Nirmala College, Muvattupuzha

Database Programming

Aim : Create a table called tbl_student with fields roll number, name, age, course, grade and total mark, with roll number as primary key and perform the following.

Date: 14/11/2023

Program No..1

1. Create the table using pymysql.

Program
```
import pymysql
db=pymysql.connect(host="127.0.0.1",user="root",password="1",database="college")
cursor=db.cursor()
try:
    sql="create table tbl_student(rno integer primary key,sname varchar(20),age
integer,course varchar(20),grade varchar(20),totalmark integer)"
    cursor.execute(sql)
except Exception as e:
    print("Table Creation Failed",e)
else:
    print("Table Created Successfully")
    db.commit()
db.close()
```

Output
```
>>
Table Created Successfully
```

```
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| rno       | int(11)     | NO   | PRI | NULL    |       |
| sname     | varchar(20) | YES  |     | NULL    |       |
| age       | int(11)     | YES  |     | NULL    |       |
| course    | varchar(20) | YES  |     | NULL    |       |
| grade     | varchar(20) | YES  |     | NULL    |       |
| totalmark | int(11)     | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
```

2. Insert values into the table.

Program
```
import pymysql
db=pymysql.connect(host="127.0.0.1",user="root",password="1",database="college")
cursor=db.cursor()
n=int(input("Enter The Limit "))
for i in range(1,n+1):
    rno=int(input("Enter The Roll Number : "))
    sname=input("Enter The Name        : ")
    sage=int(input("Enter The Age        : "))
```

```
        scourse=input("Enter The Course        : ")
        sgrade=input("Enter The Grade          : ")
        stotalmark=int(input("Enter The Total Mark : "))
        try:
            sql="insert into
tbl_student(rno,sname,age,course,grade,totalmark)values(%s,%s,%s,%s,%s,%s)"
            val=(rno,sname,sage,scourse,sgrade,stotalmark)
            cursor.execute(sql,val)
        except Exception as e:
            print("Insertion Failed ",e)
        else:
            print("Data Inserted Successfully")
        db.commit()
    db.close()
```

Output

```
>>
Enter The Limit 5
Enter The Roll Number : 101
Enter The Name          : Anu
Enter The Age           22
Enter The Course        : MCA
Enter The Grade         : A
Enter The Total Mark : 92
Data Inserted Successfully
Enter The Roll Number   102
Enter The Name          : Beena
Enter The Age           18
Enter The Course        : BCA
Enter The Grade         : A
Enter The Total Mark : 95
Data Inserted Successfully
Enter The Roll Number   103
Enter The Name          : Deena
Enter The Age           22
Enter The Course        : MCA
Enter The Grade         : C
Enter The Total Mark : 67
Data Inserted Successfully
Enter The Roll Number   104
Enter The Name          : Dona
Enter The Age           20
Enter The Course        : Bcom
Enter The Grade         : C
Enter The Total Mark : 70
Data Inserted Successfully
```

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```
Enter The Roll Number    105
Enter The Name          : Keerthi
Enter The Age           22

Enter The Course        : MCA
Enter The Grade         : A
Enter The Total Mark : 97
Data Inserted Successfully
```

```
+-----+---------+-------+--------+-------+-----------+
| rno | sname   | age   | course | grade | totalmark |
+-----+---------+-------+--------+-------+-----------+
| 101 | Anu     |    22 | MCA    | A     |        92 |
| 102 | Beena   |    18 | BCA    | A     |        95 |
| 103 | Deena   |    22 | MCA    | C     |        67 |
| 104 | Dona    |    20 | Bcom   | C     |        70 |
| 105 | Keerthi |    22 | MCA    | A     |        97 |
+-----+---------+-------+--------+-------+-----------+
```

3. Update the table student total mark incremented by 10.

Program
```
import pymysql
db=pymysql.connect(host="127.0.0.1",user="root",password="1",database="college")
cursor=db.cursor()
try:
     sql="update tbl_student set totalmark= totalmark + 10"
     cursor.execute(sql)
except Exception as e:
     print("Updation Failed",e)
else:
     print("Updated Successfully")
db.commit()
db.close()
```
Output
```
>>
Updated Successfully
```

