

पुनता International School

GRADE : XII
COMPUTER SCIENCE
PRACTICAL FILE (2024-25)

INDEX

Exp. No	Aim	Date	Sign
1	Program to read and display file content line by line with each word separated by “ #”		
2	Program to read the content of file and display the total number of consonants, uppercase, vowels and lowercase characters.		
3	Program to read the content of file line by line and write it to another file except for the lines contains “a” letter in it.		
4	Program to store students’ details like admission number, roll number, name and percentage in a dictionary and display information on the basis of admission number.		
5	Program to create binary file to store Roll no and Name, Search any Roll no and display name if Roll no found otherwise “Roll no not found”		
6	Program to create binary file to store Roll no, Name and Marks and update marks of entered Roll no.		
7	Program to generate random number 1-6, simulating a dice.		
8	Program to implement Stack in Python using List.		
9	Create a CSV file by entering user-id and password, read and search the password for given user- id.		
10	To write SQL-Queries for the following Questions based on the given table		
11	To write SQL-Queries for the following Questions based on the given table		
12	To write Queries for the following Questions based on the given two table		
13	Program to connect with database and store record of employee and display records.		
14	Program to connect with database and search employee number in table employee and display record, if empno not found display appropriate message		
15	Perform all the operations (Insert, Update, Delete, Display) with reference to table ‘students’ through MySQL-Python connectivity		

Program 1: Program to read and display file content line by line with eachword separated by “#”

#Program to read content of file line by line
#and display each word separated by '#'

```
f = open("file1.txt")
for line in f:
    words=line.split()
    for w in words:
        print(w+'#',end="")
    print()
f.close()
```

NOTE : if the original content of file is:

India is my countryI lovepython
Python learning is fun

OUTPUT

```
===== RESTART: D:\Raval\Pr_1.py =====
India#is#my#
countryI#love#python#
Python#learning#is#fun#
>>>
```

Program 2: Program to read the content of file and display the total number of consonants, uppercase, vowels and lower case characters.

```
f = open("file1.txt")
v=0
c=0
u=0
l=0
o=0
data = f.read()
vowels=['a','e','i','o','u']
for ch in data:
    if ch.isalpha():
        if ch.lower() in vowels:
            v+=1
        else:
            c+=1
    if ch.isupper():
        u+=1
    elif ch.islower():
        l+=1
    elif ch!=' ' and ch!='\n':
        o+=1
print("Total Vowels in file :",v)
print("Total Consonants in file :",c)
print("Total Capital letters in file :",u)
print("Total Small letters in file :",l)
print("Total Other than letters :",o)
f.close()
```

OUTPUT

```
===== RESTART: D:\Raval\Pr_2.py =====
```

```
Total Vowels in file : 16
```

```
Total Consonants in file : 30
```

```
Total Capital letters in file : 3
```

```
Total Small letters in file : 43
```

```
Total Other than letters : 0
```

```
>>>
```

**Program 3: Program to read the content of file line by line and write it to another file
Except for the lines contains "a" letter in it.**

```
f1 = open("file1.txt")
f2 = open("file2copy.txt","w")
for line in f1:
    if 'a' not in line:
        f2.write(line)
print("## File Copied Successfully! ##")
f1.close()
f2.close()
```

NOTE : if the original content of file1 is:

```
India is my countryI lovepython
Python learning is fun
```

OUTPUT

```
===== RESTART: D:\Raval\Pr_3.py =====
## File Copied Successfully! ##
>>>
```

Program 4:

Program to store student's details like admission number, roll number, name and percentage in a dictionary and display information on the basis of admission number.

```
record = dict ()
i=1
n= int (input ("How many records u want to enter: "))
while(i<=n):
    Adm = input("Enter Admission number: ")
    roll = input("Enter Roll Number: ")
    name = input("Enter Name :")
    perc = float(input("Enter Percentage : "))
    t = (roll,name, perc)
    record[Adm] = t
    i = i + 1
Nkey = record.keys()
for i in Nkey:
    print("\nAdmno- ", i, " :")
    r = record[i]
    print("Roll No\t", "Name\t", "Percentage\t")
    for j in r:
        print(j, end = "\t")
```

