D. GOENKA SCHOOL

PRACTICAL PRACTICE PAPER

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Question 1}

Write a program to create a Stack of Student records contains Roll, Name and Percentage mark. Perform the following:

a) Display the details of Second Topper Student
b) Insert a new Record to a Stack
c) Remove the student details scored less than 90% and display Stack

Ans:

```
def unique(k):
    for a in k:
        if k.count(a)>1:
            k.remove(a)
    return k
def isEmpty(stack):
    if stack==[]:
        return True
    else:
        return False
def Insert(stack):
    while True:
        roll = int(input("\nEnter Roll No: "))
        name = input("Enter Name: ")
        marks = int(input("Enter Marks: "))
        student = [roll, name, marks]
        stack.append(student)
        choice=int(input("\n....Enter choice:....\nInsert Again --> 1\nExit -->
2\nEnter Your Choice(1 or 2):"))
        if choice == 1:
            continue
        elif choice == 2:
            break
        else:
            print("Invalid Input")
            break
        top=len(stack) - 1
def display(stack,rank):
    if isEmpty(stack):
        print("Stack Empty")
    else:
        top = len(stack) - 1
        m=[]
```

```
        for a in range(top,-1,-1):
            s=stack[a]
            p=s[2]
            m.append(p)
        m=unique(m)
        m.sort()
        per=(len(m)-rank)
        for a in range(top,-1,-1):
            s=stack[a]
            if s[2] == m[per]:
                print(s)
def pop(stack,percent):
    if isEmpty(stack):
        print("Empty Stack")
    else:
        top = len(stack) - 1
        m=[]
        for a in range(top,-1,-1):
            s=stack[a]
            if s[2] < percent:
                x=stack.pop(a)
                print("Popped item--> ",x)
        print("\nThe Required Stack is:\n ",stack)


#__main__
stack = []
top= None
while True:
    c=int(input("....Operation Menu....\nInsert Record --> 1\nView Student Details -->
2\nRemove record by Minimum Percentage -->3\nExit-->4\nEnter Your Choice(1/2/3/4):"))
    if c == 1:
        Insert(stack)
    elif c == 2:
        rank= int(input("Enter Rank Of student to view"))
        display(stack,rank)
    elif c == 3:
        percent= int(input("Enter Minimum Percent: "))
        pop(stack,percent)
    elif c == 4:
        break
    else:
        print("Invalid Input")
```

Output

```
....Operation Menu....
Insert Record --> 1
View Student Details --> 2
Remove record by Minimum Percentage -->3
Exit-->4
1

Enter Roll No: 1
Enter Name: aaaa
Enter Marks: 89

....Enter choice:....
Insert Again --> 1
Exit --> 2
1

Enter Roll No: 2
Insert Again --> 1
Exit --> 2
Enter Your Choice(1 or 2):2
....Operation Menu....
Insert Record --> 1
View Student Details --> 2
Remove record by Minimum Percentage -->3
Exit-->4
Enter Your Choice(1/2/3/4):2
Enter Rank Of student to view2
[2, 'Bbbb', 91]
....Operation Menu....
Insert Record --> 1
View Student Details --> 2
Remove record by Minimum Percentage -->3
Exit-->4
Enter Your Choice(1/2/3/4):3
Enter Minimum Percent: 90
Popped item-->  [89, 'Cccc', 79]

The Required Stack is:
  [[1, 'Aaaa', 100], [2, 'Bbbb', 91]]
....Operation Menu....
Insert Record --> 1
View Student Details --> 2
Remove record by Minimum Percentage -->3
Exit-->4
Enter Your Choice(1/2/3/4):4
```

Question 2}

Write a program in Python to create a stack name StackVow, which takes the elements as vowels and implement all operations (Push, POP and Traversal) on stack StackVow.

Ans

CODE

```
def isempty(stack):
    if stack == []:
        return True
    else:
        return False
def push(stack, vow):
    stack.append(vow)
def pop(stack):
    if isempty(stack):
        print("Stack Empty")
    else:
        x=stack.pop()
        print("The popped element is:",x)
def traverse(stack):
    top = len(stack)-1
    for i in range(top,-1,-1):
        print(stack[i])
#__main__
StackVow=[]
Vowel=["a","e","i","o","u","A","E","I","O","U"]
while True:
    ch = int(input("....ENTER CHOICE....\nPush vowel --> 1\nPop --> 2\nDisplay -->
3\nEnter Your Choice:"))
    if ch==1:
        vow = input("Enter Vowel: ")
        if vow in Vowel:
            push(StackVow,vow)
        else:
            print("Error: Inserted Value is Not Vowel")
    elif ch==2:
        pop(StackVow)
    elif ch==3:
        traverse(StackVow)
    elif ch==4:
        break
    else:
        print("Invalid Input")
        continue
```

