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| **AIM:** | Date and time functions |
| **Program 1** | |
| **PROBLEM STATEMENT :** | To perform date and time functions on hotel database |
| **Theory :** | **Date format function:**  The DATE\_FORMAT() function formats a date as specified.  Syntax  DATE\_FORMAT(date, format)  Example  Format a date:  SELECT DATE\_FORMAT(BirthDate, "%W %M %e %Y") FROM Employees;  **Datediff function :**  The DATEDIFF() function returns the number of days between two date values.  Syntax  DATEDIFF(date1, date2)  Parameter Values  Parameter Description  date1, date2 Required. Two dates to calculate the number of days between. (date1 - date2)  **Date\_Add function**  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:**    **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 :**    **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 :**    **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 :**    **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 :**    **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 :**    **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 :**    **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 :**    **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 :**    **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 :**    **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 :** |
| **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.** | |