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Experiment No.	9

AIM:	Date and time functions				
Program 1					
PROBLEM STATEMENT :	To perform date and time functions on hotel database				
Theory :	<p>Date format function: The DATE_FORMAT() function formats a date as specified.</p> <p>Syntax DATE_FORMAT(date, format)</p> <p>Example Format a date:</p> <p>SELECT DATE_FORMAT(BirthDate, "%W %M %e %Y") FROM Employees;</p> <p>Datediff function :</p> <p>The DATEDIFF() function returns the number of days between two date values.</p> <p>Syntax DATEDIFF(date1, date2)</p> <p>Parameter Values</p> <table> <tr> <th>Parameter</th><th>Description</th></tr> <tr> <td>date1, date2</td><td>Required. Two dates to calculate the number of days between. (date1 - date2)</td></tr> </table> <p>Date_Add function</p>	Parameter	Description	date1, date2	Required. Two dates to calculate the number of days between. (date1 - date2)
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date1, date2	Required. Two dates to calculate the number of days between. (date1 - date2)				

The DATE_ADD() function adds a time/date interval to a date and then returns the date.

Syntax

DATE_ADD(date, INTERVAL value addunit)

Example

Add 15 minutes to a date and return the date:

```
SELECT DATE_ADD("2017-06-15 09:34:21", INTERVAL 15 MINUTE);
```

Extract function :

The EXTRACT() function extracts a part from a given date.

Syntax

EXTRACT(part FROM date)

Extract the year and month from a datetime:

```
SELECT EXTRACT(YEAR_MONTH FROM "2017-06-15 09:34:21");
```

Date_sub function

The DATE_SUB() function subtracts a time/date interval from a date and then returns the date.

Syntax

DATE_SUB(date, INTERVAL value interval)

Example

Subtract 3 hours from a date and return the date:

```
SELECT DATE_SUB("2017-06-15 09:34:21", INTERVAL 3 HOUR);
```

Time_format function

The TIME_FORMAT() function formats a time by a specified format.

Syntax

TIME_FORMAT(time, format)

Example

Format a time:

```
SELECT TIME_FORMAT("19:30:10", "%T");
```

Time_to_sec function

The TIME_TO_SEC() function converts a time value into seconds.

Syntax

TIME_TO_SEC(time)

Example

Convert a time value into seconds:

```
SELECT TIME_TO_SEC("-03:30:00");
```

TimeDiff function

The TIMEDIFF() function returns the difference between two time/datetime expressions.

Note: time1 and time2 should be in the same format, and the calculation is time1 - time2.

Syntax

TIMEDIFF(time1, time2)

Example

Return the difference between two datetime expressions:

```
SELECT TIMEDIFF("2017-06-25 13:10:11", "2017-06-15 13:10:10");
```

To_days function

The TO_DAYS() function returns the number of days between a date and year 0 (date "0000-00-00").

The TO_DAYS() function can be used only with dates within the Gregorian calendar.

Note: This function is the opposite of the FROM_DAYS() function.

Syntax

TO_DAYS(date)

Example

Return the number of days between the date and year 0:

```
SELECT TO_DAYS("2017-06-20 09:34:00");
```

Week function

The WEEK() function returns the week number for a given date (a number from 0 to 53).

Syntax

WEEK(date, firstdayofweek)

Example

Return the week number for a date:

```
SELECT WEEK("2017-10-25");
```

Queries

Queries on reservation Table:

Original Table:

Result Grid							
		Filter Rows:		Edit:		Export/Imp	
	Reservation_no	R_intime	R_outtime	Amount	R_no	C_ID	Arrival_Date
▶	1	12:56:23	16:56:23	1000	12	1234	2017-01-13
	2	13:54:43	19:26:13	2000	13	1235	2017-02-06
	3	11:24:41	20:55:53	1500	14	1236	2017-08-09
	4	22:21:45	16:25:33	2500	15	1237	2017-01-08
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Query 1:Date_format function

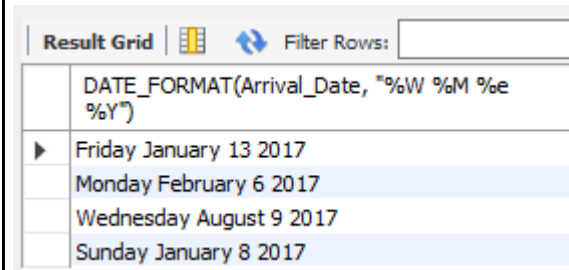
Statement: Display all arrival dates in table reservation as Day

name(full) , Month name(full) , Date and Year

Code:

```
SELECT DATE_FORMAT(Arrival_Date, "%W %M %e %Y")  
FROM reservation;
```

