Practical File
Computer Science(083)
Class XII (2025–26)

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Signature
Roll Number:-

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PROGRAM 1

1. Write a program to check a number whether it is prime or not.

```
def is_prime(n):
    if n <= 1:
        return False
    if n <= 3:
        return True
    if n % 2 == 0 or n % 3 == 0:
        return False
    i = 5
    while i * i <= n:
        if n % i == 0 or n % (i + 2) == 0:
            return False
        i += 6
    return True

num = int(input("Enter a number: "))
print(f"{num} is {'prime' if is_prime(num) else '
  ↪ not prime'}")
```

Output:

```
Enter a number: 29
29 is prime
```

PROGRAM 2

2.Write a program to check whether it is plaindrome or not

```
def is_palindrome(s):
    return str(s) == str(s)[::-1]

val = input("Enter a number/string: ")
print(f"'{val}' is {'a palindrome' if
  ↪ is_palindrome(val) else 'not a palindrome'}"
  ↪ )
```

Output:

```
Enter a number/string: madam
'madam' is a palindrome
```

PROGRAM 3

3. Write a program to display ASCII code of a character and vice versa.

```
def ascii():
    c = input("Enter character: ")
    if len(c) == 1:
        print("ASCII ->", ord(c))
    else:
        print("Only 1 character allowed.")
def char():
    n = int(input("Enter ASCII code: "))
    if 0 <= n <= 127:
        print("Character",chr(n))
    else:
        print("Invalid ASCII code.")
ascii()
char()
```

Output:

```
Enter a character: Z
ASCII value: 90
Enter ASCII code (0-127): 97
Character: a
```

PROGRAM 4

4. Write a program using function that reads a line and prints its statistics like

number of uppercase: number of lowercase: number of digits :

```
def string_stats(text):
    return {
        'Uppercase': sum(1 for c in text if c.
          ↪ isupper()),
        'Lowercase': sum(1 for c in text if c.
          ↪ islower()),
        'Digits': sum(1 for c in text if c.
          ↪ isdigit())
    }
text = input("Enter a line of text: ")
stats = string_stats(text)
print("\nStatistics:")
for k, v in stats.items():
    print(f"{k}: {v}")
```

Output:

```
Enter character: p
ASCII -> 112
Enter ASCII code: 113
Character     q
```

PROGRAM 5

5. Write a program to compute GCD and LCM of two numbers.

```
def gcd(a, b):
    while b != 0:
        a, b = b, a % b
    return a
def lcm(a, b):
    return abs(a * b) // gcd(a, b)

num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))

g = gcd(num1, num2)
l = lcm(num1, num2)

print(f"GCD of {num1} and {num2} is: {g}")
print(f"LCM of {num1} and {num2} is: {l}")
```

Output:

```
Enter first number: 2
Enter second number: 3
GCD of 2 and 3 is: 1
LCM of 2 and 3 is: 6
```

PROGRAM 6

6. Write a program using the FACT() function to calculate the factorial of an integer.

```
def FACT(n):
    if n < 0:
        return "Factorial not defined for
          ↪ negative numbers."
    elif n == 0 or n == 1:
        return 1
    else:
        fact = 1
        for i in range(2, n + 1):
            fact *= i
        return fact
num = int(input("Enter an integer: "))
result = FACT(num)
print(f"The factorial of {num} is: {result}")
```

Output:

```
Enter a number: 5
Factorial of 5: 120
```

PROGRAM 7

7. Write a program to generate random numbers between 1 to 6 and check whether a user won a Lottery or not.

```
import random
def roll_dice():
    return random.randint(1, 6)
user_guess = int(input("Guess a number between 1 and 6: "))
lottery_number = roll_dice()
if user_guess == lottery_number:
    print("you won")
else:
    print(f"you loser. The winning number was {lottery_number}. Try again!")
```

Output:

```
Guess a number between 1 and 6: 2
Sorry, you lost. The winning number was 4. Try again!
```

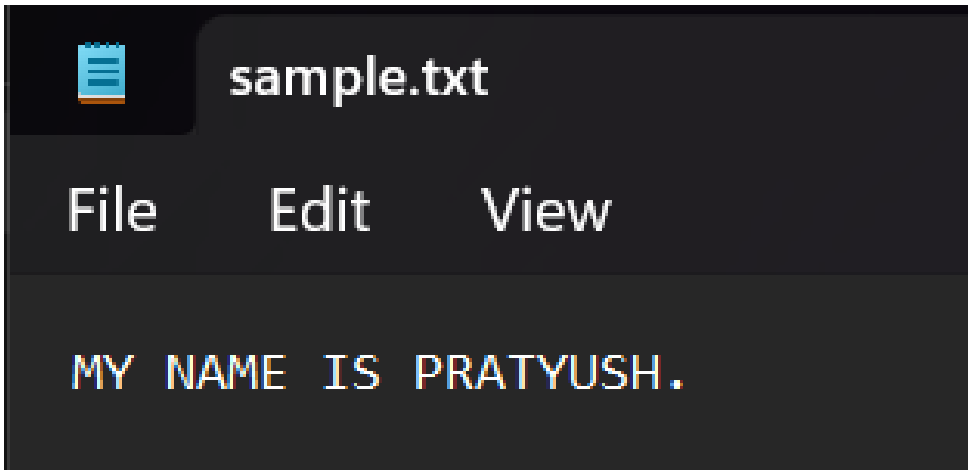
PROGRAM 8

8. Vowel Counter in Text File

```
def count_vowels(filename):
    vowels = 'aeiouAEIOU'
    with open(filename, 'r') as f:
        return sum(1 for char in f.read() if char
          ↪  in vowels)
with open('sample.txt', 'w') as f:
    f.write("MY NAME IS
    PRATYUSH.\n")
print("Vowel count:", count_vowels('sample.txt'))
```