OUTPUT

===== RESTART: D:\Raval\Pr_4.py =====

```
How many records u want to enter: 2
Enter Admission number: 101
Enter Roll Number: 38
Enter Name :Ramesh
Enter Percentage : 78
Enter Admission number: 102
Enter Roll Number: 39
Enter Name :Mahesh
Enter Percentage : 79
```

```
Admno- 101 :
Roll No   Name Percentage
38 Ramesh   78.0
Admno- 102 :
Roll No   Name Percentage
39 Mahesh   79.0
>>>
```

Program 5:**Program to create binary file to store Rollno and Name, Search any Rollno and display name if Rollno found otherwise “Rollno not found”**

```
import pickle
D={}
f=open("Studentdetails.dat","wb")
def write():
    while True:
        rno = int(input("Enter Roll no : "))
        n = input("Enter Name : ")
        D['Roll_No']=rno
        D['Name'] = n
        pickle.dump(D,f)
        ch = input("More ? (Y/N)")
        if ch in 'Nn':
            break
        f.close()
def Search() :
    found = 0
    rollno= int(input("Enter Roll no Whose name you want to display :"))
    f = open("Studentdetails.dat", "rb")
    try:
        while True:
            rec = pickle.load(f)
            if rec['Roll No']==rollno:
                print(rec['Name'])
                found = 1
                break
    except EOFError:
        if found == 0:
            print("Sorry not Found. ...")
            f.close()
write()
Search()
```

OUTPUT

===== RESTART: D:\Raval\Pr_5.py =====

Enter Roll no : 1

Enter Name : Ramesh

More ? (Y/N)y

Enter Roll no : 2

Enter Name : Mahesh

More ? (Y/N)y

Enter Roll no Whose name you want to display :2

Mahesh

Program 6: Program to create binary file to store Rollno, Name and Marks and update marks of entered Rollno.

```
#Program to create a binary file to store Rollno and name
#Search for Rollno and display record if found
#otherwise"Roll no. not found"
```

```
import pickle
def Write():
    f = open("Studentdetails.dat", 'wb')
    while True:
        r =int(input ("Enter Roll no : "))
        n = input("Enter Name : ")
        m = int(input ("Enter Marks : "))
        record = [r,n,m]
        pickle.dump(record, f)
        ch = input("Do you want to enter more?(Y/N)")
        if ch in 'Nn':
            break
    f.close()
def Read():
    f = open("Studentdetails.dat", 'rb')
    try:
        while True:
            rec=pickle.load(f)
            print(rec)
    except EOFError:
        f.close()
def Update():
    f = open("Studentdetails.dat", 'rb+')
    rollno = int(input("Enter roll no whoes marks you want to update"))
    try:
        while True:
            pos=f.tell()
            rec = pickle.load(f)
            if rec[0]==rollno:
                um = int(input("Enter Update Marks:"))
                rec[2]=um
                f.seek(pos)
                pickle.dump(rec,f)
            #print(rec)
    except EOFError:
        f.close()
Write()
Read()
Update()
Read()
```


OUTPUT

===== RESTART: D:\Raval\Pr_6.py =====

```
Enter Roll no : 1
Enter Name : ramesh
Enter Marks : 78
Do you want to enter more?(Y/N)N
[1, 'ramesh', 78]
Enter roll no whoes marks you want to update1
Enter Update Marks:87
[1, 'ramesh', 87]
>>>
```

Program 7: Program to generate random number 1-6, simulating a dice.

```
# Program to generate random number between 1 -6
# to simulate the dice

import random
while True:
    print("="*55)
    print("*****Roling Dice*****")
    print("="*55)
    num = random.randint(1,6)
    if num ==6:
        print("Hey.....You got",num,"..... Congratulations!!!!")
    elif num ==1:
        print("Well tried.... But you got",num)
    else:
        print("You got:",num)
        ch=input("Roll again? (Y/N)")
        if ch in "Nn":
            break
    print("Thank for playing!!!!!!!!")
```

OUTPUT

```
===== RESTART: D:\Raval\Pr_7.py =====
=====
*****Roling      Dice*****
=====
You got: 2
Roll again? (Y/N)y Thank for
playing!!!!!!!!
=====
*****Roling      Dice*****
=====
Hey.....You got 6 .....Congratulations!!!!
```

