

如何开发易于维护的高效SQL

公益讲座11：00分准时开始，请大家先浏览云技术微信公众号技术文章资料会在各群同步发布，已入群客户请勿重复入群！



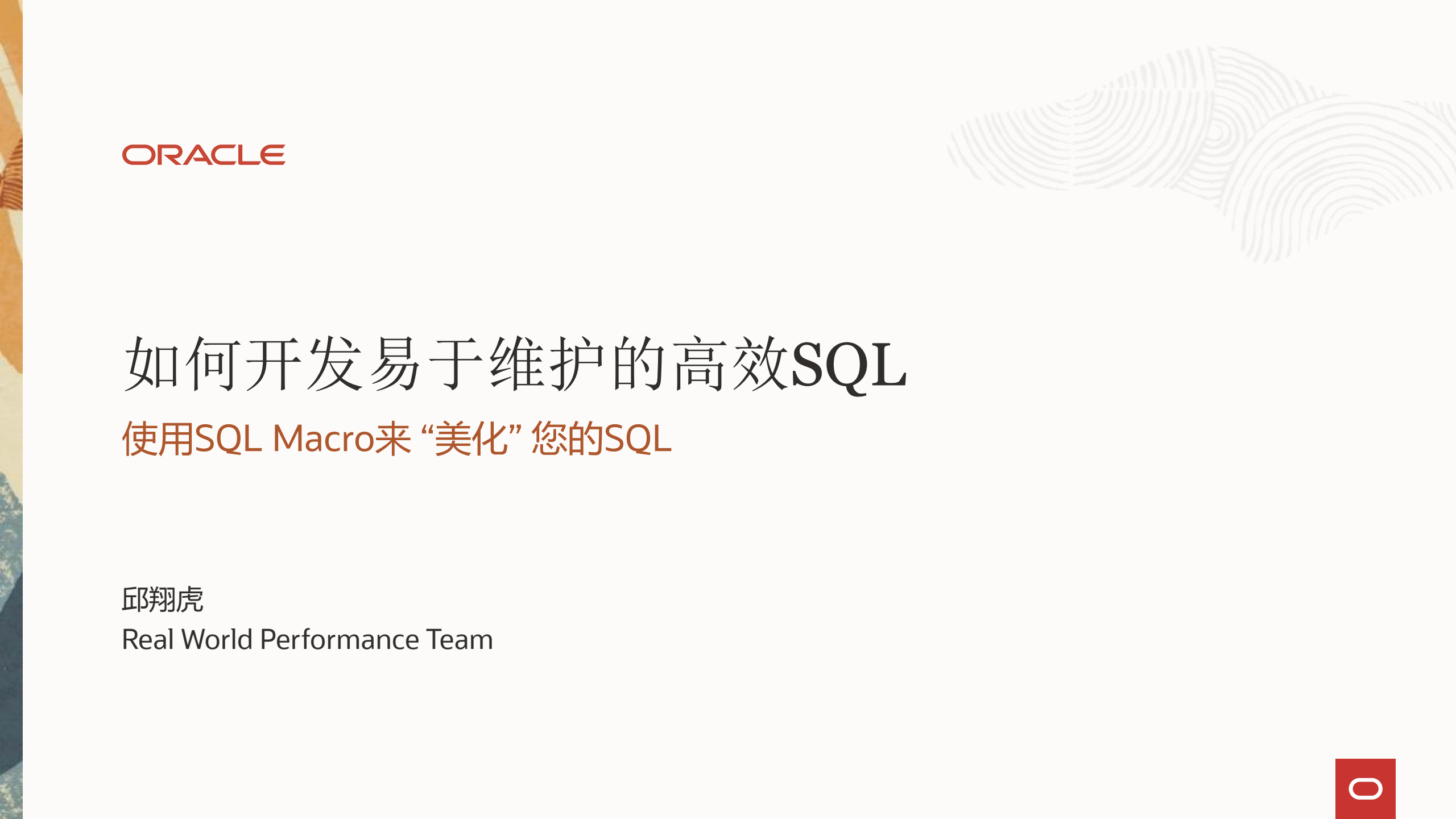
20-18

数据库和云讲座群



甲骨文云技术公众号





ORACLE

如何开发易于维护的高效SQL

使用SQL Macro来“美化”您的SQL

邱翔虎

Real World Performance Team



A photograph of two women in an office environment. The woman on the right, wearing a blue shirt, is leaning forward and pointing at a laptop screen. The woman on the left, wearing a white shirt and glasses, is smiling and looking at the screen. A speech bubble is overlaid on the image, containing the text '请帮我 搞定 以下SQL...'.