Output:

```
Vowel count: 5
```



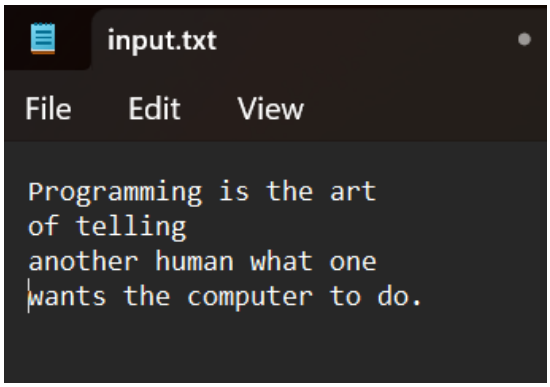
PROGRAM 9

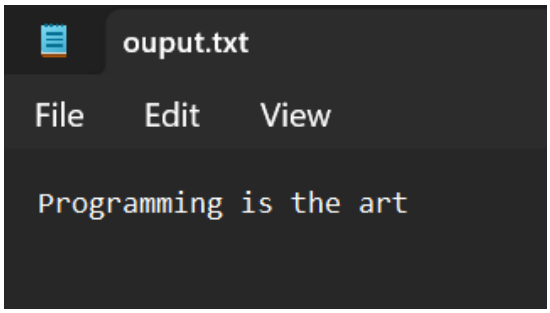
9. Filter lines containing 'p'

```
with open('input.txt', 'w') as f:
    f.write("This is a text with some p's.\n")
    f.write("Python is powerful.\n")
    f.write("This line does not contain the
      ↪ letter p.\n")
    f.write("Pineapple is a fruit.\n")
with open('input.txt', 'r') as infile, open('
  ↪ output.txt', 'w') as outfile:
    for line in infile:
        if 'p' in line.lower():
            outfile.write(line)

print("Lines with 'p' copied to output.txt")
```

Output:

```
Lines with 'p' copied to output.txt
```





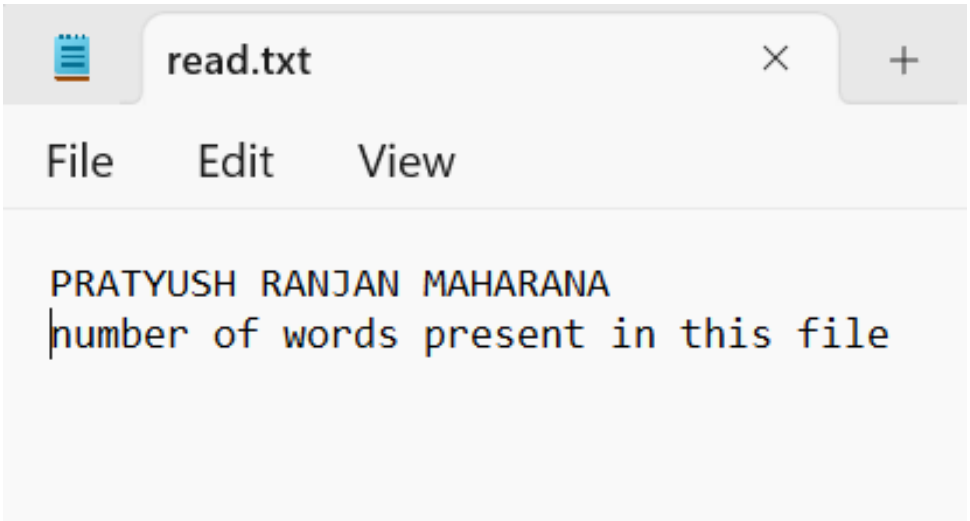
PROGRAM 10

10. Write a program to count number of words in text file.

```
with open('read.txt', 'w') as f:
    f.write("PRATYUSH RANJAN MAHARANA.\n")
    f.write("number of words present in this file
      ↪ \n")
def count_words(filename):
    with open(filename, 'r') as f:
        return len(f.read().split())
print("Total words:", count_words('read.txt'))
```