Program 8 : Write a program to implement a stack for the employee details (empno, name).

```
employee=[]
def push():
    empno=input("Enter empno ")
    name=input("Enter name ")
    sal=input("Enter sal ")
    emp=(empno,name,sal)
    employee.append(emp)
def pop():
    if(employee==[]):
        print("Underflow / Employee Stack in empty")
    else:
        empno,name,sal=employee.pop()
        print("poped element is ")
        print("empno ",empno," name ",name," salary ",sal)
def traverse():
    if not (employee==[]):
        n=len(employee)
        for i in range(n-1,-1,-1):
            print(employee[i])
    else:
        print("Empty , No employee to display")
while True:
    print("1. Push")
    print("2. Pop")
    print("3. Traversal")
    print("4. Exit")
    ch=int(input("Enter your choice "))
    if(ch==1):
        push()
    elif(ch==2):
        pop()
    elif(ch==3):
        traverse()
    elif(ch==4):
        print("End")
        break
    else:
        print("Invalid choice")
```

OUTPUT

===== RESTART: D:\Raval\Pr_8.py =====

1. Push

2. Pop

3. Traversal

4. Exit

Enter your choice 1

Enter empno 101

Enter name Ramesh

Enter sal 34000

1. Push

2. Pop

3. Traversal

4. Exit

Enter your choice 3

('101', 'Ramesh', '34000')

1. Push

2. Pop

3. Traversal

4. Exit

Enter your choice

Program 9: Create a CSV file by entering user-id and password, read and search the password for given user- id.

```
import csv
with open("user_info.csv", "w") as obj:
    fileobj = csv.writer(obj)
    fileobj.writerow(["User Id", "password"])
    while(True):
        user_id = input("enter id: ")
        password = input("enter password: ")
        record = [user_id, password]
        fileobj.writerow(record)
        x = input("press Y/y to continue and N/n to terminate the program\n")
        if x in "Nn":
            break
        elif x in "Yy":
            continue
with open("user_info.csv", "r") as obj2:
    fileobj2 = csv.reader(obj2)
    given = input("enter the user id to be searched\n")
    for i in fileobj2:
        next(fileobj2)
        # print(i,given)
        if i[0] == given:
            print(i[1])
            break
```

OUTPUT

===== RESTART: D:\Raval\Pr_9.py =====

```
enter id: 101
enter password: 12345
press Y/y to continue and N/n to terminate the program
N
enter the user id to be searched
101
12345
>>>
```

SQL queries

Program 10: To write SQL- Queries for the following Questions based on the given table:

Rollno	Name	Gender	Age	Dept	DOA	Fees
1	Arun	M	24	COMPUTER	1997-01-10	120
2	Ankit	M	21	HISTORY	1998-03-24	200
3	Anu	F	20	HINDI	1996-12-12	300
4	Bala	M	19	NULL	1999-07-01	400
5	Charan	M	18	HINDI	1997-09-05	250
6	Deepa	F	19	HISTORY	1997-06-27	300
7	Dinesh	M	22	COMPUTER	1997-02-25	210
8	Usha	F	23	NULL	1997-07-31	200

(a) Write a Query to Create a new database in the name of "STUDENTS"

Sol:mysql> CREATE DATABASE STUDENTS;

(b) Write a Query to Open the database "STUDENTS"

Sol:mysql> USE STUDENTS;

(c) Write a Query to create the above table called: Info

Sol:

mysql> CREATE TABLE STU(Rollno int Primary key,Name varchar(10),Gender varchar(3),Age int,Dept varchar(15),DOA date,Fees int);

(d) Write a Query to list all the existing database names.

Sol:

mysql> SHOW DATABASES;

```

+-----+
| Database |
+-----+
| employees |
| hospital  |
| hospitals |
| information_schema |
| ip_practicals |
| mysql     |
| performance_schema |
| school    |
| students  |
| sys       |
+-----+

```

(e) Write a Query to List all the tables that exists in the current database.

Sol:

mysql> SHOW TABLES;

Output:

```

+-----+
| Tables_in_students |
+-----+
| stu                 |
+-----+

```

(f) Write a Query to insert all the rows of above table into Info table.