请帮我 搞定
以下SQL...

```

select play_type, item_title,
       item_link, item_actions,
       item_icon, item_misc,
       item_description, all_answers,
       comp_event_id, domain_id,
       primary_ordering, completed_ordering
from (
select 1 play_type, title item_title, case
       when opens.comp_type_text = 'COMPETE'
       then '...' || comp_event_id || '}}';'
       else qdb_quiz_mgr.dg_take_quiz_url_in_sql (
       question_id_in => null, comp_event_id_in =>
       opens.comp_event_id, add_href_in =>
       'N', use_this_session_in => :app_session)
end item_link,
'<div class="item-Act-div">' || case
       when opens.comp_type_text = 'COMPETE'
       then '<div class="ia-Type ia-Tournament">Tournament</div>'
       else '<div class="ia-Type ia-Featured">Featured</div>' ||
       '<div class="item-Act-div">' || difficulty ||
       '</div>'
end || '</div>' || case
       when opens.comp_type_text = 'COMPETE'
       then '<div class="item-Act-div rank-Div">' || case
       qdb_player_mgr.is_competing_in_sql (
       competition_id_in => opens.competition_id,
       user_id_in => :ai_user_id)
       when 1 then
       '...' || competition_id || '...'
       else
       '...' || competition_id || '...'
       end || '</div>'
end item_actions,
'<div class="item-Icon-v2">' || case
       when (my_ended_on is not null or skipped_ce > 0) then '...'
       when my_started_on is not null then '...'

```

```

       else '...'
end || '</div>' as item_icon,
'...' || to_char (start_date, 'FMDD Mon') || ' - ' ||
to_char (end_date, 'FMDD Mon') || '...' ||
opens.all_answers || '...' || case
       when opens.comp_type_text = 'COMPETE'
       then case
       when opens.skipped_ce > 0 then '...'
       when opens.my_ended_on is not null then '...'
       else '...'
       end
end || '</div>' as item_misc,
qdb_content.activity_search_links_text (
activity_id_in => question_id, activity_type_in =>
'Q') item_description,
all_answers,
opens.comp_event_id,
opens.domain_id,
case
       when opens.comp_type_text = 'COMPETE'
       then 1
       else 2
end primary_ordering,
case
       when (my_ended_on is not null or skipped_ce > 0) then 2
       else 1
end completed_ordering
from (
select a.comp_event_id,
       a.competition_id,
       a.is_playoff,
       a.start_date,
       a.end_date,
       a.title,
       a.competition_title,
       dl.text difficulty,

```

```

       u.user_id author_id,
       u.user_image,
       u.display_name author_name,
       job_title,
       ( select count (*) the_count
       from qdb_compev_answers eva
       where eva.comp_event_id = a.comp_event_id
       and eva.ended_on is not null ) all_answers,
       ( select max (started_on)
       from qdb_compev_answers eva
       where eva.comp_event_id = a.comp_event_id
       and eva.user_id = :ai_user_id ) my_started_on,
       ( select max (ended_on)
       from qdb_compev_answers eva
       where eva.comp_event_id = a.comp_event_id
       and eva.user_id = :ai_user_id ) my_ended_on,
       ( select count (comp_event_id)
       from qdb_comp_events_skipped ces
       where ces.comp_event_id = a.comp_event_id
       and ces.user_id = :ai_user_id ) skipped_ce,
       q.question_id,
       c.short_description,
       a.comp_type_text,
       d.domain_id
from qdb_approved_comp_events_v a,
       qdb_domains d,
       qdb_users u,
       qdb_questions q,
       qdb_quizzes qz,
       qdb_difficulty_levels dl,
       qdb_competitions c
where (a.comp_type_text = 'COMPETE' or
       a.competition_title = 'Featured')
and a.is_playoff = 'N'
and sysdate between a.start_date and a.end_date
and a.domain_id = d.domain_id

```

```

and a.comp_event_id = qz.comp_event_id
and qz.question_id = q.question_id
and q.author_id = u.user_id
and q.difficulty_id = dl.difficulty_id
and a.competition_id = c.competition_id
) opens
union all
select 2 play_type, title,
      case
        when start_time <= sysdate or sysdate
        between start_time - 1 / 48 and start_time
        then '...' || comp_event_id || '}}';'
        else '...' || comp_event_id || '}}';'
      end item_link,
      '...' || case
        when sysdate > end_time then '...'
        when sysdate between start_time and end_time then '...'
        else null
      end || '</div>' item_actions,
      '<div class="item-Icon-v2">' || case
        when my_ended_on is not null then '...'
        when my_started_on is not null then '...'
        else '...'
      end || '</div>' as item_icon,
      '...' || to_char (start_date, 'FMDD Month') ||
      '...' || (
        select count (*)
        from qdb_compev_answers
        where comp_event_id = playoffs.comp_event_id
      ) || '</div>' as item_misc,
      qdb_content.activity_search_links_text (
        activity_id_in => comp_event_id, activity_type_in =>
        'P') item_description,
      all_answers,
      playoffs.comp_event_id,
      playoffs.domain_id,