Output:

```
Total words: 10
```



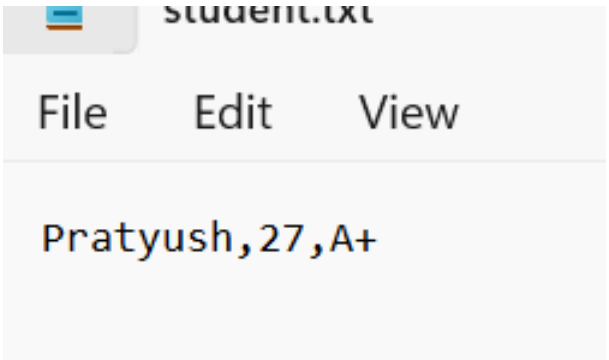
PROGRAM 11

11. Write a program to append one more record in the existing text file name as student.txt

```
def append_student_record():
    filename = "student.txt"
    print("Enter student details to append:")
    name = input("Name: ")
    roll_no = input("Roll Number: ")
    grade = input("Grade: ")
    with open(filename, 'a') as file:
        file.write(f"{name}, {roll_no}, {grade}\n
          ↪ ")
append_student_record()
```

Output:

```
Enter student details to append:
Name: pratyush
Roll Number: 27
Grade: A+
```



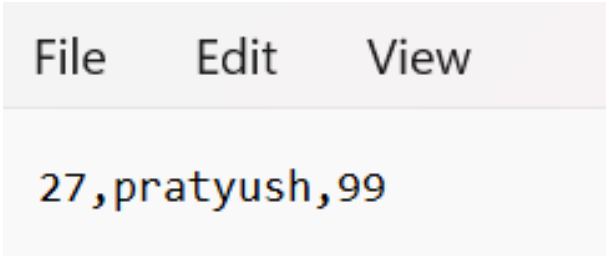
PROGRAM 12

12. Write a python program to write student data in binary file

```
def get_student_data():
  roll_no=int(input("enter roll number:"))
  name=input("enter name:")
  marks=int(input("enter marks:"))
  return f"{roll_no},{name},{marks}\n"
def write_to_binary_file(filename,student):
  with open(filename,"ab") as f:
    f.write(student.encode('utf-8'))
def main():
  filename="students.dat"
  while True:
    data=get_student_data()
    write_to_binary_file(filename,data)
    cont=input("add another record?(y/n):").lower
      ↪ ()
    if cont !='y':
      break
  print(f"data written to {filename}")
main()
```

Output:

```
enter roll number:27
enter name:pratyush
enter marks:99
add another record?(y/n):n
data written to students.dat
```


File Edit View
27,pratyush,99

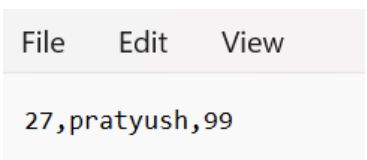
PROGRAM 13

13. Write a python program to read student data from a binary file.

```
def read_from_binary_file(filename):
  try:
      with open(filename, "rb") as f:
          data = f.read().decode('utf-8')
          if not data:
              print("No data found in the file.")
              return
          print("Roll No | Name | Marks")
          for line in data.strip().split("\n"):
              roll_no, name, marks = line.split(
                ↪ ",")
              print(f"{roll_no} , {name} , {marks
                ↪ }")
  except FileNotFoundError:
      print(f"The file {filename} does not exist.
        ↪ ")
def main():
    filename = "students.dat"
    read_from_binary_file(filename)
main()
```

Output:

```
27 , pratyush , 99
```



PROGRAM 14

14. Write a python program to modify/update student data in a binary file.

```
import pickle
try:
    with open('students.dat', 'rb') as f:
        data = pickle.load(f)
except:
    data = []
print("\nBefore:", *data, sep="\n")
roll = int(input("\nRoll to update: "))
for s in data:
    if s['roll'] == roll:
        s['name'] = input("New name: ")
        s['marks'] = int(input("New marks: "))
        break
else:
    print("Not found."); exit()
with open('students.dat', 'wb') as f:
    pickle.dump(data, f)
print("\nAfter:", *data, sep="\n")
```

Output:

```
 Student Data Before Update
{'roll': 1, 'name': 'pratyush', 'marks': 99}
{'roll': 2, 'name': 'paaji', 'marks': 0}
{'roll': 3, 'name': 'rahul', 'marks': 79}
Enter roll number to update: 2
Enter new name: rohan
Enter new marks: 99
Student Data After Update
```

```
{'roll': 1, 'name': 'pratyush', 'marks': 99}
{'roll': 2, 'name': 'rohan', 'marks': 99}
{'roll': 3, 'name': 'rahul', 'marks': 79}
```

File Edit View

```
'roll': 1, 'name': 'Pratyush', 'marks': 99
'roll': 2, 'name': 'Rohan', 'marks': 99
'roll': 3, 'name': 'Rahul', 'marks': 79
```