```
+-----+---------+-------+--------+-------+-----------+
| rno | sname   | age   | course | grade | totalmark |
+-----+---------+-------+--------+-------+-----------+
| 101 | Anu     |    22 | MCA    | A     |       102 |
| 102 | Beena   |    18 | BCA    | A     |       105 |
| 103 | Deena   |    22 | MCA    | C     |        77 |
| 104 | Dona    |    20 | Bcom   | C     |        80 |
| 105 | Keerthi |    22 | MCA    | A     |       107 |
+-----+---------+-------+--------+-------+-----------+
```

4. Find the students with highest mark and lowest mark.

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Program

```
import pymysql
db=pymysql.connect(host="127.0.0.1",user="root",password="1",database="college")
cursor=db.cursor()

try:
    sql="select * from tbl_student where totalmark=(select max(totalmark) from tbl_student)"
    sql1="select * from tbl_student where totalmark=(select min(totalmark) from tbl_student)"
    cursor.execute(sql)
    rows=cursor.fetchall()
    print("Highest Mark Student Details")
    print("{:<10} {:<10} {:<10} {:<10} {:<10} {:<10}".format('Roll No.','Name','Age','Course','Grade','TotalMark'))
    for row in rows:
        print("{:<10} {:<10} {:<10} {:<10} {:<10} {:<10}".format(row[0],row[1],row[2],row[3],row[4],row[5]))
    cursor.execute(sql1)
    rows=cursor.fetchall()
    print()
    print("Lowest Mark Student Details")
    print("{:<10} {:<10} {:<10} {:<10} {:<10} {:<10}".format('Roll No.','Name','Age','Course','Grade','TotalMark'))
    for row in rows:
        print("{:<10} {:<10} {:<10} {:<10} {:<10} {:<10}".format(row[0],row[1],row[2],row[3],row[4],row[5]))
except Exception as e:
    print("Selection Failed",e)
db.commit()
db.close()
```

Output

```
>>
Highest Mark Student Details
Roll No. Name      Age      Course   Grade   TotalMark
105      Keerthi   22       MCA      A       107


Lowest Mark Student Details
Roll No. Name      Age      Course   Grade   TotalMark
104      Dona      20       Bcom     C       80
```

5. Find the „MCA" students whose grade is „A".

Program
```
import pymysql
db=pymysql.connect(host="127.0.0.1",user="root",password="1",database="college")
cursor=db.cursor()
try:
    sql="select * from tbl_student where course='MCA' and grade='A'"
    cursor.execute(sql)
    rows=cursor.fetchall()
    print("{:<10} {:<10} {:<10} {:<10} {:<10} {:<10}".format('Roll
No.','Name','Age','Course','Grade','TotalMark'))
    for row in rows:
        print("{:<10} {:<10} {:<10} {:<10} {:<10}
{:<10}".format(row[0],row[1],row[2],row[3],row[4],row[5]))
except Exception as e:
    print("Selection Failed",e)
db.commit()
db.close()
```

Output
```
>>
Roll No.   Name      Age        Course    Grade     TotalMark
101        Anu       22         MCA       A         102
105        Keerthi   22         MCA       A         107
```

6. Delete the students whose grade is „C" and course is „MCA".

Program
```
import pymysql
db=pymysql.connect(host="127.0.0.1",user="root",password="1",database="college")
cursor=db.cursor()
try:
    sql="delete from tbl_student where course='MCA' and grade='C'"
    cursor.execute(sql)
except Exception as e:
    print("Deletion Failed",e)
else:
  print("Delete Successfully")
db.commit()
db.close()
```
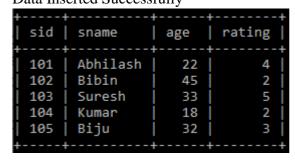
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Output

\>>

