05  |       Laptop      |     ABC      | 55000 |
|   PC06  | Personal Computer |     COMP     | 37000 |
+---------+------------------+--------------+-------+
```

iii) To display the customerName, City from table Customer and ItemName and price from table item with their corresponding Item_Id.

```
mysql> select customername, city,itemname, price
    -> from item,customer where item.item_id=customer.item_id;
+--------------+-----------+--------------------+-------+
| customername | city      | itemname           | price |
+--------------+-----------+--------------------+-------+
| N Roy        | Delhi     | Laptop             | 57000 |
| C Sharma     | Delhi     | Laptop             | 57000 |
| K Aggarwal   | Bangalore | Personal Computer  | 35000 |
| H Singh      | Mumbai    | Personal Computer  | 32000 |
| R Pandey     | Delhi     | Personal Computer  | 37000 |
+--------------+-----------+--------------------+-------+
5 rows in set (0.07 sec)
```

iv) To increase the price of all items by 1000 in table Item.

```
mysql> update item
    -> set price = price+1000;
Query OK, 5 rows affected (0.10 sec)
Rows matched: 5  Changed: 5  Warnings: 0
```

v) Select Distinct (City) from Customer;

```
mysql> Select Distinct(City) from Customer;
+----------------+
| Distinct(City) |
+----------------+
|     Delhi      |
|     Mumbai     |
|    Banglore    |
+----------------+
```

vi) Select ItemName, Max(Price), Count(*) from Item group by ItemName;

```
mysql> Select ItemName, Max(Price), Count(*) from Item group by ItemName;
+------------------+-----------+----------+
| ItemName         | Max(Price) | Count(*) |
+------------------+-----------+----------+
| Laptop           | 57000      |        2 |
| Personal Computer | 37000      |        3 |
+------------------+-----------+----------+
2 rows in set (0.06 sec)
```

vii) Select ItemName, Price*100 from Item where Manufacturer=’ABC’;

```
mysql> Select ItemName, Price*100 from Item where Manufacturer='ABC';
+------------------+-----------+
| ItemName         | Price*100 |
+------------------+-----------+
| Laptop           |   5500000 |
| Personal Computer |   3500000 |
+------------------+-----------+
2 rows in set (0.00 sec)
```

Q8) Consider the following tables Employee and Salary . Write SQL commands for the statements (i) to (iv) and give outpiuts for SQL queries (v) to (vii) .

EMPLOYEE

Eid	Name	Depid	Qualifcation	Sex
1	Depali Gupta	101	MCA	F
2	Rajat Tyagi	101	BCA	M
3	Hari Mohan	102	B.A.	M
4	Harry	102	M.A	M
5	Sumit Mittal	103	B.Tech	M
6	Jyoti	101	M.Tech	F

SALARY

Eid	Basic	DA	HRA	Bonus
1	6000	2000	2300	200
2	2000	300	300	30
3	1000	300	300	40
4	1500	390	490	30
5	8000	900	900	80
6	10000	300	490	89

(i)To display the frequency of employee department wise.

```
mysql> select depid ,count(*) from employee group by depid;
+-------+----------+
| depid | count(*) |
+-------+----------+
| 101   |        3 |
| 102   |        2 |
| 103   |        1 |
+-------+----------+
3 rows in set (0.00 sec)
```

(ii) To list name of those employees whose name starts with ’H’

```
mysql> select name from employee
    -> where name like 'H%';
+------------+
| name       |
+------------+
| Hari Mohan |
| Harry      |
+------------+
2 rows in set (0.03 sec)
```

(iii)To add a new column in salary table. The column name is Total_Sal.

```
mysql> alter table salary
    -> add (total_sal int);
Query OK, 0 rows affected (0.52 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

(iv) To store the corresponding values in total_sal column.

```
mysql> update salary
    -> set total_sal=Basic+DA+HRA+Bonus;
Query OK, 6 rows affected (0.16 sec)
Rows matched: 6  Changed: 6  Warnings: 0

mysql> select * from salary;
+------+-------+------+------+-------+-----------+
| Eid  | Basic | DA   | HRA  | Bonus | total_sal |
+------+-------+------+------+-------+-----------+
| 1    | 6000  | 2000 | 2300 | 200   |     10500 |
| 2    | 2000  | 300  | 300  | 30    |      2630 |
| 3    | 1000  | 300  | 300  | 40    |      1640 |
| 4    | 1500  | 390  | 490  | 30    |      2410 |
| 5    | 8000  | 900  | 900  | 80    |      9880 |
| 6    | 10000 | 300  | 490  | 89    |     10879 |
+------+-------+------+------+-------+-----------+
6 rows in set (0.00 sec)
```