PROGRAM 15

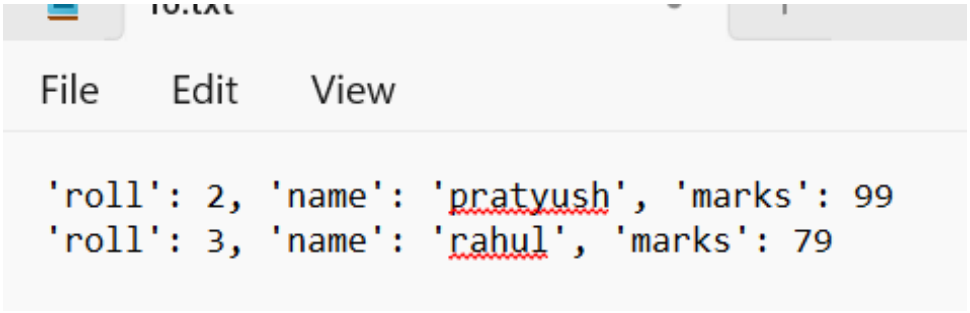
15. Write a python program to delete student data from a binary file.

```
import pickle
try:
    with open('students.dat', 'rb') as f:
        data = pickle.load(f)
except:
    data = []
print("\nBefore:", *data, sep="\n")
roll = int(input("\nRoll to delete: "))
deleted = [s for s in data if s['roll'] == roll]
if deleted:
    data = [s for s in data if s['roll'] != roll]
    with open('students.dat', 'wb') as f:
        pickle.dump(data, f)
    print(f"\nDeleted: {deleted[0]}")
else:
    print("\nNot found.")
print("\nAfter:", *data, sep="\n")
```

Output:

```

Before:
{'roll': 1, 'name': 'ok', 'marks': 2}
{'roll': 2, 'name': 'pratyush', 'marks': 99}
{'roll': 3, 'name': 'rahul', 'marks': 79}
Roll to delete: 1
Deleted: {'roll': 1, 'name': 'ok', 'marks': 2}

After:
```

```
{'roll': 2, 'name': 'pratyush', 'marks': 99}
{'roll': 3, 'name': 'rahul', 'marks': 79}
```



PROGRAM 16

16. Write a python program to search a student record in a binary file.

```
import pickle
try:
    with open('students.dat', 'rb') as f:
        students = pickle.load(f)
except:
    students = []
roll = int(input("Enter Roll Number to Search: ")
  ↪ )
record = next((s for s in students if s['roll']
  ↪ == roll), None)

if record:
    print("\nStudent Found:")
    print(f"Roll: {record['roll']}\nName: {record
      ↪ ['name'].title()}\nMarks: {record['marks
      ↪ ']}")
else:
    print("\nNo student found with that roll
      ↪ number.")
```

Output:

```
Enter Roll Number to Search: 2
Student Found:
Roll: 2
Name: Pratyush
Marks: 99
```

PROGRAM 17

17. Create a binary file with name and roll number.Search for a given roll number and display the name,if not found display appropriate message.

```
import pickle
def file(filename):
    with open(filename, 'wb') as f:
        n = int(input("Enter number of students: "))
        for _ in range(n):
            name = input("Enter name: ")
            roll = int(input("Enter roll number: "))
            data = {'name': name, 'roll': roll}
            pickle.dump(data, f)
    print("File created successfully.\n")
def search_roll(filename, roll_to_search):
    found = False
    try:
        with open(filename, 'rb') as f:
            while True:
                try:
                    data = pickle.load(f)
                    if data['roll'] == roll_to_search:
                        print(f"Roll Number: {roll_to_search}, Name: {data['name']} ")
                        found = True
```

```
                            break
                    except EOFError:
                        break
            if not found:
                print("Roll number not found.")
        except FileNotFoundError:
            print("File does not exist.")

filename = "students.dat"
file(filename)
roll = int(input("Enter roll number to search: ")
  ↪ )
search_roll(filename, roll)
```

Output:

```
Enter number of students: 1
Enter name: pratyush
Enter roll number: 27
File created successfully.
Enter roll number to search: 27
Roll Number: 27, Name: pratyush
#if rollno doesn't exist in file then:-
Enter roll number to search: 1
Roll number not found.
```

PROGRAM 18

18. Create a binary file with roll number,name,and marks. Input a roll number and update the marks

```
import pickle

def create_file(fname):
    with open(fname, 'wb') as f:
        for _ in range(int(input("Number of students: "))):
            data = {'roll': int(input("Roll: ")), 'name': input("Name: "), 'marks': float(input("Marks: "))}
            pickle.dump(data, f)
def update_marks(fname, roll):
    students, found = [], False
    with open(fname, 'rb') as f:
        try:
            while True: students.append(pickle.load(f))
        except EOFError: pass
    for s in students:
        if s['roll'] == roll:
            s['marks'] = float(input(f"Current marks: {s['marks']}. Enter new marks: "))
            found = True
            break
    if found:
        with open(fname, 'wb') as f:
            for s in students: pickle.dump(s, f)
        print("Marks updated successfully.")
```

```
    else:
        print("Roll number not found.")
file = 'students.dat'
create_file(file)
update_marks(file, int(input("Enter roll to
  ↪ update marks: ")))
```

Output:

```
Number of students: 1
Roll: 27
Name: pratyush
Marks: 99
Enter roll to update marks: 2
Roll number not found.
```

PROGRAM 19

19. Write a program to perform read and write operation with csv.file

```
import csv
def write():
  file_name="meow.csv"
  data=[
      ["roll","name","marks"],  #data is written
        ↪ to meow.csv
      [1 ,'pratyush', 99],
      [2 ,'rohan', 98],
      [3 ,'piyush', 97],
  ]
  with open(file_name,mode='w',newline='') as f:
    writer=csv.writer(f)
    writer.writerows(data)
  print("data is written to",file_name)

def read():
    file_name='meow.csv'
    print("\nReading data from",file_name)
    with open(file_name,mode='r') as f:
      reader=csv.reader(f)
      for row in reader:
        print(row)
write()
read()
```

