VANASTHALI PUBLIC SCHOOL

Computer Science Program File

Name	• Darshil Kumar
Class	• XIIA
Roll No	• 14601083

INDEX

13.	**Read a text file x.txt and built y.txt that should be reverse of x. txt**	
14.	**Program to sort a sequence using insertion sort..**	
15.	**Program to sort a list using bubble sort..**	
16.	**Write a program that inputs main string and then creates an encrypted string by embedding a short symbol based string after each character . The program should also be able to produce the decrypted string from encrypted string.**	
17.	**Define a function having a text file name as it's argument. The function should return a Dictionary having key as line number of text file and values list of two integers [number of upper case alphabets and number of lower case alphabet] in each line.**	
18.	**Write a program to read a text file line by line and display each word separated by a '#'.**	
19.	**Write a program to read a text file and display the count of vowels and consonants in the file.**	
20.	**Write a program to get student data(roll no. , name and marks) from user and write onto a binary file. The program should be able to get data from the user and write onto the file as long as the user wants.**	
21.	**Write a program to append student records to file created in previous program, by getting data from user.**	
22.	**Write a program to open file Stu.dat and search for records with roll numbers as 46 or 48 . If found display the records.**	
23.	**Define a function reading few lines from the user in a list until an empty line is given as input and count the lines contains a word cat in it.**	
24.	**Write a program to read following details of sport's performance (sport , competitions, prizes-won) of your school and store into a csv file delimited with tab character .**	

Q. Program to calculate simple interest using a function interest() that can receive principal amount , time and rate and returns calculated simple interest. Do specify default values for rate and time as 10% and 2 years respectively.

CODE:-

```
def interest(principal,time=2,rate=0.10):
  return principal*rate*time
#__main__
Prin=float(input('Enter principal amount:'))
print("Simple interest with default ROI and time value is:")
Si1=interest(Prin)
print("Rs.",Si1)
Roi=float(input("Enter rate of interest:"))
time=int(input("Enter time in years:"))
print("Simple interest with your provided ROI and time value
is:")
Si2=interest(Prin,time,Roi)
print("Rs.",Si2)
```

OUTPUT:-

```
Enter principal amount:6000
Simple interest with default ROI and time value is:
Rs. 1200.0
Enter rate of interest:0.3
Enter time in years:2
Simple interest with your provided ROI and time value is:
Rs. 3600.0
```

Q. Given a dictionary with values list, extract key whose value has most unique values.

CODE:-

```
test_dict = {"Gfg" : [5, 7, 5, 4, 5],
             "HANG" : [6, 7, 4, 3, 3],
             "Best" : [9, 9, 6, 5, 5]}
print("The original dictionary is : " + str(test_dict))
max_val=0
max_key=None
for sub in test_dict:
    if len(set(test_dict[sub]))>max_val:
        max_val=len(set(test_dict[sub]))
        max_key=sub
print("Key with maximum unique values : "+ str(max_key))
```

OUTPUT:

```
The original dictionary is : {'NEWS': [5, 7, 5, 4, 5], 'PAPER': [6, 7, 4, 3, 3], 'TEST': [9, 9, 6, 5, 5]}
Key with maximum unique values : PAPER
```

Q. Define a function having a variable as its argument and check whether the string is palindrome or not.

CODE:-

```
def pallindrome(string):
    newstr=""
    for w in range (-1,-len(string)-1,-1):
        newstr=newstr+string[w]
    if newstr==string:
        print(string,"is a pallindrome")
    else:
        print(string,"is not a pallindrome")
var=input("Enter String:")
pallindrome(var)
```

OUTPUT:-

```
Enter String:teacher
teacher is not a pallindrome

Enter String:madam
madam is a pallindrome
```

Q. Define a function to input a number and check whether the given number is Armstrong number or not .

(Note: If a 3 digit number is equal to the sum of the cubes of its each digit , then it is an Armstrong number)

CODE:-

```
def armstrong():
    num=int(input("Enter a 3 digit number:"))
    su=0
    for w in str(num):
        su=su+int(w)**3
    if num==su:
        print(num,"is an Armstrong number")
    else:
        print(num,"is not an Armstrong number")
armstrong()
```

OUTPUT:-

```
Enter a 3 digit number:371
371 is an Armstrong number

Enter a 3 digit number:132
132 is not an Armstrong number
```

Q. Write a program to print the following pattern :

```
        *
      * *
    * * *
  * * * *
* * * * *
* * * * *
  * * * *
    * * *
      * *
        *
```

CODE:-

```
n=5 #for number of lines
# upper half
for i in range(1,n+1):
    print("  "," "*(n-i)+"* "*i)
# lower half
for i in range(n,0,-1):
    print("  "," "*(n-i)+"* "*i)
```

Q. Program to find frequencies of all elements of a list .Also , print the list of unique elements in the list and duplicate elements in the given list.

CODE:-

```
lst=eval(input("Enter list:"))
lstc=list(lst)
uniq=[]
dupl=[]
for element in lst:
c=0
for w in lst:
          if element==w:
          c=c+1
if c==1:
          uniq.append(element)
          print('Element',element,'frequency',c)
for q in lstc:
if lst.count(q)==1:
          pass
else:
          for w in range(len(lstc)-1):
          if lstc[w]==q:
             print('Element',q,'frequency',lstc.count(q))
             dupl.append(q)
             lstc.pop(w)
print('Original List:',list(lst))
print('Unique Elements List',uniq)
print('Duplicates Elements List',dupl)
```

OUTPUT

```
Enter list:1,2,2,3,3,4,7,8,9
Element 1 frequency 1
Element 4 frequency 1
Element 7 frequency 1
Element 8 frequency 1
Element 9 frequency 1
Element 2 frequency 2
Element 3 frequency 2
Original List: [1, 2, 2, 3, 3, 4, 7, 8, 9]
Unique Elements List [1, 4, 7, 8, 9]
Duplicates Elements List [2, 3]
```

Q. Define a function to check if the elements in the first half of a tuple are sorted in ascending order or not.

CODE:-

```
tup = eval(input("Enter a tuple:"))
ln = len(tup)
mid = ln//2
if ln % 2 == 1:
mid = mid + 1
half = tup[:mid]
if sorted(half) == list(tup[:mid]):
print("First half is sorted")
else:
print("First half is not sorted" def tuplehalf():
    tup=eval(input("Enter a tuple:"))
    ln=len(tup)
    mid=ln//2
    if ln%2==1:
        mid=mid+1
        half=tup[:mid]
    if sorted(half)==list(tup[:mid]):
        print("First half is sorted")
    else:
        print("First half is not sorted")

tuplehalf()
```

OUTPUT:-

```
Enter a tuple:3,6,7,8,9
First half is sorted
Enter a tuple:7,6,9,11,1
First half is not sorted
```

Q. Program to count the frequency of a list of elements using a dictionary.

CODE:-

```
sentence="This is a super idea This idea will change the idea of learning"
words=sentence.split()
d={}
for one in words:
    key=one
    if key not in d:
        count=words.count(key)
        d[key]=count
print("Counting frequencies in list \n",words)
for w in d:
    print("  "+w.ljust(15),str(d[w]).ljust(3))
```

OUTPUT:-

```
Counting frequencies in list
 ['This', 'is', 'a', 'super', 'idea', 'This', 'idea', 'will', 'change', 'the', 'idea', 'of', 'learning']
  This           2
  is             1
  a              1
  super          1
  idea           3
  will           1
  change         1
  the            1
  of             1
  learning       1
```

Q. Write a program to create a dictionary with the roll number, name and marks of n students in a class and display the names of students who have marks above 75.

