School of Computer Science

Masters in Applied Computing (M.A.C)

Subject Code: COMP8157

Subject Name: Advanced Database Topics

Professor Dr. Shafaq Khan

Lab 2

by

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Solutions:

Answer 1:

Commands:

CREATE DATABASE hamzaADTlab2;

```
create database hamzaADTlab2;
```

ages

```
59:02 PM        Started executing query at Line 1
                Msg 1801, Level 16, State 3, Line 1
                Database 'hamzaADTlab2' already exists. Choose a different database name.
                Total execution time: 00:00:00.007
```

Answer 2:

Commands:

```
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_January;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_February;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_March;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_April;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_May;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_June;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_July;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_August;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_September;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_October;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_November;
ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_December;
```

```
↦ Export as Notebook
    1    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_January;
    2    ALTER DATABASE hamzaADTlab2  ADD FILEGROUP fg_February;
    3    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_March;
    4    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_April;
    5    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_May;
    6    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_June;
    7    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_July;
    8    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_August;
    9    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_September;
   10    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_October;
   11    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_November;
   12    ALTER DATABASE hamzaADTlab2 ADD FILEGROUP fg_December;
```

Messages

```
    8:09:55 PM      Started executing query at Line 1
                    Commands completed successfully.
                    Total execution time: 00:00:00.055
```

Answer 3:

Commands:

```
CREATE PARTITION FUNCTION hamzaByMonth (INT) AS RANGE LEFT FOR VALUES (1, 2, 3, 4, 5, 6, 7,
8, 9, 10, 11, 12);
```

→ Export as Notebook

```
1    CREATE PARTITION FUNCTION hamzaByMonth (INT) AS RANGE LEFT FOR VALUES (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12);
```

essages

```
8:12:57 PM      Started executing query at Line 1
                Commands completed successfully.
                Total execution time: 00:00:00.004
```

Answer 4:

Commands:

```
CREATE PARTITION SCHEME hamzaByMonthADT
AS PARTITION hamzaByMonth
TO
(fg_January, fg_February, fg_March, fg_April, fg_May, fg_June, fg_July, fg_August,
fg_September, fg_October, fg_November, fg_December);
```

ort as Notebook

```
CREATE PARTITION SCHEME hamzaByMonthADT
AS PARTITION hamzaByMonth
TO
(fg_January, fg_February, fg_March, fg_April, fg_May, fg_June, fg_July, fg_August, fg_September, fg_October, fg_November, f
```

ges

```
:6:15 PM       Started executing query at Line 1
               Commands completed successfully.
               Total execution time: 00:00:00.002
```

Answer 5:

Commands:

```
CREATE TABLE MonthlyReports (
ReportID INT IDENTITY (1,1) NOT NULL,
ReportMonth INT NOT NULL,
PRIMARY KEY (ReportID, ReportMonth),
MonthlyReport VARCHAR(MAX))
ON hamzaByMonthADT (ReportMonth);
```

```
CREATE TABLE MonthlyReports (
ReportID INT IDENTITY (1,1) NOT NULL,
ReportMonth INT NOT NULL,
PRIMARY KEY (ReportID, ReportMonth),
MonthlyReport VARCHAR(MAX))
ON hamzaByMonthADT (ReportMonth);
```

jes

```
7:04 PM     Started executing query at Line 1
            Commands completed successfully.
            Total execution time: 00:00:00.008
```

Answer 6:

Commands:

Assigning hardware locations to partitions:

```
ALTER DATABASE [hamzaADTlab2] ADD FILE (NAME = [December],
FILENAME = 'C:\Program Files\Microsoft SQL
Server\MSSQL16.SQLEXPRESS\MSSQL\DATA\hamzaADTlab2_12.ndf', SIZE = 3072
KB, MAXSIZE = UNLIMITED, FILEGROWTH = 1024 KB
) TO FILEGROUP [Fg_December]
```

Inserting:

```
DECLARE @i int
DECLARE @ReportMonth INT
DECLARE @MonthlyReport VARCHAR(MAX)
SET @i = 1
BEGIN TRAN
WHILE @i<=100000
BEGIN
    SET @ReportMonth = ROUND(RAND() * 12 + 1, 0);
    SET @MonthlyReport = REPLICATE('hamza', 100);
    INSERT INTO MonthlyReports (ReportMonth, MonthlyReport)
        VALUES (@ReportMonth,@MonthlyReport);
    SET @i=@i+1
END
COMMIT TRAN
GO
```

```
DECLARE @i int
DECLARE @ReportMonth INT
DECLARE @MonthlyReport VARCHAR(MAX)
SET @i = 1
BEGIN TRAN
WHILE @i<=100000
BEGIN
    SET @ReportMonth = ROUND(RAND() * 12 + 1, 0);
    SET @MonthlyReport = REPLICATE('hamza', 100);
    INSERT INTO MonthlyReports (ReportMonth, MonthlyReport)
        VALUES (@ReportMonth,@MonthlyReport);
    SET @i=@i+1
END
COMMIT TRAN
GO
```

es

```
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
```

Answer 7:

Commands:

```sql
SELECT ReportMonth, COUNT(*)
FROM MonthlyReports
GROUP BY ReportMonth;
```

	ReportMonth	(No column name)
1	9	8335
2	3	8415
3	12	8320
4	6	8495
5	7	8268
6	1	4095
7	10	8255
8	4	8323

Answer 8:

Commands:

```sql
SELECT *
FROM MonthlyReports
WHERE ReportMonth = 5;
```

Export as Notebook

```sql
1    SELECT *
2    FROM MonthlyReports
3    WHERE ReportMonth = 5;
4
```

sults   Messages

ReportID ∨	ReportMonth ∨	MonthlyReport ∨
20	5	hamzahamzahamzahamzahamzaham...
63	5	hamzahamzahamzahamzahamzaham...
95	5	hamzahamzahamzahamzahamzaham...
97	5	hamzahamzahamzahamzahamzaham...
100	5	hamzahamzahamzahamzahamzaham...
101	5	hamzahamzahamzahamzahamzaham...
103	5	hamzahamzahamzahamzahamzaham...
127	5	hamzahamzahamzahamzahamzaham...
136	5	hamzahamzahamzahamzahamzaham...