Output

```
Push vowel --> 1
Pop --> 2
Display --> 3
Enter Your Choice:1
Enter Vowel: i
....ENTER CHOICE....
Push vowel --> 1
Pop --> 2
Display --> 3
Enter Your Choice:2
The popped element is: i
....ENTER CHOICE....
Push vowel --> 1
Pop --> 2
Display --> 3
Enter Your Choice:3
....ENTER CHOICE....
Push vowel --> 1
Pop --> 2
Display --> 3
Enter Your Choice:
```

Question 3}

As per the tables given below, write the queries:

Table: GAMES

GCODE	GameName	Type	Number	PrizeMoney	ScheduleDate
101	Carrom Board	Indoor	2	5000	2004-01-23
102	Badminton	Outdoor	2	12000	2003-12-12
103	Table Tennis	Indoor	4	8000	2004-02-14
105	Chess	Indoor	2	9000	2004-01-01
106	Lawn Tennis	Outdoor	4	25000	2004-03-19

Table: Player

PCODE	Name	GCODE
1	Carrom Board	101
2	Badminton	108
3	Table Tennis	101
4	Chess	103

a) Write a query to Add another column in table GAMES named NumOfPlayer of type integer.

Ans: alter table games add NumOfPlayer int;

```
mysql> alter table games add NumOfPlayer int;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
| NumOfPlayer  | int          | YES  |     | NULL    |       |
```

b) Display the Player name and game played by him/her if prize money is more than 9000.

Ans: select P.Name,G.GameName from Games G,Player P where P.GCODE=G.GCODE and Prizemoney>9000;

```
mysql> select P.Name,G.GameName from Games G,Player P where P.GCODE=G.GCODE and Prizemoney>9000;
Empty set (0.00 sec)
```

c) Query to display the total Prize money for indoor and outdoor games.

Ans: select sum(PrizeMoney) from games;

```
+-----------------+
| sum(PrizeMoney) |
+-----------------+
|           59000 |
+-----------------+
```

d) Query to ADD GCODE as primary key in table GAMES.

Ans: alter table games add primary key(GCODE);

```
mysql> alter table games add primary key(GCODE);
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
| GCODE | int | NO | PRI | NULL |  |
```

Question 4}

Write a program in python program to create stack Sport Stack to store age of sportsman using stack implementation as list. Write Operation for Push, Pop and Traversal operation using menu.

Ans

Code

```
def isempty(stack):
    if stack == []:
        return True
    else:
        return False
def push(stack, age):
    stack.append(age)
def pop(stack):
    if isempty(stack):
        print("Stack Empty")
    else:
        x=stack.pop()
        return x
def traverse(stack):
    top = len(stack)-1
    for i in range(top,-1,-1):
        print(stack[i])
#__main__
Sport_Stack=[]
while True:
    c = int(input("....ENTER CHOICE....\nInsert Age --> 1\nPop Age --> 2\nDisplay -->
3\nExit --> 4\nEnter Your Choice: "))
    if c==1:
```

```
        age=int(input("Enter Age of Sportsman: "))
        push(Sport_Stack,age)
    elif c==2:
        x=pop(Sport_Stack)
        print("\nPopped element --> ",x)
    elif c==3:
        traverse(Sport_Stack)
    elif c == 4:
        break
    else:
        print("INVALID INPUT")
```

Output

```
....ENTER CHOICE....
Insert Age --> 1
Pop Age --> 2
Display --> 3
Exit --> 4
Enter Your Choice: 1
Enter Age of Sportsman: 35
....ENTER CHOICE....
Insert Age --> 1
Pop Age --> 2
Display --> 3
Exit --> 4
Enter Your Choice: 1
Enter Age of Sportsman: 36
....ENTER CHOICE....
Insert Age --> 1
Pop Age --> 2
Display --> 3
Exit --> 4
Enter Your Choice: 3
36
35
....ENTER CHOICE....
Insert Age --> 1
Pop Age --> 2
Display --> 3
Exit --> 4
Enter Your Choice: 2

Popped element -->  36
....ENTER CHOICE....
Insert Age --> 1
Pop Age --> 2
Display --> 3
Exit --> 4
Enter Your Choice:
```

Question 5}

As per the tables given below, write the queries:

Table: Activity

ACODE	GameName	STADIUM	Participants_Number	PrizeMoney	ScheduleDate
1001	Relay 100*4	Star Annex	16	10000	2004-01-23
1002	High Jump	Star Annex	10	12000	2003-12-12
1003	Shot Put	Super Power	12	8000	2004-02-14
1005	Long Jump	Star Annex	12	9000	2004-01-01
1008	Discuss Throw	Super Power	10	15000	2004-03-19

Table: Coach

PCODE	Name	ACODE
1	Ahmad Hussain	1001
2	Ravinder	1008
3	Janila	1001
4	Naaz	1003

a) Write a query to Add ACODE as foreign Key for table GAMES.