CODE:-

```
n=int(input("How many Students?"))
stu={}
for i in range(1,n+1):
    print()
    print("Enter details of student",(i))
    rollno=int(input("Roll number:"))
    name=input("Name:")
    marks=float(input("Marks:"))
    d={"Rollno" :rollno,"Name":name,"Marks": marks}
    key="Stu"+str(i)
    stu[key]=d
print("Students with marks > 75 are:")
for i in range(1,n+1):
    key="Stu"+str(i)
    if stu[key]["Marks"]>=75:
        print("
RollNo".ljust(8),str(stu[key]["Rollno"]).ljust(3),"
Name".ljust(6),str(stu[key]["Name"]).ljust(20),"
Marks".ljust(7),str(stu[key]["Marks"]).ljust(20))
```

OUTPUT:-

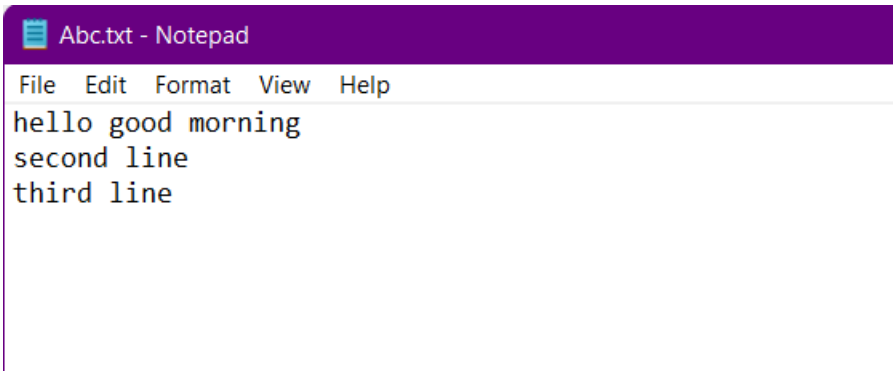
```
How many Students?3

Enter details of student 1
Roll number:1
Name:Mohit
Marks:70

Enter details of student 2
Roll number:2
Name:Darshil
Marks:100

Enter details of student 3
Roll number:3
Name:Ashutosh
Marks:75
Students with marks > 75 are:
   RollNo 2      Name Darshil               Marks 100.0
   RollNo 3      Name Ashutosh              Marks 75.0
```

Q. Read a text file x.txt and built y.txt that should be reverse of x. txt

CODE:-

```
def reverse(x,y):
    fx=open(x,"r")
    fy=open(y,"w+")
    k=fx.readlines()
    for w in range(-1,-len(k)-1,-1):
        x=k[w].rstrip("\n")
        line=x
        newlin=""
        for i in range (-1,-len(line)-1,-1):
            newlin=newlin+line[i]
        print(newlin)
        fy.write(newlin+"\n")
reverse("Abc.txt","NewAbc.txt")
```

OUTPUT:-



Q. Program to sort a sequence using insertion sort.

CODE:-

```
aList = [15,6,13,22,3,52,2]
print("Original list is:",aList)
for i in range(1,len(aList)):
    key=aList[i]
    j=i-1
    while j>=0 and key<aList[j]:
        aList[j+1]=aList[j]
        j=j-1
    else:
        aList[j+1] = key
print("List after sorting:",aList)
```

OUTPUT:-

```
Original list is: [15, 6, 13, 22, 3, 52, 2]
List after sorting: [2, 3, 6, 13, 15, 22, 52]
```

Q. Program to sort a list using bubble sort.

CODE:-

```
alist = [15,6,13,22,3,52,2]
print("original list is:",alist)
n=len(alist)
for i in range(n):
    for j in range(0,n-i-1):
        if alist[j]>alist[j+1]:
            alist[j],alist[j+1]=alist[j+1],alist[j]
print("list after sorting:",alist)
```

OUTPUT:-

```
original list is: [15, 6, 13, 22, 3, 52, 2]
list after sorting: [2, 3, 6, 13, 15, 22, 52]
```

Q. Write a program that inputs main string and then creates an encrypted string by embedding a short symbol based string after each character . The program should also be able to produce the decrypted string from encrypted string.

CODE:-

```
def encrypt(sttr,enkey):
    return enkey.join(sttr)
def decrypt(sttr,enkey):
    return sttr.split(enkey)
#-main
mainstring = input("enter main string:")
encryptstr = input("enter encryption key:")
enstr=encrypt(mainstring,encryptstr)
delst=decrypt(enstr,encryptstr)
destr="".join(delst)
print("the encrypted string is",enstr)
print("string after dcryption is:",destr)
```

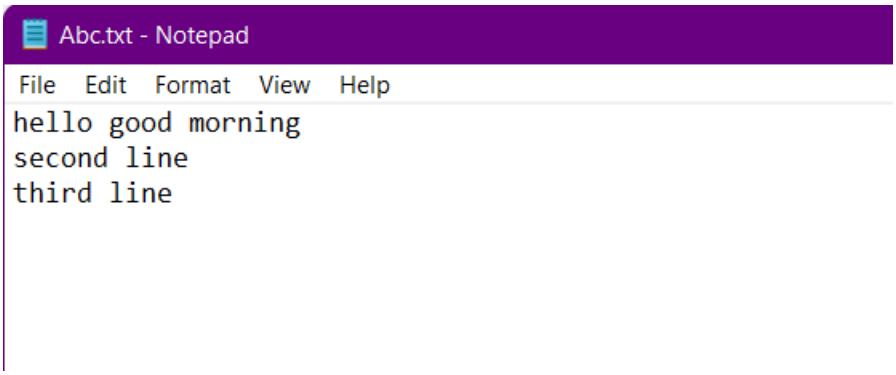
OUTPUT:-

```
enter main string:My Name Is Darshil
enter encryption key:*
the encrypted string is M*y* *N*a*m*e* *I*s* *D*a*r*s*h*i*l
string after dcryption is: My Name Is Darshil
```

Q. Define a function having a text file name as it's argument. The function should return a Dictionary having key as line number of text file and values list of two integers [number of upper case alphabets and number of lower case alphabet] in each line.

CODE:-

```
def fx(file):
    z=0
    di={}
    f=open(file,"r")
    lst=f.readlines()
    for line in lst:
        z=z+1
        uc=0
        lc=0
        for word in line:
            if word.isupper():
                uc=uc+1
            elif word.islower():
                lc=lc+1
        di[z]=[lc,uc]
    return di

y=fx("Abc.txt")
print(y)
```



OUTPUT:-

```
{1: [16, 0], 2: [10, 0], 3: [9, 0]}
```

Q. Write a program to read a text file line by line and display each word separated by a '#'.

CODE:-

```
myfile=open("answer.txt","r")
line=" "
while line:
    line=myfile.readline()
    for word in line.split():
        print(word,end='#')
myfile.close()
```

FILE CONTENTS

```
A or a, is the first letter and the first vowel of the modern English
alphabet and the ISO basic Latin alphabet.Its name in English is a,
plural aes.It is similar in shape to the Ancient Greek letter alpha,
from which it derives.
```

OUTPUT:-

```
A#or#a,#is#the#first#letter#and#the#first#vowel#of#the#modern#English#alphabet#and#the#
ISO#basic#Latin#alphabet.Its#name#in#English#is#a,#plural#aes.It#is#similar#in#shape#to
#the#Ancient#Greek#letter#alpha,#from#which#it#derives.#
```

Q. Write a program to read a text file and display the count of vowels and consonants in the file.

CODE:-

```
myfile = open("answer.txt","r")
ch=" "
vcount=0
ccount=0
while ch:
    ch=myfile.read(1)
    if ch in['a','A','e','E','i','I','o','O','u','U']:
        vcount=vcount+1
    else:
        ccount=ccount +1
print("vowels in the file:",vcount)
print("consonants in the file:",ccount)
myfile.close()
```

FILE CONTENTS

```
In both spoken and written English a is used before words beginning
with a consonant sound (a book), an before words beginning with
a vowel sound (an apple).
```

OUTPUT:-

```
vowels in the file: 47
consonants in the file: 111
```

Q. Write a program to get student data(roll no. , name and marks) from user and write onto a binary file. The program should be able to get data from the user and write onto the file as long as the user wants.

