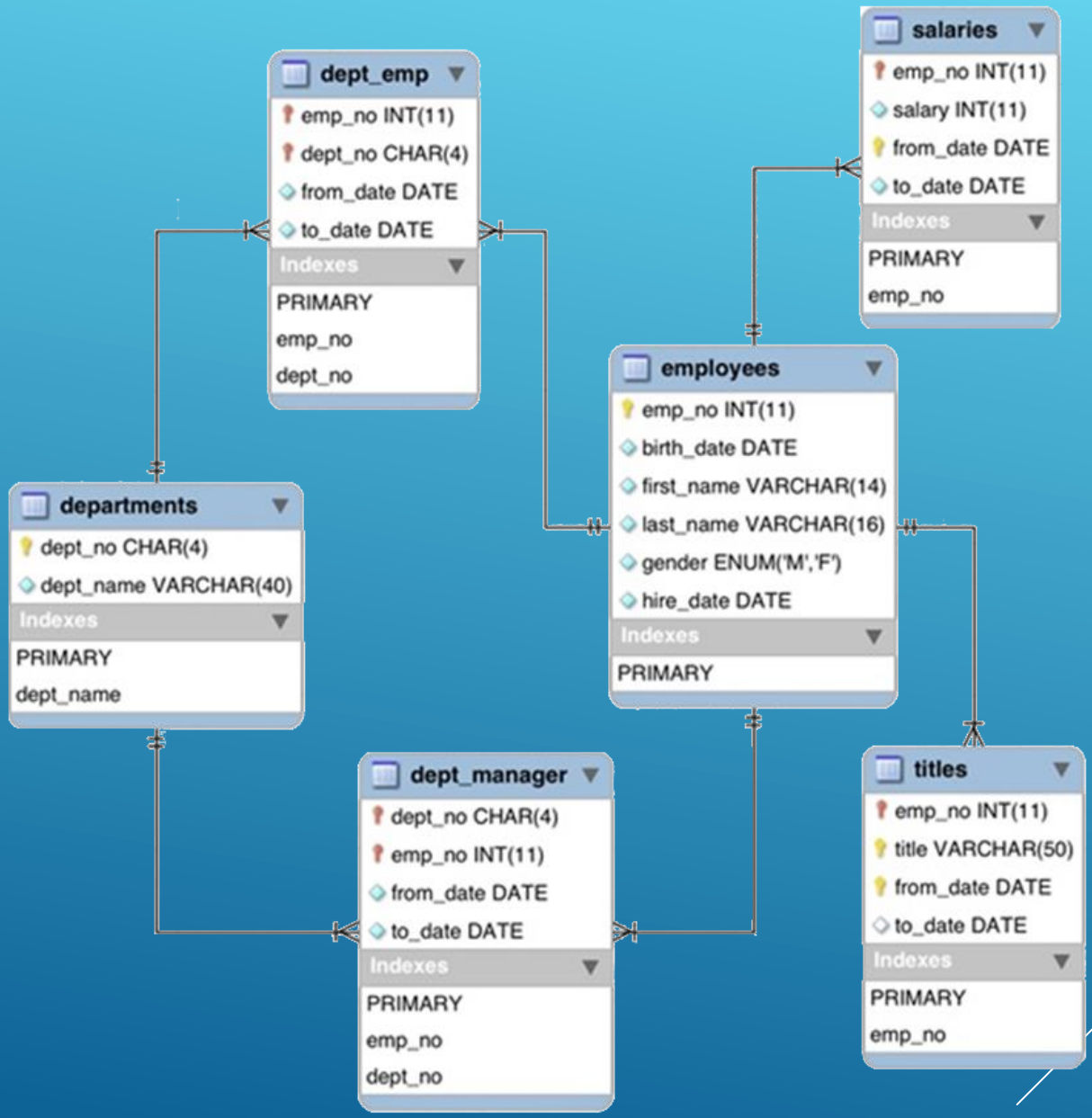
PL/SQL

MODEL DATABASE



CONVERTING STRING TO DATE

```
TO_DATE(string_to_convert,format)
```

Format	Description
YYYY	4-digit year
YY	2-digit year
Q	Quarter of the year (1-4)
MON	Abbreviated month (Jan - Dec)
MONTH	Month name (January - December)
MM	Month (1 - 12)
IW	Week of the year (1-53)
DY	Abbreviated day (Sun - Sat)
DDD	Day of the year (1-366)
DD	Day of the month (1 - 31)
D	Day of the week (1-7)
DAY	Full name of the day
DY	Abbreviated name of the day
HH24	Hour (0 - 23)
HH or HH12	Hour (1 - 12)
MI	Minutes (0 - 59)
SS	Seconds (0 - 59)
SSSSS	Seconds past midnight (0-86399)
AM	Meridian indicator

CONVERTING STRING TO DATE

```
TO_CHAR(date_to_convert,format)
```

```
SELECT TO_CHAR(CURRENT_TIMESTAMP,'DAY   DD MONTH YYYY "that is a" DAY')
 AS "CURRENT_DATE"
FROM DUAL;
```

CURRENT_DATE
SUNDAY 09 FEBRUARY 2020 that is a SUNDAY

WORKING WITH DATES

Oracle date types:

- DATE
- TIMESTAMP
- TIMESTAMP WITH TIME ZONE
- TIMESTAMP WITH LOCAL TIME ZONE

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```
SELECT CURRENT_DATE FROM DUAL
UNION
SELECT CURRENT_TIMESTAMP FROM DUAL;
```

WORKING WITH DATES

What will these statements return?

```
SELECT DBTIMEZONE, SESSIONTIMEZONE FROM DUAL;

SELECT DATE '1998-12-25' FROM DUAL;

SELECT TO_DATE('1998-12-25','YYYY-MM-DD') FROM DUAL;
```