Ans: ALTER TABLE coach ADD FOREIGN KEY (ACODE) REFERENCES Activity(ACODE);

b) Display the Coach name and activity performed in STAR ANNEX stadium.

Ans: select C.Name,A.GameName from Coach C, Activity A where A.ACODE=C.ACODE and stadium="Star Annex";

```
mysql> select C.Name,A.GameName from Coach C, Activity A where A.ACODE=C.ACODE and stadium="Star Annex";
+--------------+------------+
| Name         | GameName   |
+--------------+------------+
| Ahmad Hussain | Relay 100*4 |
| Janila       | Relay 100*4 |
+--------------+------------+
```

c) Query to display the total participants in each stadium.

Ans: select Stadium,sum(Participants_Number) from activity group by Stadium;

```
mysql> select Stadium,sum(Participants_Number) from activity group by Stadium;
+-------------+--------------------------+
| Stadium     | sum(Participants_Number) |
+-------------+--------------------------+
| Star Annex  |                       38 |
| Super Power |                       22 |
+-------------+--------------------------+
```

d) Query to remove the column PRIZE MONEY FROM table ACTIVITY.

Ans: ALTER TABLE ACTIVITY DROP COLUMN PRIZEMONEY;

```
mysql> ALTER TABLE ACTIVITY DROP COLUMN PRIZEMONEY;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Field
ACODE
GameName
STADIUM
Participants_Number
ScheduleDate

Question 6}

Alam has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list. Traverse the content of the list and push the even numbers into a stack. Pop and display the content of the stack.

For Example:

If the sample Content of the list is as follows: N= [12, 13, 34, 56, 21, 79, 98, 22, 35, 38]

Sample Output of the code should be: 38 22 98 56 34 12

Answer:

CODE:

```
N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38]
def PUSH(S,N):
    S.append(N)
def POP(S):
    if S!=[ ]:
        return S.pop()
    else:
        return None
ST=[ ]
for k in N:
    if k%2==0:
        PUSH(ST,k)

while True:
    if ST!=[ ]:
        print(POP(ST),"",end=" ")
    else:
        break
```

OUTPUT:

```
38  22  98  56  34  12
[Done] exited with code=0 in 0.107 seconds
```

Question 7}

Write SQL commands for the following queries (i) to (iv) based on the relations Shoppe and

Accessories given below:

Table: Shoppe

ID	SNAME	Area
S01	ABC Computers	CP
S02	All Infotech Media	GK II
S03	Tech Shoppe	CP
S04	Geeks Tecno Soft	Nehru Place
S05	Hitech Tech Store	Nehru Place

Table: Accessories

No	Name	Price	ID
A01	Mother Board	12000	S01
A02	Hard Disk	5000	S01
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board	13000	S02
A06	Keyboard	400	S03
A07	LCD	6000	S04
A08	LCD	5500	S05
A09	Mouse	350	S05
A10	Hard Disk	4500	S03

a) To display name and price of all the accessories in ascending order of their price.

Ans: select Name,Price from Accessories order by Price;

Name	Price
Mouse	300
Mouse	350
Keyboard	400
Keyboard	500
Hard Disk	4500
Hard Disk	5000
LCD	5500
LCD	6000
Mother Board	12000
Mother Board	13000

b) To display id and sname of all shoppe located in Nehru place.

Ans: select ID,SNAME from Shoppe where area="Nehru Place";

```
mysql> select ID,SNAME from Shoppe where area="Nehru Place";
+------+-------------------+
| ID   | SNAME             |
+------+-------------------+
| S04  | Geeks Tecno Soft  |
| S05  | Hitech Tech Store |
+------+-------------------+
2 rows in set (0.00 sec)
```

c) To display minimum and maximum price of each name of accessories.

Ans: select Name,Max(Price),Min(Price) from accessories group by Price;