CODE:-

```
import pickle
stu={}
stufile=open('Stu.dat', 'wb')
ans='y'
while ans=='y' or ans='Y':
    rno=int(input("Enter roll number : "))
    name=input("Enter name :")
    marks=float(input("Enter marks : "))
    stu['Rollno']=rno
    stu['Name']=name
    stu['Marks']=marks
    pickle.dump(stu, stufile)
    ans=input("Want to enter more records? (y/n)...")
stufile.close()
```

OUTPUT:-

```
Enter roll number : 1
Enter name :Darshil Kumar
Enter marks : 75
Want to enter more records? (y/n)...y
Enter roll number : 2
Enter name :Rohit
Enter marks : 70
Want to enter more records? (y/n)...n
```

Q. Write a program to append student records to file created in previous program, by getting data from user.

CODE:-

```
import pickle
stu={ }
stufile=open('Stu.dat', 'ab')
ans='y'
while ans=='y' or ans=='Y':
    rno=int(input("Enter roll number :"))
    name=input("Enter name :")
    marks=float( input("Enter marks: "))
    stu['Rollno']=rno
    stu['Name']=name
    stu['Marks']=marks
    conf=input('Confirm(y/n):')
    if conf=='Y' or conf=='Y':
        pickle.dump(stu,stufile)
    ans = input("Want to append more records? (y/n)...")
stufile.close()
```

OUTPUT:-

```
Enter roll number :3
Enter name :Mohit
Enter marks: 75
Confirm(y/n):Y
Want to append more records? (y/n)...y
Enter roll number :4
Enter name :Rohit
Enter marks: 70
Confirm(y/n):y
Want to append more records? (y/n)...n
```

Q. Write a program to open file Stu.dat and search for records with roll numbers as 46 or 48 . If found display the records.

CODE:-

```
import pickle
stu={}
found=False
fin=open('Stu.dat', 'rb')
searchkeys=[46, 48]
try:
    print("Searching in File Stu.dat ...")
    while True :
        stu=pickle.load(fin)
        if stu['Rollno'] in searchkeys:
            print(stu)
            found=True
except EOFError:
    if found==False :
        print("No such records found in the file")
    else:
        print("Search successful.")
    fin.close()
```

OUTPUT:-

```
Searching in File Stu.dat ...
{'Rollno': 46, 'Name': 'Sumedha Pandey', 'Marks': 91.0}
{'Rollno': 48, 'Name': 'Vaibhav', 'Marks': 50.0}
Search successful.
```

Q. Define a function reading few lines from the user in a list until an empty line is given as input and count the lines contains a word cat in it.

```
def fx():
    k=[]
    while True:
        x=input("Enter a Line:")
        if x==="":
            break
        else:
            k.append(x)
    print(k)
    c=0
    for w in k:
        y=w.split()
        if "cat" in y:
            c=c+1
    print("Count of lines containing cat",c)
fx()
```

OUTPUT:-

```
Enter a Line:a cat is a very small animal
Enter a Line:it is very cute
Enter a Line:phone is a communication device
Enter a Line:
['a cat is a very small animal', 'it is very cute', 'phone is a communication device']
Count of lines containing cat 1
```

Q. Write a program to read following details of sport's performance (sport , competitions, prizes-won) of your school and store into a csv file delimited with tab character .

CODE:-

```
import csv
fh=open("Sport.csv","w")
writer=csv.writer(fh,delimiter='\t')
writer.writerow(['Sport','Competitions','Prizes won'])
ans='y'
i=1
while ans=='y':
    print("Record", i)
    sport=input("Sport name:")
    comp=int(input("No. of competitions participated :"))
    prizes=int(input("Prizes won:"))
    srec=[sport,comp,prizes] # create sequence of user data
    writer.writerow(srec)
    i=1+1
    ans=input("Want to enter more records? (y/n)..")
fh.close()
```

OUTPUT:-

```
Record 1
Sport name:Kabbadi
No. of competitions participated :3
Prizes won:1
Want to enter more records? (y/n)..y
Record 2
Sport name:Cricket
No. of competitions participated :2
Prizes won:0
Want to enter more records? (y/n)..n
```

Term-2

INDEX

12.	**Write a python program that display the first three rows fetched from class_12 table of MYSQL database school**	
13.	**Write a python program that deletes records from class_12 table of database school that have gender male and then display the contents of the table.**	
14.	**Python program to implement stack operations.**	
15.	**Write a program to create a Stack for storing only odd numbers out of all the numbers entered by the user.Display the content of the Stack along with the largest odd number in the Stack**	
16.	**Write a menu driven program that has functions PushS(lst) and PopS(lst)** **for performing Push and Pop operations with a stack of List containing integers.**	
17.	**Write a menu driven program that has functions Make Push (package) and MakePop(package) to add a new Package and delete & Package from a List of Package Description, considering them to act as push and pop operations of the Stack**	
18.	**Write a program to implement a stack for these book details(Bookno, book name). That is now each item node of the stack contains two types of information-a bookno and its name.Just implement Push and display operations.**	
19.	**Write a program to perform insert and delete operations on a Queue containing Members details as given in the following definition of itemnode.**	
20.	**Write a function in Python,INSERTQ(arr,data) and DELETEQ(Arr) for performing insertion and deletion operations in a Queue. arr is the list used for implementing queue and data is the value to be inserted.**	
21.	**SQL Queries**	

Q. Write a python program that displays a first three rows fetched from student table of MySQL database "supermarket".

CODE:-

```
import mysql.connector as con
c=con.connect(host="localhost",user="root",passwd="123456",dat
abase="supermarket")
if c.is_connected() == False:
    print('Error connecting to MySQL database')
crsr=c.cursor()
crsr.execute("select * from product")
data=crsr.fetchmany(3)
count=crsr.rowcount
for row in data :
    print(row)
c.close()
```

OUTPUT:-

```
(1, 'Pencil', 'Natraj', 5, 4)
(2, 'Eraser', 'Apsara', 5, 4)
(3, 'Pen', 'Doms', 4, 3)
```

Q.Write a program to build a table named as stationary with attributes Id, name, price, company Id is primary key Add records until user want and display same