```

```

3 primary_ordering,
1 completed_ordering
from (
  select a.comp_event_id,
        a.title,
        a.is_playoff,
        a.start_date,
        a.end_date,
        e.start_time,
        e.end_time,
        e.can_play,
        a.competition_title,
        u.user_id author_id,
        u.user_image,
        u.display_name author_name,
        job_title,
        ( select max (ended_on)
          from qdb_compev_answers eva
         where eva.comp_event_id = a.comp_event_id
         and eva.user_id = :ai_user_id ) my_ended_on,
        ( select max (started_on)
          from qdb_compev_answers eva
         where eva.comp_event_id = a.comp_event_id
         and eva.user_id = :ai_user_id ) my_started_on,
        a.comp_type_text,
        null all_answers,
        d.domain_id
  from qdb_approved_comp_events_v a,
       qdb_domains d,
       qdb_eligible_players_v e,
       qdb_users u,
       qdb_quizmasters qm
 where a.comp_type_text = 'PLAYOFF'
 and a.is_playoff = 'Y'
 and a.start_date >= sysdate - 7
 and a.end_date <= sysdate + 7

```

```

and a.comp_event_id = e.comp_event_id
and e.user_id = :ai_user_id
and a.domain_id = d.domain_id
and d.domain_id = qm.domain_id
and qm.user_id = u.user_id
) playoffs
union all
select 3 play_type, title item_title,
      'javascript:apex.submit({request:'' || case
        when dq.ended_on is not null then 'VIEW_TUNEUP'
        else 'TAKE_TUNEUP'
      end || '',set:{"P1203_COMP_EVENT_ID":"' ||
      dq.comp_event_id || '}});' item_link,
      '...' || || difficulty_text || '</div>' as item_actions,
      '...' || case
        when ended_on is not null then '...'
        else '...'
      end || '</div>' as item_icon,
      '...' || case
        when (trunc (sysdate + 1) - sysdate) * 24 < 1 then
          to_char (round ((trunc ( sysdate + 1) - sysdate) * 24 * 60)) || '
minutes'
        else to_char (round ((trunc (sysdate + 1) - sysdate) * 24)) || '
hours'
      end || '</div>' as item_misc,
      qdb_content.activity_search_links_text (
        activity_id_in => question_id, activity_type_in =>
        'Q') item_description,
      null all_answers,
      dq.comp_event_id,
      dq.domain_id,
      -1 primary_ordering,
      case
        when my_ended_on is not null then 2
        else 1
      end completed_ordering
from (

```



```

select ce.comp_event_id,
       ce.title,
       ce.start_date,
       d.abbreviation,
       dl.text difficulty_text,
       ( select ended_on
         from qdb_compev_answers a
        where a.user_id = :ai_user_id and
              a.comp_event_id = ce.comp_event_id ) ended_on,
       q.author_id,
       u.display_name author_name,
       u.job_title,
       u.user_image,
       q.question_id,
       q.expert_seconds,
       d.domain_id,
       ( select max (ended_on)
         from qdb_compev_answers eva
        where eva.comp_event_id = ce.comp_event_id
              and eva.user_id = :ai_user_id ) my_ended_on
from qdb_comp_events ce,
     qdb_competitions c,
     qdb_domains d,
     qdb_compev_players p,
     qdb_quizzes z,
     qdb_questions q,
     qdb_difficulty_levels dl,
     qdb_users u
where c.competition_id in (
       select competition_id
         from qdb_competitions
        where title = 'Daily Workout'
) and c.competition_id   = ce.competition_id
and ce.comp_event_id     = p.comp_event_id
and p.user_id            = :ai_user_id
and c.domain_id          = d.domain_id

```

```

and trunc ( ce.start_date) = trunc (sysdate)
and ce.comp_event_id      = z.comp_event_id
and z.question_id         = q.question_id
and q.difficulty_id       = dl.difficulty_id
and q.author_id           = u.user_id
) dq
union all
select 4 play_type, title, case
       when end_time < sysdate      then '...' || comp_event_id from (
|| '}});'
       when start_time - 1 / 24 <= sysdate then '...' || comp_event_id
|| '}});'
       else qdb_utilities.public_static_url_string (
              type_in => 'competition', url_in => (
                select static_url
                  from qdb_competitions c
                 where c.competition_id = tournaments.competition_id
              ))
       end item_link,
       '...' || case
              when sysdate > end_time then '...'
              when sysdate between start_time and end_time then '...'
              else null
       end || '</div>' item_actions,
       '...' || case
              when my_ended_on is not null then '...'
              when my_started_on is not null then '...'
              else '...'
       end || '</div>' as item_icon,
       '...' || to_char (start_date, 'FMDD Mon FMHH24:MI') ||
       ' - ' || to_char (end_date, 'HH24:MI') || '...' || (
       select count (*)
         from qdb_compev_answers
        where comp_event_id = tournaments.
              comp_event_id
       ) || '</div>' as item_misc,