Output:

```
data is written to meow.csv

```

```
Reading data from meow.csv
['roll', 'name', 'marks']
['1', 'pratyush', '99']
['2', 'rohan', '98']
['3', 'piyush', '97']
```

PROGRAM 20

20. Create a CSV file by entering user-id and password, read and search the password for given userid.

```
def create_csv():
    if not os.path.exists(CSV):
        with open(CSV,"w",newline="") as f:
            writer = csv.DictWriter(f,fieldnames
              ↪ =["userid","password"])
            writer.writeheader()
def add_users():
    while True:
        uid = input("Enter numeric userid (leave
          ↪ empty to stop): ").strip()
        if uid == "": break
        pwd = input("Enter password: ").strip()
        with open(CSV,"a",newline="") as f:
            writer = csv.DictWriter(f,fieldnames
              ↪ =["userid","password"])
              ↪                writer.writerow({"
              ↪ userid":uid,"password":pwd})
def show_all():
    if os.path.exists(CSV):
        print("\nCurrent users:")
        with open(CSV,newline="") as f:
            for r in csv.DictReader(f):
                print(r["userid"], r["password"])
def find_password(uid):
    uid = str(uid).strip()
    if os.path.exists(CSV):
        with open(CSV,newline="") as f:
            for r in csv.DictReader(f):
```

```
                if r["userid"].strip() == uid:
                    return r["password"]
    return None
create_csv()
add_users()
show_all()
search = input("\nEnter numeric userid to search.
").strip()
print("Password:", pw if pw else "Not found")
```

output

```
Enter numeric userid (leave empty to stop): 101
Enter password: pass101
Enter numeric userid (leave empty to stop):
Current users:
prm123
prm456
rohl789
101 pass101
```

PROGRAM 21

21.Write a program to pass an integer list as stack to a function and push only those elements in the stack which are divisible by 7.

```
def gamma(numbers):
  stack=[]
  for num in numbers:
    if num%7==0:
      stack.append(num)
  return stack
nums=[1,2,3,4,5,6,7,8,9]
result=gamma(nums)
print("stack with elements divisible by 7 are",
  ↪ result)
```

output

```
stack with elements divisible by 7 are [7]
```

PROGRAM 22

22.Write a menu-based program to perform the operation on stack in python.

```
stack = []
while True:
    print("\n1.Push  2.Pop  3.Display 4.Peek 5.
      ↪ Exit")
    ch = input("Enter choice: ")
    if ch == '1':
        stack.append(input("Enter element: "))
    elif ch == '2':
        print("Popped:", stack.pop() if stack
          ↪ else "Stack Empty")
    elif ch == '3':
        print("Stack:", stack if stack else "
          ↪ Empty")
    elif ch == '4':
        if not stack:
          print("stack is empty")
        else:
          print(f"top element:{stack[-1]}")
    elif ch ==5:
      break
    else:
        print("Invalid choice!")
```

output

```
1.Push  2.Pop  3.Display 4.Peek 5.Exit
Enter choice: 1
Enter element: 10 12

```

```
1.Push  2.Pop  3.Display 4.Peek 5.Exit
Enter choice: 2
Popped: 10 12

1.Push  2.Pop  3.Display 4.Peek 5.Exit
Enter choice: 3
Stack: Empty

1.Push  2.Pop  3.Display 4.Peek 5.Exit
Enter choice: 1
Enter element: 11

1.Push  2.Pop  3.Display 4.Peek 5.Exit
Enter choice: 4
top element:11

1.Push  2.Pop  3.Display 4.Peek 5.Exit
Enter choice: 5
```

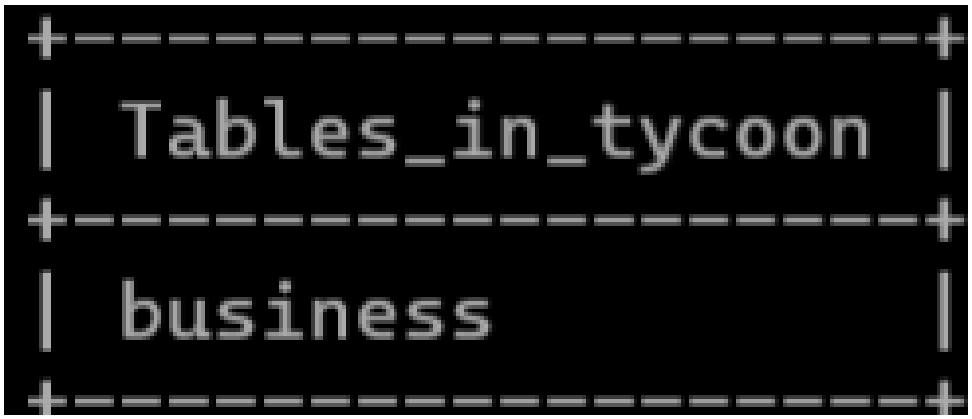
PROGRAM 23

23. Queries using Create database, Show databases, USE, Create table, drop table, Show table, Describe, Rename, Alter, Select, From, Where, Insert, Update commands:-

```
>> Create database: CREATE DATABASE TYCOON;
>> Show databases: SHOW DATABASES;
```

```
mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| community          |
| company            |
| gpt                |
| information_schema |
| llm                |
| mysql              |
| performance_schema |
| sakila             |
| sys                |
| tycoon             |
| world              |
+--------------------+
11 rows in set (0.00 sec)
```

```
>>Use: USE TYCOON
>> CREATE TABLE:
 CREATE TABLE BUSINESS(
 ID INT PRIMARY KEY,
 NAME VARCHAR(30),
 MONEY DECIMAL(15,2),
 FIELD VARCHAR(50));

>>Show Tables: SHOW TABLES;
```



```
Describe: DESC BUSINESS;
```