CODE:-

```
z=0
import mysql.connector as con
while z==0:
    try:
        pswd=input("Enter Password:")

dbobj=con.connect(host="localhost",user="root",password=pswd,c
harset="utf8")
        z=1
    except:
        print("Wrong Password")
crsr=dbobj.cursor()
def db():
    crsr.execute("CREATE DATABASE IF NOT EXISTS SAMPLE;")
    crsr.execute("commit")
    crsr.execute("USE SAMPLE;")
    crsr.execute("commit")
    crsr.execute("CREATE TABLE IF NOT EXISTS STATIONARY(Id int
Primary key,Name char(20),Price int,Company char(20));")
    crsr.execute("commit")
db()


def que():
    y=0
    print("Enter ID as 0 to exit")
    while y==0:
        try:
            i=int(input("Enter ID:"))
            if i==0:
```

```
                y=1
            else:
                name=input("Enter Name:")
                price=int(input("Enter Price:"))
                company=input("Enter Company:")
                lst=(str(i),name,str(price),company)
                print(lst)
                confirm=input("Confirm(Y/N):")
                if confirm=="Y" or "y":
                    crsr.execute("INSERT    INTO    STATIONARY
VALUES ('{}','{}','{}','{}')".format(i,name,price,company))
                    crsr.execute("commit")
        except:
            print("Some ERROR")


def dis():
    print()
    print("-"*85)
    crsr.execute("DESC STATIONARY;")
    recs=crsr.fetchall()
    print("%3s             %-10s                          %-5s
%5s"%(recs[0][0],recs[1][0],recs[2][0],recs[3][0]))
    crsr.execute("select * from STATIONARY;")
    recs=crsr.fetchall()
    for rec in recs:
        print("%3s            %-10s                        %5s
%5s"%(rec[0],rec[1],rec[2],rec[3]))
que()
dis()
```

OUTPUT:-

```
Enter Password:123456
Enter ID as 0 to exit
Enter ID:1
Enter Name:Pencil
Enter Price:5
Enter Company:Apsara
('1', 'Pencil', '5', 'Apsara')
Confirm(Y/N):y
Enter ID:2
Enter Name:Pen
Enter Price:10
Enter Company:Doms
('2', 'Pen', '10', 'Doms')
Confirm(Y/N):y
Enter ID:0

--------------------------------------------------------------------------------
 Id Name        Price Company
  1 Pencil          5 Apsara
  2 Pen            10  Doms
```

Q.Write a python databases connectivity program that delete records from sample table of database sample .

CODE:-

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='sample',charset='utf8')
if con.is_connected():
    print('Successfully connected')
cursor=con.cursor()
print('Displaying records before deleting.............')
cursor.execute('select*from stationary')
data=cursor.fetchall()
for a in data:
    print(a)
nme=input('Enter the name for deleting the record :-')
que='delete from stationary where name="%s"'%(nme)
cursor.execute(que)
print()
cursor.execute('select*from stationary')
data=cursor.fetchall()
print('Displaying records after deleting.......')
for w in data :
    print(w)
con.commit()
con.close()
print('Record deleted completely.......')
```

OUTPUT :-

```
Successfully connected
Displaying records before deleting..............
(101, 'Pen', 3, 'Doms')
(102, 'A4 sheet', 250, 'Century')
(103, 'Pencil', 5, 'Doms')
Enter the name for deleting the record :-Pen

Displaying records after deleting.......
(102, 'A4 sheet', 250, 'Century')
(103, 'Pencil', 5, 'Doms')
Record deleted completely.......
```

Q. Define a function named as db to create a new database named as school.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',charset
='utf8')
if con.is_connected():
    print('succesfully connected.........')
cursor=con.cursor()


def db():
    que='create database if not exists school'
    cursor.execute(que)
    print('Database created...')
db()
```

OUTPUT:-

```
succesfully connected.........
Database created...
```

Q. Define a function table() to create a new table named as class_12 with attributes Name, Class, Roll_no,section and Gender in database named as school.

CODE

```
import mysql.connector as c

con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')

if con.is_connected():

    print('succesfully connected.........')

cursor=con.cursor()


def tb():

    cursor.execute('create table if not exists class_12(Rno
int primary key,Name varchar(15),Class int,Sec
varchar(10),Gender varchar(15))')

print('Table is created...')

tb()
```

OUTPUT:-

```
succesfully connected.........
Table is created...
```

Q.Define a function insert to add the details of three students in the table class_12 in database school.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected.........')
cursor=con.cursor()


def insert():
    try:
        for w in range(3):
            print()
            print('Entering the',w+1,'record')
            rno=int(input('Enter rno: '))
            name = input('Enter name:')
            Class=int(input('Enter class:'))
            sec=input('Enter section:')
            gender=input('Enter Gender: ')
            query='Insert into class_12
values({},"{}",{},"{}","{}")'.format(rno,name,Class,sec,gender
)
            cursor.execute(query)
        con.commit()
        con.close()
        print('Record is succesfully inserted........')


    except:
        print("Some Error")
insert()
```

OUTPUT

```
succesfully connected..........

Entering the 1 record
Enter rno: 01
Enter name:Darshil
Enter class:12
Enter section:A
Enter Gender: Male

Entering the 2 record
Enter rno: 02
Enter name:Mohit
Enter class:12
Enter section:B
Enter Gender: Male

Entering the 3 record
Enter rno: 03
Enter name:Priyanshi
Enter class:12
Enter section:B
Enter Gender: Female
Record is succesfully inserted........
```

Q. Define a function named as update() to update the records of the students taken from user of table class_12 in database school.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected.........')
cursor=con.cursor()
def update():
    rno=int(input('Enter roll number:'))
    cursor.execute('desc class_12')
    recs=cursor.fetchall()

print(recs[0][0].ljust(8),recs[1][0].ljust(20),recs[2][0].ljus
t(10),recs[3][0].ljust(10),recs[4][0].ljust(10),sep='')
    cursor.execute('select * from class_12 where
rno={}'.format(rno))
    w=cursor.fetchall()
    for rec in w:

print(str(rec[0]).ljust(8),rec[1].ljust(20),str(rec[2]).ljust(
10),rec[3].ljust(10),rec[4].ljust(10),sep='')
    print('''
    1)Name
    2)Class
    3)Gender
    4)Section''')
    print()
    ch=int(input('Enter Here:'))
    if ch==1:
        name=input('Enter new name :')
        cursor.execute('update class_12 set name="%s" where
rno=%d'%(name,rno))
        con.commit()
```

```
        print('Record updated........')
    elif ch==2:
        clas=int(input('Enter new class :'))
        cursor.execute('update  class_12  set  class=%d  where rno=%d'%(clas,rno))
        con.commit()
        print('Record updated........')
    elif ch==3:
        gender=input('Enter the new Gender :')
        cursor.execute('update class_12 set gender="%s" where rno=%d'%(gender,rno))
        con.commit()
        print('Record updated.........')
    elif ch==4:
        sec=input('Enter new Section :')
        cursor.execute('update  class_12  set  sec="%s"  where rno=%d'%(sec,rno))
        con.commit()
        print('Record updated........')
    else:
        print('WRONG CHOICE !!!!!!!!')
    con.close()
update()
```

OUTPUT:-

```
succesfully connected..........
Enter roll number:1
RNO     NAME                CLASS     SEC       GENDER
1       Darshil             12        A         Male

    1)Name
    2)Class
    3)Gender
    4)Section

Enter Here:4
Enter new Section :B
Record updated........
```

Q.Define a function del() to delete the records of the table class_12 of database school.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected.........')
cursor=con.cursor()

def delete():
    while True:
        print('''
    1)Delete all
    2)Delete with Rno''')
        ch=int(input("Enter Choice:"))
        if ch==1:
            que='Delete from class_12'
            cursor.execute(que)
        elif ch==2:
            rn=int(input('Enter Roll number: '))
            query='delete       from       class_12       where
rno={}'.format(rn)
            cursor.execute(query)
        else:
            print('WRONG CHOICE.....')
        con.commit()
        print('Record deleted ..........')
delete()
```

OUTPUT

```
succesfully connected..........