```
mysql> select Name,Max(Price),Min(Price) from accessories group by Price;
+---------------+------------+------------+
| Name          | Max(Price) | Min(Price) |
+---------------+------------+------------+
|  Mother Board |      12000 |      12000 |
| Hard Disk     |       5000 |       5000 |
| Keyboard      |        500 |        500 |
| Mouse         |        300 |        300 |
| Mother Board  |      13000 |      13000 |
| Keyboard      |        400 |        400 |
| LCD           |       6000 |       6000 |
| LCD           |       5500 |       5500 |
| Mouse         |        350 |        350 |
| Hard Disk     |       4500 |       4500 |
+---------------+------------+------------+
```

d) To display name, price of all accessories and their respective same where they are available

Ans: select A.Name,A.Price,S.SNAME,S.ID from Accessories A,Shoppe S where A.ID=S.ID;

```
mysql> select A.Name,A.Price,S.SNAME,S.ID from Accessories A,Shoppe S where A.ID=S.ID;
+---------------+-------+--------------------+------+
| Name          | Price | SNAME              | ID   |
+---------------+-------+--------------------+------+
|  Mother Board | 12000 | ABC Computers      | S01  |
| Hard Disk     |  5000 | ABC Computers      | S01  |
| Keyboard      |   500 | All Infotech Media | S02  |
| Mouse         |   300 | ABC Computers      | S01  |
| Mother Board  | 13000 | All Infotech Media | S02  |
| Keyboard      |   400 | Tech Shoppe        | S03  |
| LCD           |  6000 | Geeks Tecno Soft   | S04  |
| LCD           |  5500 | Hitech Tech Store  | S05  |
| Mouse         |   350 | Hitech Tech Store  | S05  |
| Hard Disk     |  4500 | Tech Shoppe        | S03  |
+---------------+-------+--------------------+------+
```

Question 8}

A database called company has two tables COMPANY and CUSTOMER with the following records. Write SQL commands for the queries (a)-(d) based on the two tables COMPANY and CUSTOMER

Table: Company

PID	NAME	CITY	PRODUCTNAME	TOTAL_PRICE
2101	APPLE	DELHI	WATCH	NULL
2102	SAMSUNG	BANGALORE	MOBILE	NULL
2103	PANASONIC	DELHI	TV	NULL
2104	SONY	MUMBAI	MOBILE	NULL
2105	LENOVO	INDORE	TABLET	NULL
2106	DELL	MUMBAI	LAPTOP	NULL

Table: Customer

CUSTID	NAME	UNITPRICE	QTY	PID
101	REENA SONI	60000	10	2102
102	MICHAEL PAUL	50000	20	2106
103	MEETALI SINGH	70000	15	2101
104	PARUL SOHAL	55000	3	2103
105	RAJESH DESHWAL	45000	7	2104

a) Write an SQL statement to display the name of the companies in reverse alphabetical order.

Ans: select name from company order by name desc;

```
mysql> select name from company order by name desc;
+-----------+
| name      |
+-----------+
| SONY      |
| SAMSUNG   |
| PANASONIC |
| LENOVO    |
| DELL      |
| APPLE     |
+-----------+
```

b) To add one more column to the table customer called TOTAL PRICE which can have up to two decimal places.

Ans: alter table company add column TOTAL_PRICE float(10,2);

```
mysql> alter table company add column TOTAL_PRICE float(10,2);
Query OK, 0 rows affected, 1 warning (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 1
```

```
mysql> desc company;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| PID         | int         | YES  |     | NULL    |       |
| NAME        | char(15)    | YES  |     | NULL    |       |
| CITY        | char(15)    | YES  |     | NULL    |       |
| PRODUCTNAME | char(10)    | YES  |     | NULL    |       |
| TOTAL_PRICE | float(10,2) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
```

c) Write an SQL statement to count the products city wise.

Ans: select count(*),city from company group by city;

```
mysql> select count(*),city from company group by city;
+----------+-----------+
| count(*) | city      |
+----------+-----------+
|        2 | DELHI     |
|        1 | BANGALORE |
|        2 | MUMBAI    |
|        1 | INDORE    |
+----------+-----------+
```

d) Write an SQL statement to display the customer name, product of the unit price and quantity, product name where the name of the city is Mumbai.

Ans: select cus.name,cus.unitprice,cus.qty,com.productname from customer cus,company com where cus.pid=com.pid and city="mumbai";

```
mysql> select cus.name,cus.unitprice,cus.qty,com.productname from customer cus,company com where cus.pid=com.pid and city="mumbai";
+---------------+-----------+------+-------------+
| name          | unitprice | qty  | productname |
+---------------+-----------+------+-------------+
| MICHAEL PAUL  |     50000 |   20 | LAPTOP      |
| RAJESH DESHWAL|     45000 |    7 | MOBILE      |
+---------------+-----------+------+-------------+
```