Sol:

```
INSERT INTO STU VALUES (1,'Arun','M', 24,'COMPUTER','1997-01-10', 120);INSERT
INSERT INTO STU VALUES (2,'Ankit','M', 21,'HISTORY','1998-03-24', 200);
INSERT INTO STU VALUES (3,'Anu','F', 20,'HINDI','1996-12-12', 300);
INSERT INTO STU VALUES (4,'Bala','M', 19, NULL,'1999-07-01', 400);
INSERT INTO STU VALUES (5,'Charan','M', 18,'HINDI','1997-06-27', 250);
INSERT INTO STU VALUES (6,'Deepa','F', 19,'HISTORY','1997-06-27', 300);
INSERT INTO STU VALUES (7,'Dinesh','M', 22,'COMPUTER','1997-02-25', 210);
INSERT INTO STU VALUES (8,'Usha','F', 23, NULL,'1997-07-31', 200);
```

(g) Write a Query to display all the details of the Employees from the above table 'STU'.

Sol:

```
mysql> SELECT * FROM STU;
```

Output:

Rollno	Name	Gender	Age	Dept	DOA	Fees
1	Arun	M	24	COMPUTER	1997-01-10	120
2	Ankit	M	21	HISTORY	1998-03-24	200
3	Anu	F	20	HINDI	1996-12-12	300
4	Bala	M	19	NULL	1999-07-01	400
5	Charan	M	18	HINDI	1997-06-27	250
6	Deepa	F	19	HISTORY	1997-06-27	300
7	Dinesh	M	22	COMPUTER	1997-02-25	210
8	Usha	F	23	NULL	1997-07-31	200

(h) Write a query to Rollno, Name and Department of the students from STU table.

Sol:

```
mysql> SELECT ROLLNO,NAME,DEPT FROM STU;
```

ROLLNO	NAME	DEPT
1	Arun	COMPUTER
2	Ankit	HISTORY
3	Anu	HINDI
4	Bala	NULL
5	Charan	HINDI
6	Deepa	HISTORY
7	Dinesh	COMPUTER
8	Usha	NULL

Program 11: To write SQL- Queries for the following Questions based on the given table:

Rollno	Name	Gender	Age	Dept	DOA	Fees
1	Arun	M	24	COMPUTER	1997-01-10	120
2	Ankit	M	21	HISTORY	1998-03-24	200
3	Anu	F	20	HINDI	1996-12-12	300
4	Bala	M	19	NULL	1999-07-01	400
5	Charan	M	18	HINDI	1997-09-05	250
6	Deepa	F	19	HISTORY	1997-06-27	300
7	Dinesh	M	22	COMPUTER	1997-02-25	210
8	Usha	F	23	NULL	1997-07-31	200

(a) Write a Query to delete the details of Roll number is 8.

Sol:

```
mysql> DELETE FROM STU WHERE ROLLNO=8;
```

Output (After Deletion):

Rollno	Name	Gender	Age	Dept	DOA	Fees
1	Arun	M	24	COMPUTER	1997-01-10	120
2	Ankit	M	21	HISTORY	1998-03-24	200
3	Anu	F	20	HINDI	1996-12-12	300
4	Bala	M	19	NULL	1999-07-01	400
5	Charan	M	18	HINDI	1997-06-27	250
6	Deepa	F	19	HISTORY	1997-06-27	300
7	Dinesh	M	22	COMPUTER	1997-02-25	210

(b) Write a Query to change the fess of Student to 170 whose Roll number is 1, if the existing fessis less than 130.

Sol:

```
mysql> UPDATE STU SET FEES=170 WHERE ROLLNO=1 AND FEES<130;
```

Output(After Update):

Rollno	Name	Gender	Age	Dept	DOA	Fees
1	Arun	M	24	COMPUTER	1997-01-10	170

(c) Write a Query to add a new column **Area** of type varchar in table STU.