    1)Delete all
    2)Delete with Rno
    3)Exit
Enter Choice:2
Enter Roll number: 1
Record deleted ...........

    1)Delete all
    2)Delete with Rno
    3)Exit
Enter Choice:1
Record deleted ...........

    1)Delete all
    2)Delete with Rno
    3)Exit
Enter Choice:3
```

Q. Define a function display() to display all the records of the table class_12 of database school.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected.........')
cursor=con.cursor()


def display():
    try:
        cursor.execute('desc class_12')
        recs=cursor.fetchall()

print(recs[0][0].ljust(6),recs[1][0].ljust(15),recs[2][0].ljus
t(10),recs[3][0].ljust(10),recs[4][0].ljust(10),\
              sep='')
        Que='select * from class_12'
        cursor.execute(Que)
        w=cursor.fetchall()
        for rec in w:

print(str(rec[0]).ljust(8),rec[1].ljust(20),str(rec[2]).ljust(
10),rec[3].ljust(10),rec[4].ljust(10),sep='')
    except Exception as error:
        print('Error :- ',error)


display()
```

OUTPUT

```
succesfully connected..........
RNO    NAME            CLASS      SEC        GENDER
1        Darshil             12         A          Male
2        Mohit               12         B          Male
3        Priyanshi           12         A          Female
4        Mohit               12         A          Male
```

Q. Write a python program to display the records of the student of sec A of table class_12 in database school.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected.........')
cursor=con.cursor()
print()
print('Records of the student of section A :- ')
print()
cursor.execute('desc class_12')
recs=cursor.fetchall()
print(recs[0][0].ljust(6),recs[1][0].ljust(15),recs[2][0].ljus
t(10),recs[3][0].ljust(10),recs[4][0].ljust(10),sep='')
que='select * from class_12 where sec="A" '
cursor.execute(que)
dat=cursor.fetchall()
for rec in dat:

print(str(rec[0]).ljust(8),rec[1].ljust(20),str(rec[2]).ljust(
10),rec[3].ljust(10),rec[4].ljust(10),sep='')
```

OUTPUT

```
succesfully connected.........

Records of the student of section A :-

RNO     NAME                CLASS     SEC       GENDER
1       Darshil             12        A         Male
3       Priyanshi           12        A         Female
4       Mohit               12        A         Male
```

Q.Write a python program to delete the records of the students of sec A from table class_12 in database school and then display the content of the table .

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected.........')
cursor=con.cursor()
print()
que='delete from class_12 where sec="A" '
cursor.execute(que)
con.commit()
cursor.execute('desc class_12')
recs=cursor.fetchall()
print(recs[0][0].ljust(6),recs[1][0].ljust(20),recs[2][0].ljus
t(10),recs[3][0].ljust(10),recs[4][0].ljust(10),sep='')
que='select * from class_12 '
cursor.execute(que)
dat=cursor.fetchall()
for rec in dat:

print(str(rec[0]).ljust(6),rec[1].ljust(20),str(rec[2]).ljust(
10),rec[3].ljust(10),rec[4].ljust(10),sep='')
```

OUTPUT

```
succesfully connected.........

RNO    NAME                 CLASS     SEC       GENDER
1      Darshil              12        B         Male
2      Mohit                12        B         Male
3      Priyanshi            12        B         Female
4      Suresh               12        B         Male
5      Nina                 12        C         Female
6      Dhruv                12        D         Male
```

Q. Write a python program that display the first three rows fetched from class_12 table of MYSQL database school.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected.........')
crsr=con.cursor()
print()
crsr.execute('desc class_12')
recs=crsr.fetchall()
print(recs[0][0].ljust(6),recs[1][0].ljust(20),recs[2][0].ljus
t(10),recs[3][0].ljust(10),recs[4][0].ljust(10),sep='')
que='select * from class_12 '
crsr.execute(que)
dat=crsr.fetchmany(3)
for rec in dat:

print(str(rec[0]).ljust(6),rec[1].ljust(20),str(rec[2]).ljust(
10),rec[3].ljust(10),rec[4].ljust(10),sep='')
con.close()
```

OUTPUT

```
succesfully connected.........

RNO    NAME                 CLASS     SEC       GENDER
1      Darshil              12        B         Male
2      Mohit                12        B         Male
3      Priyanshi            12        B         Female
```

Q. Write a python program that deletes records from class_12 table of database school that have gender male and then display the contents of the table.

CODE

```
import mysql.connector as c
con=c.connect(host='localhost',user='root',password='',databas
e='school',charset='utf8')
if con.is_connected():
    print('succesfully connected')
cursor=con.cursor()
que='delete from class_12 where gender="Male" '
cursor.execute(que)
con.commit()
print('DISPLAYING THE RECORDS……')
print()
cursor.execute('desc class_12')
recs=cursor.fetchall()
print(recs[0][0].ljust(8),recs[1][0].ljust(20),recs[2][0].ljus
t(10),recs[3][0].ljust(10),recs[4][0].ljust(10),sep='')
Que='select * from class_12'
cursor.execute(Que)
w=cursor.fetchall()
for rec in w:

print(str(rec[0]).ljust(8),rec[1].ljust(20),str(rec[2]).ljust(
10),rec[3].ljust(10),rec[4].ljust(10),sep='')
```

OUTPUT

```
succesfully connected
DISPLAYING THE RECORDS……

RNO     NAME                CLASS     SEC       GENDER
3       Priyanshi           12        B         Female
5       Nina                12        C         Female
```

Q. Python program to implement stack operations.

CODE:-

```
def push(s,x):
    global top
    s.append(x)
    top=len(s)-1

def pop(s):
    global top
    if len(s)==0:
        print("Underflow")
    else:
        x=s.pop()
        print("poped ",x)
        if len(s)==0:
            top=None
        else:
            top=len(s)-1

def display(s):
    global top
    if len(s)==0:
        print("stack is empty")
    else:
        print("Stack elements....")
        for a in range (top,-1,-1):
            print(s[a])


stack=[]
top=None
while True:
    print("\nStack operations")
    print("1.Push")
```

```
    print("2.Pop")
    print("3.Display")
    print("4.Exit")
    print('top is',top)
    ch=int(input("Enter choice : "))
    if ch==1:
        item=int(input("Enter data : "))
        push(stack,item)
    elif ch==2:
        pop(stack)
    elif ch==3:
        display(stack)
    else:
        break
```

OUTPUT:-

```
Stack operations
1.Push
2.Pop
3.Display
4.Exit
top is None
Enter choice : 1
Enter data : 5
```

```
Stack operations
1.Push
2.Pop
3.Display
4.Exit
top is 3
Enter choice : 2
poped  10
```

```
Stack operations
1.Push
2.Pop
3.Display
4.Exit
top is 3
Enter choice : 3
Stack elements....
10
11
8
5
```

Q. Write a program to create a Stack for storing only odd numbers out of all the numbers entered by the user.Display the content of the Stack along with the largest odd number in the Stack

CODE:-