```
+------+----------+------+---------+-------+-----------+
| rno  | sname    | age  | course  | grade | totalmark |
+------+----------+------+---------+-------+-----------+
| 101  | Anu      |   22 | MCA     | A     |       102 |
| 102  | Beena    |   18 | BCA     | A     |       105 |
| 103  | Deena    |   22 | MCA     | C     |        77 |
| 104  | Dona     |   20 | Bcom    | C     |        80 |
| 105  | Keerthi  |   22 | MCA     | A     |       107 |
+------+----------+------+---------+-------+-----------+
```

Delete Successfully

```
+------+----------+------+---------+-------+-----------+
| rno  | sname    | age  | course  | grade | totalmark |
+------+----------+------+---------+-------+-----------+
| 101  | Anu      |   22 | MCA     | A     |       102 |
| 102  | Beena    |   18 | BCA     | A     |       105 |
| 104  | Dona     |   20 | Bcom    | C     |        80 |
| 105  | Keerthi  |   22 | MCA     | A     |       107 |
+------+----------+------+---------+-------+-----------+
```

Aim : Python program to implement sailor database.

Date: 14/11/2023

Program No.2

1. Insert values into the table after creating it.

   Program
   ```python
   import pymysql
   db=pymysql.connect(host='127.0.0.1',user='root',password='1',database='college')
   cursor=db.cursor()
   try:
       sql="create table tbl_sailor(sid integer primary key,sname varchar(20),age
   integer,rating integer)"
       cursor.execute(sql)
   except Exception as e:
       print("Table Creation Failed ",e)
   else:
       print("tbl_sailor Table Created Successfully")
       print()
       db.commit()
   n=int(input("Enter The Limit "))
   for i in range(1,n+1):
       sid=int(input("Enter The Sailor Id : "))
       sname=input("Enter The Name          : ")
       sage=int(input("Enter The Age        : "))
       srating=int(input("Enter The Rating : "))
       try:
           sql="insert into tbl_sailor(sid,sname,age,rating)values(%s,%s,%s,%s)"
           val=(sid,sname,sage,srating)
           cursor.execute(sql,val)
       except Exception as e:
           print("Insertion Failed ",e)
       else:
           print("Data Inserted Successfully")
       db.commit()
   db.close()
   ```
   Output
   ```
   >>
   tbl_sailor Table Created Successfully

   Enter The Limit 5
   Enter The Sailor Id  : 101
   Enter The Name           : Abhilash
   Enter The Age            22
   Enter The Rating    4
   Data Inserted Successfully
   ```

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Enter The Sailor Id : 102
Enter The Name   : Bibin
Enter The Age   45
Enter The Rating   2
Data Inserted Successfully
Enter The Sailor Id   103
Enter The Name   : Suresh
Enter The Age   33
Enter The Rating   5
Data Inserted Successfully
Enter The Sailor Id   104
Enter The Name   : Kumar
Enter The Age   18
Enter The Rating   2
Data Inserted Successfully
Enter The Sailor Id   105
Enter The Name   : Biju
Enter The Age   32
Enter The Rating   3
Data Inserted Successfully

```
+-----+----------+------+--------+
| sid | sname    | age  | rating |
+-----+----------+------+--------+
| 101 | Abhilash |  22  |      4 |
| 102 | Bibin    |  45  |      2 |
| 103 | Suresh   |  33  |      5 |
| 104 | Kumar    |  18  |      2 |
| 105 | Biju     |  32  |      3 |
+-----+----------+------+--------+
```

2. Update the table sailor with rating incremented by 1.

Program
```
import pymysql
db=pymysql.connect(host="127.0.0.1",user="root",password="1",database="college")
cursor=db.cursor()
try:
    sql="update tbl_sailor set rating=rating+1"
    cursor.execute(sql)
except Exception as e:
    print("Updation Failed ",e)
else:
    print("Updtated Successfully")
    db.commit()
db.close()
```
Output
```
>>
Updtated Successfully
```

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```
+-----+----------+------+--------+
| sid | sname    | age  | rating |
+-----+----------+------+--------+
| 101 | Abhilash |   22 |      5 |
| 102 | Bibin    |   45 |      3 |
| 103 | Suresh   |   33 |      6 |
| 104 | Kumar    |   18 |      3 |
| 105 | Biju     |   32 |      4 |
+-----+----------+------+--------+
```