Field	Type	Null	Key	Default	Extra
ID	int	NO	PRI	NULL	
name	varchar(30)	YES		NULL	
money	decimal(15,2)	YES		NULL	
field	varchar(50)	YES		NULL	

```
>>Insert: INSERT INTO BUSINESS VALUES(002,'PIYUSH
  ↪ ',
100000000 ,'ML');

>>Update: UPDATE BUSINESS SET MONEY=0 WHERE ID
  ↪ =1;

>>Rename: RENAME TABLE BUSINESS TO ELONMUSK;

>>Alter: ALTER TABLE ELONMUSK ADD COUNTRY VARCHAR
  ↪ (30);

>>Select from: SELECT*FROM ELONMUSK;
```

```
mysql> INSERT INTO business VALUES(002,'piyush',100000000,'ML');
Query OK, 1 row affected (0.01 sec)

mysql> select*from business;
+----+----------+--------------+-------+
| ID | name     | money        | field |
+----+----------+--------------+-------+
|  1 | pratyush |  10000000.00 | AI    |
|  2 | piyush   | 100000000.00 | ML    |
+----+----------+--------------+-------+
2 rows in set (0.00 sec)
```

```
Where: SELECT* FROM BUSINESS WHERE FIELD='AI';
```

```
mysql> select * from business where field='AI';
+----+----------+-------------+-------+
| ID | name     | money       | field |
+----+----------+-------------+-------+
|  1 | pratyush | 10000000.00 | AI    |
+----+----------+-------------+-------+
1 row in set (0.00 sec)
```

```
>>Drop column: DROP COLUMN COUNTRY;
```

```
mysql> alter table elonmusk drop column country ;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select*from elonmusk;
+----+----------+--------------+-------+
| ID | name     | money        | field |
+----+----------+--------------+-------+
|  1 | pratyush |         0.00 | AI    |
|  2 | piyush   | 100000000.00 | ML    |
+----+----------+--------------+-------+
2 rows in set (0.00 sec)
```

```
>>Drop table: DROP TABLE ELONMUSK;
```

```
mysql> drop table elonmusk;
Query OK, 0 rows affected (0.01 sec)

mysql> select*from elonmusk;
ERROR 1146 (42S02): Table 'tycoon.elonmusk' doesn't exist
```

PROGRAM 24

24. Queries using DISTINCT, BETWEEN, IN, LIKE, IS NULL, ORDER BY, HAVING:-

```
>>Distinct: SELECT DISTINCT FIELD FROM ELONMUSK;
```

```
mysql> select distinct field from elonmusk;
+-------+
| field |
+-------+
| ML    |
| AI    |
+-------+
2 rows in set (0.00 sec)
```

```
>>Between: SELECT NAME, MONEY FROM ELONMUSK WHERE
  ↪  MONEY BETWEEN 90000 AND 200000000;
```

```
mysql> select name, money
    -> from elonmusk
    -> where money between 900000 and 200000000;
+----------+--------------+
| name     | money        |
+----------+--------------+
| pratyush |    999999.00 |
| piyush   | 100000000.00 |
+----------+--------------+
2 rows in set (0.00 sec)
```

```
>>IN: SELECT NAME,FIELD,FROM ELONMUSK WHERE FIELD
  ↪  IN('AI','ML');
```

```
mysql> select name,field
    -> from elonmusk
    -> where field in('AI','ML');
+----------+-------+
| name     | field |
+----------+-------+
| pratyush | ML    |
| piyush   | AI    |
+----------+-------+
2 rows in set (0.00 sec)
```

```
>>Like: SELECT*FROM ELONMSUK WHERE NAME LIKE'p%';
```

```
mysql> select*from elonmusk where name like 'p%';
+----+----------+-------------+-------+
| ID | name     | money       | field |
+----+----------+-------------+-------+
|  1 | pratyush |    999999.00 | ML    |
|  2 | piyush   | 100000000.00 | AI    |
+----+----------+-------------+-------+
2 rows in set (0.00 sec)
```

```
>>IS NULL: SELECT*FROM ELONMUSK WHERE FIELD IS
  ↪ NULL;
```

```
mysql> select*from elonmusk where field is null;
Empty set (0.00 sec)
```

```
>>Order by:SELECT*FROM ELONMUSK ORDER BY MONEY
  ↪ DESC;
```

```
mysql> select*from elonmusk
    -> order by money desc;
+----+----------+--------------+-------+
| ID | name     | money        | field |
+----+----------+--------------+-------+
|  2 | piyush   | 100000000.00 | AI    |
|  1 | pratyush |    999999.00 | ML    |
+----+----------+--------------+-------+
2 rows in set (0.00 sec)
```

```
>>Group by: SELECT FIELD, COUNT(x) AS
  ↪ TOTAL_PEOPLE FROM ELONMUSK GROUP BY FIELD;
```

```
mysql> select field, count(*) as total_people
    -> from elonmusk
    -> group by field;
+-------+--------------+
| field | total_people |
+-------+--------------+
| ML    |            1 |
| AI    |            1 |
+-------+--------------+
2 rows in set (0.00 sec)
```

```
>>HAVING: SELECT FIELD,AVG(MONEY) AS AVG_MONEY
  ↪ FROM ELONMUSK GROUP BY FIELD HAVING AVG(
  ↪ MONEY)>1000000;
```

```
mysql> select field ,avg(money) as avg_money
    -> from elonmusk
    -> group by field
    -> having avg(money)>1000000;
+-------+------------------+
| field | avg_money        |
+-------+------------------+
| AI    | 100000000.000000 |
+-------+------------------+
1 row in set (0.00 sec)
```