```
def push(stack, item):
    stack.append(item)
def pop(stack):
    if stack==[]:
        return
    return stack.pop()
def oddStack(num):
    if num%2==1:
        push(stack,num)
def GetLargest(stack):
    elem=pop(stack)
    large=elem
    while elem!=None:
        if large<elem:
            large=elem
        elem=pop(stack)
    return large
n=int(input("how many numbers? "))
stack=[] #empty stack
large= -99
for i in range(n):
    number=int(input("Enter number: "))
    oddStack(number)
print("Stack created is ", stack)
large=GetLargest(stack)
```

```
print("Largest number in stack",large)
```

OUTPUT:-

```
how many numbers? 8
Enter number: 11
Enter number: 22
Enter number: 33
Enter number: 44
Enter number: 55
Enter number: 66
Enter number: 77
Enter number: 88
Stack created is  [11, 33, 55, 77]
Largest number in stack 77
```

Q. Write a menu driven program that has functions PushS(lst) and PopS(lst) for performing Push and Pop operations with a stack of List containing integers.

CODE:-

```
def PushS(lst):
    n= int(input("Enter integer:"))
    lst.append(n)
def PopS(lst):
    if lst==[]:
        print("Stack is empty--UNDERFLOW!")
    else:
        print ("Deleted value :",lst.pop())
lst=[]
while True:
    print("""
1)PUSH
2POP
3)EXIT
""")
    ch=int(input("Enter Option:"))
    if ch==1:
        PushS(lst)
    elif ch==2:
        PopS(lst)
    elif ch==3:
        break
    else:
        print("Wrong Option")
```

OUTPUT:-

```
1)PUSH
2POP
3)EXIT

Enter Option:1
Enter integer:10

1)PUSH
2POP
3)EXIT

Enter Option:1
Enter integer:20

1)PUSH
2POP
3)EXIT

Enter Option:2
Deleted value : 20

1)PUSH
2POP
3)EXIT

Enter Option:3
```

Q. Write a menu driven program that has functions Make Push (package) and MakePop(package) to add a new Package and delete & Package from a List of Package Description, considering them to act as push and pop operations of the Stack

CODE:-

```
def MakePush(package):
    a = int(input("Enter package title: "))
    package.append(a)
def MakePop(package):
    if package==[]:
        print("Stack empty")
    else:
        print ("Deleted element:",package.pop())
package=[]
while True:
    print("""
1)PUSH
2)POP
3)EXIT
""")
    ch=int(input("Enter Option:"))
    if ch==1:
        MakePush(package)
    elif ch==2:
        MakePop(package)
    elif ch==3:
        break
    else:
        print("Wrong Option")
```

OUTPUT:-

```
1)PUSH
2)POP
3)EXIT

Enter Option:1
Enter package title: 101

1)PUSH
2)POP
3)EXIT

Enter Option:1
Enter package title: 102

1)PUSH
2)POP
3)EXIT

Enter Option:2
Deleted element: 102

1)PUSH
2)POP
3)EXIT

Enter Option:3
```

Q. Write a program to implement a stack for these book details(Bookno, book name). That is now each item node of the stack contains two types of information-a bookno and its name.Just implement Push and display operations.

```
def Push(stk,item):
    stk.append(item)
    top=len(stk)-1
def Display(stk):
    if stk==[]:
        print("Stack empty")
    else:
        top=len(stk)-1
        print(stk[top],"<-top")
        for a in range(-2,-top-2, -1):
            print(stk[a])

stack=[]
top=None
while True:
    print("STACK OPERATIONS")
    print("1. Push")
    print("2. Display stack")
    print("3. Exit")
    ch=int(input("Enter your choice (1-5) :"))
    if ch==1:
        bno=int(input("Enter Book no. to be inserted :"))
        bname=input("Enter Book name to be inserted :")
        item=[bno, bname]
        Push(stack,item)
    elif ch==2:
        Display(stack)
    elif ch==3:
        break
    else:
```

```
        print("Invalid choice!")
```

OUTPUT:-

```
STACK OPERATIONS
1. Push
2. Display stack
3. Exit
Enter your choice (1-5) :1
Enter Book no. to be inserted :101
Enter Book name to be inserted :Physics
STACK OPERATIONS
1. Push
2. Display stack
3. Exit
Enter your choice (1-5) :1
Enter Book no. to be inserted :102
Enter Book name to be inserted :Chemistry
STACK OPERATIONS
1. Push
2. Display stack
3. Exit
Enter your choice (1-5) :1
Enter Book no. to be inserted :103
Enter Book name to be inserted :Maths
STACK OPERATIONS
1. Push
2. Display stack
3. Exit
Enter your choice (1-5) :2
[103, 'Maths'] <-top
[102, 'Chemistry']
[101, 'Physics']
STACK OPERATIONS
1. Push
2. Display stack
3. Exit
Enter your choice (1-5) :3
```

Q. Write a program to perform insert and delete operations on a Queue containing Members details as given in the following definition of itemnode:

MemberNo : integer

MemberName : String

Age : integer

CODE:-

```
def isEmpty(Qu):
    if Qu==[]:
        return True
    else :
        return False

def Enqueue(Qu,item):
    Qu.append(item)
    if len(Qu)==1:
        front=rear = 0
    else:
        rear=len(Qu) - 1

def Dequeue(Qu):
    if isEmpty(Qu) :
        return "Underflow"
    else:
        item= Qu.pop(0)
        if len(Qu) == 8:
            front=None
            rear=None
        return item
def Display(Qu):
    if isEmpty(Qu):
        print("Queue Empty!")
```

```
    elif len(Qu)==1:
        print(Qu[0], "<== front, rear")
    else:
        front=0
        rear=len(Qu)-1
        print(Qu[front],"<--front")
        for a in range(1, rear):
            print (Qu[a])
        print (Qu[rear], "<-rear")
queue=[]
front=None
while True:
    print("QUEUE OPERATIONS")
    print("1. Enqueue")
    print("2. Dequeue")
    print("3. Display queue")
    print("4. Exit")
    ch= int(input("Enter your choice (1-5): "))
    if ch==1:
        print("For the new member, enter details below:")
        memberNo= int(input("Enter member no :"))
        memberName=input("Enter member name :")
        age = int(input("Enter member's age :"))
        item=[memberNo,memberName,age]
        Enqueue(queue,item)
        input("Press Enter to continue...")
    elif ch==2:
        item=Dequeue(queue)
        if item=="Underflow":
            print("Underflow! Queue is empty!")
        else:
            print("Dequeue-ed item is", item)
```

```
            input("Press Enter to continue...")
    elif ch==3:
        Display (queue)
        input("Press Enter to continue...")
    elif ch == 4:
        break
    else :
        print("Invalid choice!")
        input("Press Enter to continue...")
```

OUTPUT:-

```
QUEUE OPERATIONS
1. Enqueue
2. Dequeue
3. Display queue
4. Exit
Enter your choice (1-5): 1
For the new member, enter details below:
Enter member no :01
Enter member name :Rohit
Enter member's age :15
Press Enter to continue...
QUEUE OPERATIONS
1. Enqueue
2. Dequeue
3. Display queue
4. Exit
Enter your choice (1-5): 1
For the new member, enter details below:
Enter member no :02
Enter member name :Shubham
Enter member's age :25
Press Enter to continue...
QUEUE OPERATIONS
1. Enqueue
2. Dequeue
3. Display queue
4. Exit
Enter your choice (1-5): 1
For the new member, enter details below:
Enter member no :03
Enter member name :Sachin
Enter member's age :40
Press Enter to continue...
```

