

Lecture Notes – Date & Time Extraction-Date Format

Section 1: Lecture Summary

The lecture covers the **EXTRACT** function for pulling specific parts like day, month, year, hour, minute, second, week, and quarter from a date or datetime, using NOW() as the source. It also explains the **DATE_FORMAT** function, which formats dates using control codes like %Y for four-digit year, %y for two-digit year, %M for full month name, %b for short month name, %m for month number, %D for day with suffix, %W for weekday name, %w for weekday number (0=Sunday), %H for 24-hour, %h or %I for 12-hour, %i for minutes, %s for seconds, and %p for AM/PM.

Section 2: Key Concepts and Explanations

EXTRACT syntax is EXTRACT(part FROM date_or_datetime), where part specifies day, month, year, hour, minute, second, microsecond, week, quarter, or dayofweek (1=Sunday to 7=Saturday). Separate functions include DAYOFWEEK(date) returning 1-7, DAYOFYEAR(date) for day position in year, WEEK(date) or WEEKOFYEAR(date) for week number, DAYNAME(date) for names like Sunday, MONTHNAME(date) for names like November, and LAST_DAY(date) for month's end date. All accept NOW() for current date/time.

DATE_FORMAT syntax is DATE_FORMAT(date_or_datetime, 'format_string'), using percent codes to customize output like '%D-%M-%Y' for "9th-November-2025" or '%W, %M %D, %Y' for "Sunday, November 9th, 2025". Codes rearrange elements for regional formats and include time components. Functions work on stored dates like PaymentDate or OrderDate.

Section 3: Example Code and Use Cases

Using eCommerceDB schemas:

```
-- Extract day from current time
SELECT NOW(), EXTRACT(DAY FROM NOW());

-- Extract month, year, hour
SELECT EXTRACT(MONTH FROM NOW()), EXTRACT(YEAR FROM NOW()), EXTRACT(HOUR
FROM NOW());
```

```
-- Extract week and quarter from PaymentDate
SELECT PaymentID, EXTRACT(WEEK FROM PaymentDate), EXTRACT(QUARTER FROM
PaymentDate)
FROM Payments;
```

```
-- Day of week and day name from OrderDate
SELECT OrderID, DAYOFWEEK(OrderDate), DAYNAME(OrderDate)
FROM Orders;
```

```
-- Month name and last day from JoinDate
SELECT CustomerID, MONTHNAME(JoinDate), LAST_DAY(JoinDate)
FROM Customers;
```

```
-- Format current date as four-digit year
SELECT DATE_FORMAT(NOW(), '%Y');
```

```
-- Two-digit year, full month, day number
SELECT DATE_FORMAT(NOW(), '%y-%M-%d');
```

```
-- Full format with weekday and suffix
SELECT DATE_FORMAT(NOW(), '%W, %M %D, %Y');
```

```
-- Date and 12-hour time with AM/PM from PaymentDate
SELECT PaymentID, DATE_FORMAT(PaymentDate, '%D %M %Y, %h:%i %p')
FROM Payments;
```

```
-- Order date in DD-MM-YYYY from Orders
SELECT OrderID, DATE_FORMAT(OrderDate, '%D-%m-%Y')
FROM Orders;
```

Section 4: Key Takeaways

Practice EXTRACT by changing the part (day, month, year, etc.) on NOW() or table dates like PaymentDate. Use DATE_FORMAT with % codes to match desired output like '%Y-%m-%d' or '%W %D %M'. Functions enable precise date/time handling from eCommerceDB fields like OrderDate and JoinDate.