(v)Select MAX(basic) from salary where Bonus>40;

```
mysql> select max(basic) from salary
    -> where bonus>40;
+------------+
| max(basic) |
+------------+
| 8000       |
+------------+
1 row in set (0.00 sec)
```

(vi) Select count(*) from Employee group by Sex;

```
mysql> select count(*)  from employee
    -> group by sex;
+----------+
| count(*) |
+----------+
|        2 |
|        4 |
+----------+
2 rows in set (0.00 sec)
```

(vii) select distinct depid from employee;

```
mysql> select distinct depid from employee;
+-------+
| depid |
+-------+
| 101   |
| 102   |
| 103   |
+-------+
3 rows in set (0.00 sec)
```

Q9) With references to the table below, answer the questions that follow:

Employees

```
ysql> select * from employees;
+-------+-----------+----------+------------------+------------+
| Empid | Firstname | Lastname | Address          | City       |
+-------+-----------+----------+------------------+------------+
| 10    | Ravi      | kumar    | Raj nagar        | GZB        |
| 105   | Harry     | Waltor   | Gandhi nagar     | GZB        |
| 152   | Sam       | Tones    | 33 Elam St.      | Paris      |
| 215   | Sarah     | Ackerman | 440 U.S. 110     | Upton      |
| 244   | Manila    | Sengupta | 24 Friends street | New Delhi  |
| 300   | Robert    | Samuel   | 9 Fifth Cross    | Washington |
| 335   | Ritu      | Tondon   | Shashtri Nagar   | GZB        |
| 400   | Rachel    | Lee      | 121 Harrison St. | New York   |
| 441   | Peter     | Thompson | 11 Red Road      | Paris      |
+-------+-----------+----------+------------------+------------+
```

EmpSalary

```
mysql> select * from EmpSalary;
+--------+---------+-----------+--------------+
| Empid  | Salary  | Benefits  | Designation  |
+--------+---------+-----------+--------------+
| 10     | 75000   | 15000     | Manager      |
| 105    | 65000   | 15000     | Manager      |
| 152    | 80000   | 25000     | Director     |
| 215    | 75000   | 12500     | Manager      |
| 244    | 50000   | 12000     | Clerk        |
| 300    | 45000   | 10000     | Clerk        |
| 335    | 40000   | 10000     | Clerks       |
| 400    | 32000   | 7500      | Salesman     |
| 441    | 28000   | 7500      | Salesman     |
+--------+---------+-----------+--------------+
```

Write the SQL commands for the following using above tables:

(i) To show first name, last name, address, and city of all employees living in Paris.

```
mysql> select firstname,lastname,address,city from employees where city='Paris';
+-----------+----------+------------+-------+
| firstname | lastname | address    | city  |
+-----------+----------+------------+-------+
| Sam       | Tones    | 33 Elam St. | Paris |
| Peter     | Thompson | 11 Red Road | Paris |
+-----------+----------+------------+-------+
```

(ii)To display the content of the employees table in descending order of first name.

```
mysql> select * from employees order by firstname desc;
+-------+-----------+----------+------------------+------------+
| Empid | Firstname | Lastname | Address          | City       |
+-------+-----------+----------+------------------+------------+
| 215   | Sarah     | Ackerman | 440 U.S. 110     | Upton      |
| 152   | Sam       | Tones    | 33 Elam St.      | Paris      |
| 300   | Robert    | Samuel   | 9 Fifth Cross    | Washington |
| 335   | Ritu      | Tondon   | Shashtri Nagar   | GZB        |
| 10    | Ravi      | kumar    | Raj nagar        | GZB        |
| 400   | Rachel    | Lee      | 121 Harrison St. | New York   |
| 441   | Peter     | Thompson | 11 Red Road      | Paris      |
| 244   | Manila    | Sengupta | 24 Friends street| New Delhi  |
| 105   | Harry     | Waltor   | Gandhi nagar     | GZB        |
+-------+-----------+----------+------------------+------------+
```