Sol:

```
mysql> ALTER TABLE STU ADD AREA VARCHAR(20);
```

Output:

```
Query OK, 0 rows affected
Records: 0 Duplicates: 0
```

```
mysql> SELECT * FROM STU;
```

ROLLNO	NAME	GENDER	AGE	DEPT	DOA	FEES	AREA
1	Arun	M	24	COMPUTER	1997-01-10	120	NULL
2	Ankit	M	21	HISTORY	1998-03-24	200	NULL
3	Anu	F	20	HINDI	1996-12-12	300	NULL
4	Bala	M	19	NULL	1999-07-01	400	NULL
5	Charan	M	18	HINDI	1997-09-05	250	NULL
6	Deepa	F	19	HISTORY	1997-06-27	300	NULL
7	Dinesh	M	22	COMPUTER	1997-02-25	210	NULL
8	Usha	F	23	NULL	1997-07-31	200	NULL

(d) Write a Query to Display Name of all students whose Area Contains NULL.

Sol:

```
mysql> SELECT NAME FROM STU WHERE AREA IS NULL;
```

Output:

```
NAME
Arun
Ankit
Anu
Bala
Charan
Deepa
Dinesh
Usha
```

(e) Write a Query to delete Area Column from the table STU.

Sol:

```
mysql> ALTER TABLE STU DROP AREA;
```

Output:

```
Query OK, 0 rows affected
Records: 0 Duplicates: 0
```

(f) Write a Query to delete table from Database.

Sol:

```
mysql> DROP TABLE STU;
```

Output:

```
Query OK, 0 rows affected
```


- (c) To display maximum unit price of products for each dealer individually as per dcode from the table Stock.

Sol:

```
mysql> SELECT DCODE,MAX(UNITPRICE) FROM STOCK  
GROUP BY DCODE;
```

Output:

DCODE	MAX(UNITPRICE)
102	15
101	6
103	8

- (d) To display the Pname and Dname from table stock and dealers.

Sol:

```
mysql> SELECT PNAME,DNAME FROM STOCK S,DEALERS D  
WHERE S.DCODE=D.DCODE;
```

Output:

PNAME	DNAME
Eraser	Indian Book House
Pencil	Sakthi Stationeries
Gel pen premium	Indian Book House
Sharpner	Indian Book House
Ball point pen	Indian Book House
Scale	Sakthi Stationeries
Gel pen classic	Classic Stationaries

Python Database Connectivity

Program 13: Program to connect with database and store record of employee and display records.

```
import mysql.connector as mycon
con = mycon.connect(host='localhost',
                    user='root',
                    password="root")
cur = con.cursor()
cur.execute("create database if not exists company")
cur.execute("use company")
cur.execute("create table if not exists employee(empno int, name varchar(20), dept varchar(20),salary int)")
con.commit()
choice=None
while choice!=0:
    print("1. ADD RECORD ")
    print("2. DISPLAY RECORD ")
    print("0. EXIT")
    choice = int(input("Enter Choice :"))
    if choice == 1:
        e = int(input("Enter Employee Number :"))
        n = input("Enter Name :")
        d = input("Enter Department :")
        s = int(input("Enter Salary :"))
        query="insert into employee values({},{};{};{}).format(e,n,d,s)
        cur.execute(query)
        con.commit()
        print("## Data Saved ##")
    elif choice == 2:
        query="select * from employee"
        cur.execute(query)
        result = cur.fetchall()
        print("%10s" "EMPNO", "%20s" "NAME", "%15s" "DEPARTMENT", "%10s" "SALARY")
        for row in result:
            print("%10s"%row[0], "%20s"%row[1], "%15s"%row[2], "%10s"%row[3])
    elif choice==0:
        con.close()
        print("## Bye!! ##")
```

OUTPUT:

- 1. ADD RECORD
- 2. DISPLAY RECORD
- 0. EXIT

Enter Choice :1

Enter Employee Number :101

Enter Name :RAMESH

Enter Department :IT

Enter Salary :34000

Data Saved

- 1. ADD RECORD
- 2. DISPLAY RECORD
- 0. EXIT

Enter Choice :2

EMPNO	NAME	DEPARTMENT	SALARY
101	RAMESH	IT	34000

- 1. ADD RECORD
- 2. DISPLAY RECORD
- 0. EXIT

Enter Choice : 0

Program 14: Program to connect with database and search employee number in table employee and display record, if empno not found display appropriate message.

```
import mysql.connector as mycon
con = mycon.connect(host='localhost',
                    user='root',
                    password="root",
                    database="company")
cur = con.cursor()
print("#"*40)
print("EMPLOYEE SEARCHING FORM")
print("#"*40)
print("\n\n")
ans='y'
while ans.lower()=='y':
    eno = int(input("ENTER EMPNO TO SEARCH :"))
    query="select * from employee where empno={}".format(eno)
    cur.execute(query)
    result = cur.fetchall()
    if cur.rowcount==0:
        print("Sorry! Empno not found ")
    else:
        print("%10s"% "EMPNO", "%20s"% "NAME", "%15s"% "DEPARTMENT",
              "%10s"% "SALARY")
        for row in result:
            print("%10s"%row[0], "%20s"%row[1], "%15s"%row[2], "%10s"%row[3])
        ans=input("SEARCH MORE (Y) :")
```

OUTPUT:

```
#####
```

```
EMPLOYEE SEARCHING FORM
```

```
#####
```

```
ENTER EMPNO TO SEARCH :101
```

EMPNO	NAME	DEPARTMENT	SALARY
101	RAMESH	IT	34000

```
SEARCH MORE (Y) :
```


Program 15: Perform all the operations (Insert, Update, Delete, Display) with reference to table 'student' through MySQL-Python connectivity

```
import mysql.connector as ms
db=ms.connect(host="localhost",
              user="root",
              passwd="root",
              database="class_xii"
              )
#cn=db.cursor()
def insert_rec():
    try:
        while True:
            rn=int(input("Enter roll number:"))
            sname=input("Enter name:")
            marks=float(input("Enter marks:"))
            gr=input("Enter grade:")
            cn.execute("insert into student values({},'{}',{},{})".format(rn,sname,marks,gr))
            db.commit()
            ch=input("Want more records? Press (N/n) to stop entry:")
            if ch in 'Nn':
                print("Record Inserted")
                break
    except Exception as e:
        print("Error", e)
def update_rec():
    try:
        rn=int(input("Enter rollno to update:"))
        marks=float(input("Enter new marks:"))
        gr=input("Enter Grade:")
        cn.execute("update student set marks={},gr='{}' where rn={}".format(marks,gr,rn))
        db.commit()
        print("Record Updated.... ")
    except Exception as e:
        print("Error",e)
```

)

```

def delete_rec():
    try:
        rn=int(input("Enter rollno to delete:"))
        cn.execute("delete from student where rn={}".format(rn))
        db.commit()
        print("Record Deleted")
    except Exception as e:
        print("Error",e)

def view_rec():
    try:
        cn.execute("select * from student")
        records = cn.fetchall()
        for record in records:
            print(record)
            #db.commit()
            #print("Record...")
    except Exception as e:
        print("Error",e)

db = ms.connect( host="localhost",
                user="root",
                passwd="root",
                database="class_xii"
                )

cn = db.cursor()

while True:
    print("MENU\n1. Insert Record\n2. Update Record \n3. Delete Record\n4. Display Record \n5.Exit")
    ch=int(input("Enter your choice<1-4>="))
    if ch==1:
        insert_rec()
    elif ch==2:
        update_rec()
    elif ch==3:
        delete_rec()
    elif ch==4:
        view_rec()
    elif ch==5:
        break
    else:
        print("Wrong option selected")

```

OUTPUT:

MENU

1. Insert Record
2. Update Record
3. Delete Record
4. Display Record
- 5.Exit

Enter your choice<1-4>=1

Enter roll number:101

Enter name:Ramesh

Enter marks:85

Enter grade:A

Want more records? Press (N/n) to stop entry:n

Record Inserted

MENU

1. Insert Record
2. Update Record
3. Delete Record
4. Display Record
- 5.Exit

Enter your choice<1-4>=4

(101, 'Ramesh', 85.0, 'A')

MENU

1. Insert Record
2. Update Record
3. Delete Record
4. Display Record
- 5.Exit

Enter your choice<1-4>=2

Enter rollno to update:101

Enter new marks:58

Enter Grade:B

Record Updated....

MENU

1. Insert Record
2. Update Record
3. Delete Record
4. Display Record
- 5.Exit

Enter your choice<1-4>=4

(101, 'Ramesh', 58.0, 'B')

MENU

1. Insert Record
2. Update Record
3. Delete Record
4. Display Record
- 5.Exit

Enter your choice<1-4>=5