```

```

qdb_content.activity_search_links_text (
activity_id_in => comp_event_id, activity_type_in
=> 'P') item_description,
all_answers,
tournaments.comp_event_id,
tournaments.domain_id,
3 primary_ordering,
1 completed_ordering
select a.comp_event_id,
       a.title,
       a.is_playoff,
       a.start_date,
       a.end_date,
       a.start_date start_time,
       a.end_date end_time,
       a.competition_title,
       u.user_id author_id,
       u.user_image,
       u.display_name author_name,
       job_title,
       ( select max (ended_on)
         from qdb_compev_answers eva
        where eva.comp_event_id = a.comp_event_id
              and eva.user_id = :ai_user_id ) my_ended_on,
       ( select max (started_on)
         from qdb_compev_answers eva
        where eva.comp_event_id = a.comp_event_id
              and eva.user_id = :ai_user_id ) my_started_on,
       a.comp_type_text,
       null all_answers,
       d.domain_id,
       a.competition_id
from qdb_approved_comp_events_v a,
     qdb_domains d ...

```



我该如何
下手?!

A photograph of a man and a woman in an office setting, looking at laptops. Three speech bubbles are overlaid on the image, containing text in Chinese. The background is a blurred office environment with glass partitions and other people.

创建报表，统计员工平均工资和总额

...只包含3名员工以上的部门

...按区域汇总



演示

A woman with long dark hair, wearing a yellow top, is sitting at a desk and looking at a laptop. A man with short grey hair, wearing a light blue shirt, is sitting next to her, also looking at a laptop. They are both smiling and appear to be in a collaborative work environment. There are three speech bubbles overlaid on the image. The first bubble, coming from the woman, says '我改主意了 ...'. The second bubble, coming from the man, says '请将员工数限制 改为9人'. The third bubble, coming from the man, says '刚才的 view 不再适用...'.

我改主意了

...

请将员工数限制
改为9人

刚才的 view
不再适用...

SQL Macros

table

可用于from中

19.6

scalar

其它“任何地方”

21c



ro (...)



```
create function sql_macro ( ... )  
  return clob  
  sql_macro ( [ scalar | table ] )  
  as  
begin  
  
  return '  '  
  
end sql_macro;
```



```
select * from (  
    select e.*,  
        count(*) over  
            ( partition by department_id ) emp#  
    from    hr.employees e  
) where emp# >= min_emps
```



```
create function sql_macro
  ( min_emps integer )
return clob sql_macro as begin
  return '
select * from (
  select e.*,
    count(*) over
      ( partition by department_id ) emp#
  from    hr.employees e
) where emp# >= min_emps ' ;

end sql_macro;
```

```
create function sql_macro  
  ( min_emps integer )  
return clob sql_macro as begin  
  return '  
select * from (  
  select e.*,  
    count(*) over  
      ( partition by department_id ) emp#  
  from    hr.employees e  
  ) where emp# >= min_emps';  
  
end sql_macro;
```

解析时
"查找 & 替换"



演示

SQL的元素复用与重构

Views

✓ 预存的可授权SQL

✗ 不支持参数化

CTEs/WITH 子句

✓ 命名的子查询

✗ 仅在SQL内有效

SQL Macros

✓ SQL模板

✓ 支持参数化

访问以下网址获取更多内容

Demo 脚本

[Oracle Documentation Link](#)

SQL Macros 已在自治数据库中可用

<https://bit.ly/SQL-macros-autonomous>

SQL Macros – 参数化SQL模板

<https://bit.ly/SQL-macros-parameterized-views>

谢谢！



Thank you

核心数据，固若金汤

数据库如何被攻破，怎样防护

数据库和云系列（八十五）

孔令鑫

- Oracle 数据安全与管理解决方案工程师
- 5年的开发经验
- 4年的基金交易系统运维经验
- 4年的数据安全管理经验



内容简介

- 勒索软件内容回顾
- 数据库如何被攻破，怎样防护



直播时间：9月16日 11:00 - 12:00

扫描二维码注册并安装手机Zoom进入直播

Zoom ID: 976 6962 5763 密码: 98039717



数据库和云讲座群

20-18



甲骨文云技术公众号



技术专家1V1深入交流