3. Delete sailors whose age is greater than 40.
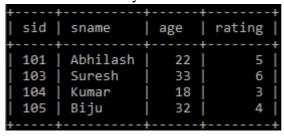
Program
```
import pymysql
db=pymysql.connect(host='127.0.0.1',user='root',password='1',database='college')
cursor=db.cursor()
try:
    sql="delete from tbl_sailor where age>40"
    cursor.execute(sql)
except Exception as e:
    print("Deletion Failed ",e)
else:
    print("Deleted Successfully")
    db.commit()
db.close()
```
Output
>>

```
+-----+----------+------+--------+
| sid | sname    | age  | rating |
+-----+----------+------+--------+
| 101 | Abhilash |   22 |      5 |
| 102 | Bibin    |   45 |      3 |
| 103 | Suresh   |   33 |      6 |
| 104 | Kumar    |   18 |      3 |
| 105 | Biju     |   32 |      4 |
+-----+----------+------+--------+
```

Deleted Successfully

```
+-----+----------+------+--------+
| sid | sname    | age  | rating |
+-----+----------+------+--------+
| 101 | Abhilash |   22 |      5 |
| 103 | Suresh   |   33 |      6 |
| 104 | Kumar    |   18 |      3 |
| 105 | Biju     |   32 |      4 |
+-----+----------+------+--------+
```

4. Find the details of all sailors.

Program
```
import pymysql
db=pymysql.connect(host='127.0.0.1',user='root',password='1',database='college')
```

```
cursor=db.cursor()
try:
   sql="select * from tbl_sailor"
   cursor.execute(sql)
   rows=cursor.fetchall()
   print("{:<8} {:<10} {:<10} {:<10}".format('ID','Name','Age','Rating'))
   for row in rows:
      print("{:<8} {:<10} {:<10} {:<10}".format(row[0],row[1],row[2],row[3]))
except Exception as e:
   print("Selection Failed ",e)
else:
   print("")
   db.commit()
db.close()
```

Output
```
>>
ID      Name      Age      Rating
101     Abhilash  22       5
102     Bibin     45       3
103     Suresh    33       6
104     Kumar     18       3
105     Biju      32       4
```

5. Find the sailor name with age greater than 20 and age less than 40.

Program
```
import pymysql
db=pymysql.connect(host='127.0.0.1',user='root',password='1',database='college')
cursor=db.cursor()
try:
   sql="select sname,age from tbl_sailor where age>20 and age<40"
   cursor.execute(sql)
   rows=cursor.fetchall()
   print("{:<10} {:<10}".format('Name','Age'))
   for row in rows:
      print("{:<10} {:<10}".format(row[0],row[1]))
except Exception as e:
   print("Selection Failed ",e)
else:
   print("")
   db.commit()
db.close()
```

Output
```
>>
Name      Age
Abhilash 22
```

Suresh   33
Biju   32

6. Find the name and rating of sailors with age greater than 40.

Program
```
import pymysql
db=pymysql.connect(host='127.0.0.1',user='root',password='1',database='college')
cursor=db.cursor()
try:
    sql="select sname,rating from tbl_sailor where age>40"
    cursor.execute(sql)
    rows=cursor.fetchall()
    print("{:<10} {:<10}".format('Name','Rating'))
    for row in rows:
        print("{:<10} {:<10}".format(row[0],row[1]))
except Exception as e:
    print("Selection Failed ",e)
else:
    print("")
    db.commit()
db.close()
```
Output
```
>>
Name      Rating
Bibin      3
```