Output :



The screenshot shows a 'Result Grid' with a 'Filter Rows' input field. The table has one column with the header 'DATE_FORMAT(Arrival_Date, "%W %M %e %Y")'. It contains four rows of data:

DATE_FORMAT(Arrival_Date, "%W %M %e %Y")
Friday January 13 2017
Monday February 6 2017
Wednesday August 9 2017
Sunday January 8 2017

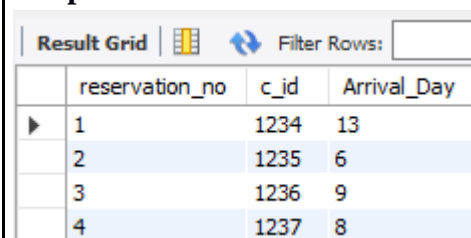
Query 2: Extract function

Statement: Return a single part of date

Code:

```
SELECT reservation_no,c_id, Extract(DAY FROM Arrival_date) AS  
Arrival_Day FROM reservation;
```

Output :



The screenshot shows a 'Result Grid' with a 'Filter Rows' input field. The table has four columns: 'reservation_no', 'c_id', and 'Arrival_Day'. It contains four rows of data:

reservation_no	c_id	Arrival_Day
1	1234	13
2	1235	6
3	1236	9
4	1237	8

Query 3 : Date_Add function

Statement: Display a modified date with added unit(day , month , year)

Code:

```
SELECT reservation_no,c_id, date_add(Arrival_Date,Interval 1  
Month) AS Modified_Arrival_Day FROM reservation;
```

Output :

	reservation_no	c_id	Modified_Arrival_Day
▶	1	1234	2017-02-13
	2	1235	2017-03-06
	3	1236	2017-09-09
	4	1237	2017-02-08

Query 4 : Date_Sub function:

Statement: Display a modified date with subtracted unit(day , month , year)

Code:

```
SELECT reservation_no,c_id, date_sub(Arrival_Date,Interval 2 year)
AS subtracted_Arrival_Day FROM reservation;
```

Output :

Result Grid Filter Rows: <input type="text"/>			
	reservation_no	c_id	subtracted_Arrival_Day
▶	1	1234	2015-01-13
	2	1235	2015-02-06
	3	1236	2015-08-09
	4	1237	2015-01-08

Query 5 : DateDiff function

Statement: Displays the difference between two dates

Code:

```
SELECT timestampdiff(month,(select Arrival_Date as date1
from reservation
where reservation_no=1),(select Arrival_Date as date2
from reservation
where reservation_no=3)) AS DateDiff;
```

Output :

	DateDiff
▶	6

Query 6 :Time_format function

Statement: Display all check in times in table reservation as Day name(full) , Month name(full) , Date and Year

Code:

SELECT TIME_FORMAT(R_intime, "%h %i %s %p") from reservation;

Output :

	TIME_FORMAT(R_intime, "%h %i %s %p")
▶	12 56 23 PM
	01 54 43 PM
	11 24 41 AM
	10 21 45 PM

Query 7: Time_to_sec function

Statement:

Convert Given time to sec

Code:

SELECT TIME_FORMAT(R_intime, "%h %i %s %p") from reservation;

Output :

	TIME_FORMAT(R_intime, "%h %i %s %p")
▶	12 56 23 PM
	01 54 43 PM
	11 24 41 AM
	10 21 45 PM

Query 8: TimeDiff function

Statement: Display the difference between two times

Code:

**SELECT timediff((select R_intime as time1
from reservation
where reservation_no=1),(select R_intime as time2
from reservation**

where reservation_no=4)) AS TimeDiff;

Output :

	TimeDiff
▶	-09:25:22

Query 9: To_days function

Statement: Returns the number of days between date and year 0

Code:

```
SELECT TO_DAYS((select Arrival_Date as date1
from reservation
where reservation_no=1)) as Number_Of_Days;
```

Output :

	Number_Of_Days
▶	736707

Query 10 : Week function

Statement: Return the week number for a date

Code:

```
SELECT WEEK((select Arrival_Date as date1
from reservation
where reservation_no=1)) as Week_number;
```

Output :

	Week_number
▶	2

Conclusion

In the above experiment we learnt how to manipulate and extract a particular unit from a given date with the help of date and time functions in MySQL.