PROGRAM 25

25. Queries for aggregate functions:-SUM(),AVG(),MIN(), MAX(),COUNT()

```
>>Sum(): SELECT SUM(MONEY) AS TOTAL_MONEY FROM
  ↪ ELONMUSK;
```

```
mysql> select sum(money) as total_money
    -> from elonmusk;
+--------------+
| total_money  |
+--------------+
| 100999999.00 |
+--------------+
1 row in set (0.00 sec)
```

```
>>AVG(): SELECT AVG(MONEY) AS AVERAGE_MONEY FROM
  ↪ ELONMUSK;
```

```
mysql> select avg(money) as average_money
    -> from elonmusk;
+-----------------+
| average_money   |
+-----------------+
| 50499999.500000 |
+-----------------+
1 row in set (0.00 sec)
```

```
>>MIN(): SELECT MIN(MONEY) AS MIN_MONEY FROM
  ↪ ELONMUSK;
```

```
mysql> select min(money) as min_money
    -> from elonmusk;
+-----------+
| min_money |
+-----------+
| 999999.00 |
+-----------+
1 row in set (0.00 sec)
```

```
>>MAX(): SELECT MAX(MONEY) AS MAX_MONEY FROM
  ↪ ELONMUSK;
```

```
mysql> select max(money) as max_money
    -> from elonmusk;
+--------------+
| max_money    |
+--------------+
| 100000000.00 |
+--------------+
1 row in set (0.00 sec)
```

```
>>COUNT(): SELECT COUNT(X) AS TOTAL_RECORDS FROM
  ↪ ELONMUSK;
```

```
mysql> select count(*) as total_records
    -> from elonmusk;
+---------------+
| total_records |
+---------------+
|             2 |
+---------------+
1 row in set (0.00 sec)
```

PROGRAM 26

26. Write a program to connect python with MySQL using database connectivity and perform the following operation on data in database: Create a table in database:-

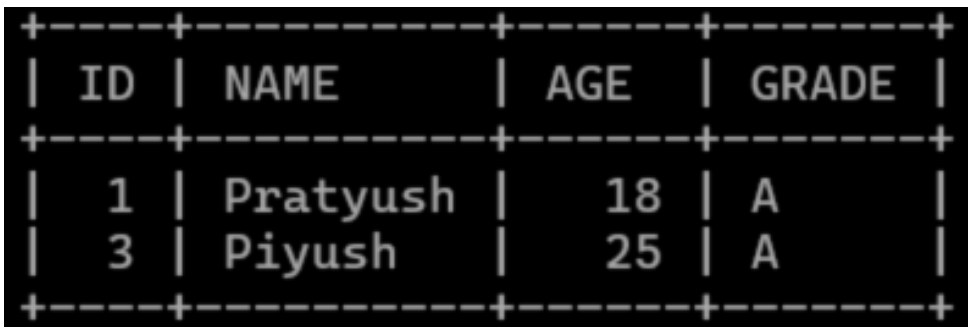
```
import mysql.connector as sql
con=sql.connect(host="localhost",user="root",
  ↪ password="root",database="APPLE1")
cursor=con.cursor()
cursor.execute('''CREATE TABLE IF NOT EXISTS
  ↪ students(
  ID INT AUTO_INCREMENT PRIMARY KEY,
  NAME VARCHAR(50),
  AGE INT,
  GRADE VARCHAR(60)
)
''')
con.commit()
```

```
+-------+-------------+------+-----+---------+----------------+
| Field | Type        | Null | Key | Default | Extra          |
+-------+-------------+------+-----+---------+----------------+
| ID    | int         | NO   | PRI | NULL    | auto_increment |
| NAME  | varchar(50) | YES  |     | NULL    |                |
| AGE   | int         | YES  |     | NULL    |                |
| GRADE | varchar(60) | YES  |     | NULL    |                |
+-------+-------------+------+-----+---------+----------------+
```