```
QUEUE OPERATIONS
1. Enqueue
2. Dequeue
3. Display queue
4. Exit
Enter your choice (1-5): 3
[1, 'Rohit', 15] <--front
[2, 'Shubham', 25]
[3, 'Sachin', 40] <-rear
Press Enter to continue...
```

```
QUEUE OPERATIONS
1. Enqueue
2. Dequeue
3. Display queue
4. Exit
Enter your choice (1-5): 2
Dequeue-ed item is [1, 'Rohit', 15]
```

Q.Write a function in Python,INSERTQ(arr,data) and DELETEQ(Arr) for performing insertion and deletion operations in a Queue. arr is the list used for implementing queue and data is the value to be inserted.

CODE:-

```
def INSERTQ(arr):
    data =int(input("Enter data to be inserted: "))
    arr.append(data)

def DELETEQ(arr):
    if arr== []:
        print("Queue empty")
    else:
        print ("Deleted element is:", arr[0])
        arr.pop(0)
arr=[]
while True:
    print("""
1)INSERTQ
2)DELETEQ
3)EXIT
""")
    ch=int(input("Enter Option:"))
    if ch==1:
        INSERTQ(arr)
    elif ch==2:
        DELETEQ(arr)
    elif ch==3:
        break
    else:
        print("Wrong Option")
```

OUTPUT:-

```
1)INSERTQ
2)DELETEQ
3)EXIT

Enter Option:1
Enter data to be inserted: 100

1)INSERTQ
2)DELETEQ
3)EXIT

Enter Option:1
Enter data to be inserted: 200

1)INSERTQ
2)DELETEQ
3)EXIT

Enter Option:2
Deleted element is: 100

1)INSERTQ
2)DELETEQ
3)EXIT

Enter Option:3
```

Q.Given the following tables for a database LIBRARY :

Table : BOOKS

Book_Id	Book_Name	Author_Name	Publishers	Price	Type	Qty.
C0001	Fast Cook	Lata Kapoor	EPB	355	Cookery	5
F0001	The Tears	William Hopkins	First Publ.	650	Fiction	20
T0001	My First C++	Brian & Brooke	EPB	350	Text	10
T0002	C++ Brainworks	A.W. Rossaine	TDH	350	Text	15
F0002	Thunderbolts	Anna Roberts	First Publ.	750	Fiction	50

Table : ISSUED

Book_Id	Quantity_Issued
T0001	4
C0001	5
F0001	2

Write SQL queries for (a) to (f):

(a) To show Book name , Author name and Price of books of First Publc publishers.

```
mysql> SELECT Book_Name, Author_Name, Price
    -> FROM Books
    -> WHERE Publishers = "First Publ.";
+--------------+-----------------+-------+
| Book_Name    | Author_Name     | Price |
+--------------+-----------------+-------+
| The Tears    | William Hopkins |   650 |
| Thunderbolts | Anna Roberts    |   750 |
+--------------+-----------------+-------+
2 rows in set (0.00 sec)
```

(b) To list the names from books of text type.

```
mysql> SELECT Book_Name
    -> FROM Books
    -> WHERE Type = "Text";
+----------------+
| Book_Name      |
+----------------+
| My First C++   |
| C++ Brainworks |
+----------------+
2 rows in set (0.00 sec)
```

(c) To display the names and prices from books in ascending order of their price.

```
mysql> SELECT Book_Name, Price
    -> FROM Books
    -> ORDER BY Price;
+----------------+-------+
| Book_Name      | Price |
+----------------+-------+
| My First C++   |   350 |
| C++ Brainworks |   350 |
| Fast Cook      |   355 |
| The Tears      |   650 |
| Thunderbolts   |   750 |
+----------------+-------+
5 rows in set (0.00 sec)
```

(d) To increase the price of all books of EPB Publishers by 50 .

```
mysql> UPDATE Books
    -> SET Price = Price + 50
    -> WHERE Publishers = "EPB" ;
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2  Changed: 2  Warnings: 0

mysql> select* from books;
+---------+----------------+------------------+-------------+-------+---------+-----+
| Book_id | Book_Name      | Author_Name      | Publishers  | Price | Type    | Qty |
+---------+----------------+------------------+-------------+-------+---------+-----+
| C0001   | Fast Cook      | Lata Kapoor      | EPB         |   405 | Cookery |   5 |
| F0001   | The Tears      | William Hopkins  | First Publ. |   650 | Fiction |  20 |
| F0002   | Thunderbolts   | Anna Roberts     | First Publ. |   750 | Fiction |  50 |
| T0001   | My First C++   | Brian and Brooke | EPB         |   400 | Text    |  10 |
| T0002   | C++ Brainworks | A.W.Rossaine     | TDH         |   350 | Text    |  15 |
+---------+----------------+------------------+-------------+-------+---------+-----+
5 rows in set (0.01 sec)
```

(e) To display the Book_id,Book_Name and Quantity_Issued for all books which have been issued.(The query will require contents from both the tables.)

```
mysql> SELECT Books.Book_id, Book_Name, Quantity_Issued
    -> FROM Books, Issued
    -> WHERE Books.Book_id = Issued.Book_id ;
+---------+-------------+----------------+
| Book_id | Book_Name   | Quantity_Issued |
+---------+-------------+----------------+
| T0001   | My First C++ |              4 |
| C0001   | Fast Cook   |              5 |
| F0001   | The Tears   |              2 |
+---------+-------------+----------------+
3 rows in set (0.01 sec)
```

(f) To insert a new row in the table Issued having the following data : "F0003",1

```
mysql> INSERT INTO Issued
    -> VALUES ("F0003", 1);
Query OK, 1 row affected (0.00 sec)

mysql> select*from issued;
+---------+----------------+
| Book_id | Quantity_issued |
+---------+----------------+
| T0001   |              4 |
| C0001   |              5 |
| F0001   |              2 |
| F0003   |              1 |
+---------+----------------+
4 rows in set (0.01 sec)
```

Q. Consider the following tables FACULTY and COURSES. Write SQL commands for the statements (i) to (vii).

FACULTY

F_ID	Fname	Lname	Hire_date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000
106	Sulekha	Srivastava	5-6-2006	10000

COURSES

C_ID	F_ID	Cname	Fees
C21	102	Grid Computing	40000
C22	106	System Design	16000
C23	104	Computer Security	8000
C24	106	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

i) To display details of those Faculties whose salary is greater than 12000.

```
mysql> Select * from faculty where salary > 12000;
+------+---------+-------+-----------+--------+
| F_ID | Fname   | Lname | Hire_date | salary |
+------+---------+-------+-----------+--------+
|  104 | Rakshit | Soni  | 18-5-2001 |  14000 |
+------+---------+-------+-----------+--------+
1 row in set (0.00 sec)
```

ii) To display the details of courses whose fees is in the range of 15000 to 50000 (both values included).

```
mysql> Select * from Courses where fees between 15000 and 50000;
+------+------+-----------------+-------+
| C_ID | F_ID | Cname           | Fees  |
+------+------+-----------------+-------+
| C21  |  102 | Grind Computing | 40000 |
| C22  |  106 | System Design   | 16000 |
| C24  |  106 | Human Biology   | 15000 |
| C25  |  102 | Computer Network | 20000 |
+------+------+-----------------+-------+
4 rows in set (0.00 sec)
```

iii) To increase the fees of all courses by 500 of "System Design" Course.