(iii)To display the first name, lastname, and total salary of all managers from the tables Employees and Empsalary, where the total salary is

calculated as Salary+Benefits.

```
mysql> select firstname,lastname,(salary+benefits)"total salary" from employees natural join empsalary;
+-----------+----------+--------------+
| firstname | lastname | total salary |
+-----------+----------+--------------+
| Ravi      | kumar    |        90000 |
| Harry     | Waltor   |        80000 |
| Sam       | Tones    |       105000 |
| Sarah     | Ackerman |        87500 |
| Manila    | Sengupta |        62000 |
| Robert    | Samuel   |        55000 |
| Ritu      | Tondon   |        50000 |
| Rachel    | Lee      |        39500 |
| Peter     | Thompson |        35500 |
+-----------+----------+--------------+
```

(iv)To display the maximum salary among managers and clerks from the table empsalary.

```
mysql> select max(salary) from empsalary where designation in ("Manager","Clerk");
+-------------+
| max(salary) |
+-------------+
| 75000       |
```

Give the Output of following SQL commands:

(i)

```
mysql> select firstname, salary from employees, empsalary where designation = 'salesman' and employees.empid = empsalary.empid;
+-----------+--------+
| firstname | salary |
+-----------+--------+
| Rachel    | 32000  |
| Peter     | 28000  |
+-----------+--------+
```

(ii)

```
mysql> select count(distinct designation) from empsalary;
+-----------------------------+
| count(distinct designation) |
+-----------------------------+
|                           5 |
+-----------------------------+
```

(iii)

```
mysql> select designation,sum(salary) from empsalary group by designation having count(*)>2;
+-------------+-------------+
| designation | sum(salary) |
+-------------+-------------+
| Manager     |      215000 |
+-------------+-------------+
```

(iv)

```
mysql> select sum(benefits) from empsalary where designation = 'clerk';
+---------------+
| sum(benefits) |
+---------------+
|         22000 |
+---------------+
```

Q10)In a database there are two tables given below:

Table: EMPLOYEE

EMPLOYEEID	NAME	SALES	JOBID
E1	SUMIT SINHA	1100000	102
E2	VIJAY SINGH TOMAR	1300000	101
E3	AJAY RAJPAL	1400000	103
E4	MOHIT RAMNANI	1250000	102
E5	SHAILIJA SINGH	1450000	103

TABLE :JOB

JOBID	JOBTITLE	SALARY
101	President	200000
102	Vice President	125000
103	Administration Assistant	80000
104	Accounting Manager	70000
105	Accountant	65000
106	Sales Manager	80000

Write SQL query for the following:

(i) To Display employee ids, names of employees,job ids with corresponding job titles.

```
mysql> select employeeid,name,employee.jobid,jobtitle from employee natural join job;
+------------+-----------------+-------+-------------------------+
| employeeid | name            | jobid | jobtitle                |
+------------+-----------------+-------+-------------------------+
| E2         | Vijay Singh Tomar | 101   | President               |
| E1         | Sumit Sinha     | 102   | Vice President          |
| E4         | Mohit Ramnani   | 102   | Vice President          |
| E3         | Ajay Rajpal     | 103   | Administration Assistant |
| E5         | Shailja Singh   | 103   | Administration Assistant |
+------------+-----------------+-------+-------------------------+
5 rows in set (0.00 sec)
```

(ii) To Display names of employees ,sales and corresponding job titles who have achieved sales more than 1300000.

```
mysql> select name, sales ,jobtitle from employee, job
    -> where employee.jobid=job.jobid and sales>1300000;
+---------------+---------+-------------------------+
| name          | sales   | jobtitle                |
+---------------+---------+-------------------------+
| Ajay Rajpal   | 1400000 | Administration Assistant |
| Shailja Singh | 1450000 | Administration Assistant |
+---------------+---------+-------------------------+
2 rows in set (0.00 sec)
```

(iii) To Display names and corresponding job titles of these who have “SINGH”(anywhere) in their names .

```
mysql> select name,jobtitle from employee,job
    -> where employee.jobid=job.jobid and name like '%singh%';
+-------------------+-------------------------+
| name              | jobtitle                |
+-------------------+-------------------------+
| Vijay Singh Tomar | President               |
| Shailja Singh     | Administration Assistant |
+-------------------+-------------------------+
2 rows in set (0.00 sec)
```

(iv) Identify foreign key in the table Employee.

-> Jobid

(v) Write SQL command to change the JOBID to 104 of the EMPLOYEE with ID as E4 in the table ”EMPLOYEE”.

```
mysql> Update EMPLOYEE Set JOBID=104 where EMPLOYEEID="E4";
Query OK, 0 rows affected (0.047 sec)
```