PROGRAM 27

27. Write a program to connect python with MySQL using database connectivity and perform the following operation on data in database: Insert record in the table:-

```
import mysql.connector as sql
con=sql.connect(host="localhost",user="root",
  ↪ password="root",database="APPLE1")
cursor=con.cursor()
cursor.execute('''CREATE TABLE IF NOT EXISTS
  ↪ students(
  ID INT AUTO_INCREMENT PRIMARY KEY,
  NAME VARCHAR(50),
  AGE INT,
  GRADE VARCHAR(60)
)
''')
cursor.execute("INSERT INTO students (name, age,
  ↪ grade) VALUES ('Pratyush', 17, 'A')")
cursor.execute("INSERT INTO students (name, age,
  ↪ grade) VALUES ('Piyush', 25, 'A')")
con.commit()
```



ID	NAME	AGE	GRADE
1	Pratyush	18	A
3	Piyush	25	A

PROGRAM 28

28. Write a program to connect python with MySQL using database connectivity and perform the following operation on data in database: Fetch records from the table using fetchone(), fetchmany() and fetchall():-

```
1  cursor.execute("SELECT*FROM students")
2  rows=cursor.fetchone()
3  for row in rows:
4  |  print(row)
```

```
1
Pratyush
17
A
```

Figure 1: Fetchone()

```
1  cursor.execute("SELECT*FROM students")
2  rows=cursor.fetchmany(1)
3  for row in rows:
4  |  print(row)
```

```
(1, 'Pratyush', 17, 'A')
```

Figure 2: Fetchmany(size)

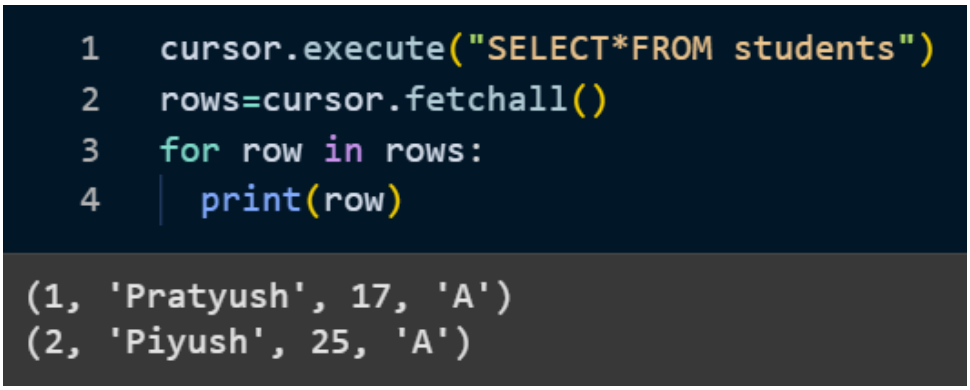


Figure 3: Fetchall()

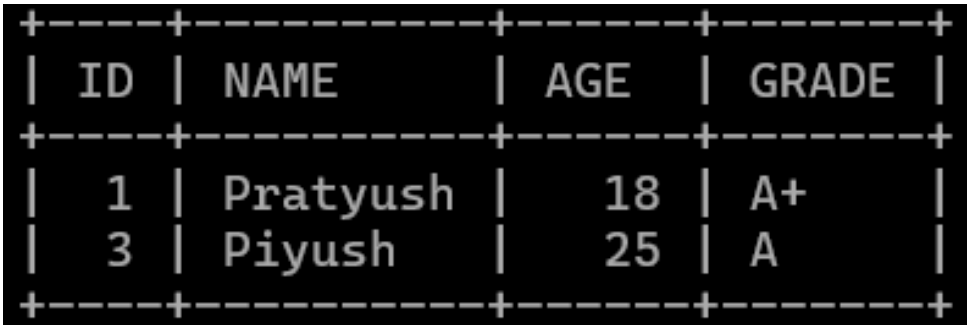
PROGRAM 29

29. Write a program to connect python with MySQL using database connectivity and perform the following operations on data in database: Update record in table :-

```
import mysql.connector as sql

con = sql.connect(
    host="localhost",
    user="root",
    password="root",
    database="APPLE1"
)
cursor = con.cursor()
name_to_update = 'Pratyush'
new_age = 18
new_grade = 'A+'

cursor.execute("UPDATE students SET AGE = %s,
  ↪ GRADE = %s WHERE NAME = %s", (new_age,
  ↪ new_grade, name_to_update))
con.commit()

print(cursor.rowcount, "The record was updated
  ↪ successfully .")
```

Output:

```
The record was updated successfully.
```



ID	NAME	AGE	GRADE
1	Pratyush	18	A+
3	Piyush	25	A

Figure 4: updating record in the table

PROGRAM 30

30. Write a program to connect Python with MySQL using database connectivity and perform the following operation on data in database:- Delete record from the table

```
import mysql.connector as sql
con = sql.connect(
    host="localhost",
    user="root",
    password="root",
    database="APPLE1"
)
cursor = con.cursor()
name_to_delete = 'Piyush'
cursor.execute("DELETE FROM students WHERE NAME =
  ↪  %s", (name_to_delete,))
con.commit()

print(cursor.rowcount, "record(s) deleted
  ↪ successfully.")
```

Output:

```
1 record(s) deleted successfully.
```

ID	NAME	AGE	GRADE
1	Pratyush	18	A+