```
mysql>  Update courses set fees = fees + 500 where Cname = "System Design";
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from courses;
+------+------+-------------------+-------+
| C_ID | F_ID | Cname             | Fees  |
+------+------+-------------------+-------+
| C21  |  102 | Grind Computing   | 40000 |
| C22  |  106 | System Design     | 16500 |
| C23  |  104 | Computer Security |  8000 |
| C24  |  106 | Human Biology     | 15000 |
| C25  |  102 | Computer Network  | 20000 |
| C26  |  105 | Visual Basic      |  6000 |
+------+------+-------------------+-------+
6 rows in set (0.00 sec)
```

iv) To display details of those courses which are taught by 'Sulekha' in descending order of courses.

```
mysql>  Select * from faculty fac, courses cour where fac.f_id = cour.f_id and fac.fname = 'Sulekha'order by cname desc;
+------+---------+------------+-----------+--------+------+------+---------------+-------+
| F_ID | Fname   | Lname      | Hire_date | salary | C_ID | F_ID | Cname         | Fees  |
+------+---------+------------+-----------+--------+------+------+---------------+-------+
|  106 | Sulekha | Srivastava | 5-6-2006  |  10000 | C22  |  106 | System Design | 16500 |
|  106 | Sulekha | Srivastava | 5-6-2006  |  10000 | C24  |  106 | Human Biology | 15000 |
+------+---------+------------+-----------+--------+------+------+---------------+-------+
2 rows in set (0.00 sec)
```

v) To count all record with F_ID

```
mysql> Select COUNT(DISTINCT F_ID) from COURSES;
+----------------------+
| COUNT(DISTINCT F_ID) |
+----------------------+
|                    4 |
+----------------------+
1 row in set (0.01 sec)
```

vi) To display Fname, Cname from FACULTY, COURSES where F_ID is same.

```
mysql> Select Fname, Cname from FACULTY, COURSES where COURSES.F_ID =FACULTY.F_ID;
+---------+-------------------+
| Fname   | Cname             |
+---------+-------------------+
| Amit    | Grind Computing   |
| Sulekha | System Design     |
| Rakshit | Computer Security |
| Sulekha | Human Biology     |
| Amit    | Computer Network  |
| Rashmi  | Visual Basic      |
+---------+-------------------+
6 rows in set (0.00 sec)
```

Q. Consider the following tables GAMES and PLAYER. Write SQL commands for the statements (i) to (viii) .

Table: GAMES

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004

Table: PLAYER

PCode	Name	Gcode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

(i) To display the name of all Games with their Gcodes.

```
mysql> SELECT GameName,Gcode FROM GAMES;
+--------------+-------+
| GameName     | Gcode |
+--------------+-------+
| Carrom Board | 101   |
| Badminton    | 102   |
| Table Tennis | 103   |
+--------------+-------+
3 rows in set (0.00 sec)
```

(ii) To display details of those games which are having PrizeMoney more than 7000.

```
mysql>  SELECT * FROM GAMES WHERE PrizeMoney>7000;
+-------+--------------+--------+------------+--------------+
| Gcode | GameName     | Number | PrizeMoney | ScheduleDate |
+-------+--------------+--------+------------+--------------+
| 103   | Table Tennis |      4 |       8000 | 14-Feb-2004  |
+-------+--------------+--------+------------+--------------+
1 row in set (0.00 sec)
```

(iii) To display the content of the GAMES table in ascending order of Prize.

```
mysql>  SELECT * FROM GAMES ORDER BY PrizeMoney;
+-------+--------------+--------+------------+--------------+
| Gcode | GameName     | Number | PrizeMoney | ScheduleDate |
+-------+--------------+--------+------------+--------------+
| 102   | Badminton    |      2 |       1200 | 12-Dec-2003  |
| 101   | Carrom Board |      2 |       5000 | 23-Jan-2004  |
| 103   | Table Tennis |      4 |       8000 | 14-Feb-2004  |
+-------+--------------+--------+------------+--------------+
3 rows in set (0.00 sec)
```

(iv) To display sum of PrizeMoney for each of the Number of participation groupings (as shown in column Number 2 or 4).

```
mysql>  SELECT SUM(PrizeMoney),Number FROM GAMES GROUP BY Number;
+-----------------+--------+
| SUM(PrizeMoney) | Number |
+-----------------+--------+
|            6200 |      2 |
|            8000 |      4 |
+-----------------+--------+
2 rows in set (0.01 sec)
```

(v) To display the Count of different games from games;

```
mysql> SELECT COUNT(DISTINCT Number) FROM GAMES;
+-------------------------+
| COUNT(DISTINCT Number) |
+-------------------------+
|                       2 |
+-------------------------+
1 row in set (0.00 sec)
```

(vi) To display the Maximum PrizeMoney and Average of PrizeMoney from Games

```
mysql> select max(prizemoney),avg(prizemoney) from games;
+-----------------+-----------------+
| max(prizemoney) | avg(prizemoney) |
+-----------------+-----------------+
|            8000 |       4733.3333 |
+-----------------+-----------------+
1 row in set (0.00 sec)
```

(vii) SELECT SUM(PrizeMoney) FROM GAMES;

```
mysql> SELECT SUM(PrizeMoney) FROM GAMES;
+-----------------+
| SUM(PrizeMoney) |
+-----------------+
|           14200 |
+-----------------+
1 row in set (0.01 sec)
```

(viii) To display different GCode From Player

```
mysql> SELECT DISTINCT Gcode FROM PLAYER;
+-------+
| Gcode |
+-------+
|   101 |
|   108 |
|   103 |
+-------+
3 rows in set (0.00 sec)
```

Q. Consider the following tables ITEM and CUSTOMER. Write SQL commands for the statements (i) to (v).

Table : ITEM

I_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

Table : CUSTOMER

C_ID	CustomerName	City	I_ID
01	N Roy	Delhi	LC03
06	H Singh	Mumbai	PC03
12	R Pandey	Delhi	PC06
15	C Sharma	Delhi	LC03
16	K Agarwal	Banglore	PC01

(i)To display distinct cities of customers

```
mysql> SELECT DISTINCT City FROM Customer;
+----------+
| City     |
+----------+
| Delhi    |
| Mumbai   |
| Banglore |
+----------+
3 rows in set (0.00 sec)
```

(ii)To display Name of the items,maximum price and no. of records with same Item Name in table Item

```
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 (0.01 sec)
```

(iii) To display customer name brought the item and their manufacturers

```
mysql> SELECT CustomerName, Manufacturer FROM Item, Customer WHERE Item.I_ID = Customer.I_ID;
+--------------+--------------+
| CustomerName | Manufacturer |
+--------------+--------------+
| N Roy        | PQR          |
| H Singh      | XYZ          |
| R Pandey     | COMP         |
| C Sharma     | PQR          |
| K Agarwal    | ABC          |
+--------------+--------------+
5 rows in set (0.00 sec)
```

(iv) To display item name and price*100 by ABC manufacturer from Item Table

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

(v) To display average price of items from item table

```
mysql> Select Avg(price) from Item;
+------------+
| Avg(price) |
+------------+
| 43200.0000 |
+------------+
1 row in set (0.00 sec)
```