WORKING WITH DATES

Interval data types:

- INTERVAL YEAR TO MONTH – stores interval period of time using Year and Month
- INTERVAL DAY TO SECOND – stores interval period of time using Day and Second

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```
INTERVAL 'year[-month]' leading (precision) TO trailing
```

leading and trailing can be either MONTH or YEAR.
precision the number of digits for the leading field (max 9 default 2).

```
SELECT INTERVAL '125-4' YEAR(3) TO MONTH AS MY_INTERVAL  FROM DUAL;

SELECT INTERVAL '5' MONTH FROM DUAL;

SELECT INTERVAL '15' MONTH FROM DUAL;

SELECT INTERVAL '5' YEAR FROM DUAL;
```

WORKING WITH DATES

Interval data types:

- INTERVAL YEAR TO MONTH – stores interval period of time using Year and Month
- **INTERVAL DAY TO SECOND** – stores interval period of time using Day and Second

```
INTERVAL DAY [(day_precision)] TO SECOND [(fractional_sec_precision)]
```

day_precision the number of digits in the day (max 9 default 2).
fractional_sec_presision the number of in the fractional part of the second (max 9, default 6).

```
SELECT INTERVAL '11 10:09:08.555' DAY TO SECOND(3) FROM DUAL;

SELECT INTERVAL '11 10:09:08.555' DAY TO SECOND(3) FROM DUAL;

SELECT INTERVAL '11 10:09' DAY TO MINUTE FROM DUAL;

SELECT INTERVAL '64' MINUTE FROM DUAL;
```

WORKING WITH DATES

Interval data types:

- INTERVAL YEAR TO MONTH – stores interval period of time using Year and Month
- INTERVAL DAY TO SECOND – stores interval period of time using Day and Second

```
SELECT INTERVAL '09:30' HOUR TO MINUTE FROM DUAL;

SELECT INTERVAL '8' HOUR FROM DUAL;

SELECT INTERVAL '15:30' MINUTE TO SECOND FROM DUAL;

SELECT INTERVAL '40' HOUR FROM DUAL;

SELECT INTERVAL '5' DAY FROM DUAL;

SELECT INTERVAL '250' HOUR(3) FROM DUAL;

SELECT INTERVAL '15.6789' SECOND(2,3) FROM DUAL;
```

WORKING WITH DATES

Interval data types:

- INTERVAL YEAR TO MONTH – stores interval period of time using Year and Month
- INTERVAL DAY TO SECOND – stores interval period of time using Day and Second

```
SELECT INTERVAL '09:30' HOUR TO MINUTE FROM DUAL;

SELECT INTERVAL '8' HOUR FROM DUAL;

SELECT INTERVAL '15:30' MINUTE TO SECOND FROM DUAL;

SELECT INTERVAL '40' HOUR FROM DUAL;

SELECT INTERVAL '5' DAY FROM DUAL;

SELECT INTERVAL '250' HOUR(3) FROM DUAL;

SELECT INTERVAL '15.6789' SECOND(2,3) FROM DUAL;
```

WORKING WITH DATES

Interval data types:

- Extracting values from interval

```
SELECT EXTRACT(YEAR FROM INTERVAL '15' MONTH) FROM DUAL;

SELECT EXTRACT(MONTH FROM INTERVAL '15' MONTH) FROM DUAL;

SELECT EXTRACT(HOUR FROM INTERVAL '250' HOUR(3)) FROM DUAL;

SELECT EXTRACT(DAY FROM INTERVAL '250' HOUR(3)) FROM DUAL;

SELECT EXTRACT(SECOND FROM INTERVAL '15.6789' SECOND(2,3)) FROM DUAL;
```

WORKING WITH DATES

Difference between two dates:

```
SELECT CURRENT_DATE - TO_DATE('1/1/2000','MM-DD-YYYY') FROM DUAL;
```

What will this return?

WORKING WITH DATES

Difference between two dates:

```
SELECT CURRENT_DATE - TO_DATE('1/1/2000','MM-DD-YYYY') FROM DUAL;
```

What will this return?

```
SELECT floor(CURRENT_DATE - TO_DATE('1/1/2000','MM-DD-YYYY')) as days FROM DUAL;

SELECT floor((CURRENT_DATE - TO_DATE('1/1/2000','MM-DD-YYYY'))*60*24) as minutes FROM DUAL;

SELECT floor((CURRENT_DATE - TO_DATE('1/1/2000','MM-DD-YYYY'))*60*60*24) as seconds FROM DUAL;
```

WORKING WITH DATES

Difference between two dates:

```
SELECT CURRENT_DATE - TO_DATE('1/1/2000','MM-DD-YYYY') FROM DUAL;
```

How about month and year?

```
SELECT floor(months_between(CURRENT_DATE, TO_DATE('1/1/2000','MM-DD-YYYY')))
FROM DUAL;

SELECT floor(months_between(CURRENT_DATE, TO_DATE('1/1/2000','MM-DD-YYYY'))/12)
FROM DUAL;
```

WORKING WITH DATES

Other date functions:

- ADD_DAYS(date,n)
- ADD_MONTHS(date,n)
- ADD_YEARS(date,n)
- GREATEST(date1,date2[,date3]…)
- LEAST(date1,date2[,date3]…)
- DAYS_BETWEEN(date1,date2)
- MONTHS_BETWEEN(date1,date2)
- TRUNC(date)

```
SELECT TO_CHAR(TO_DATE('01-01-2000 7:08','MM-DD-YYYY HH:MI'),'MM-DD-YYYY HH:MI') FROM DUAL;

SELECT TO_CHAR(TRUNC(TO_DATE('01-01-2000 7:08','MM-DD-YYYY HH:MI')),'MM-DD-YYYY HH:MI') FROM DUAL;
```