



regoUniversity 2019

SAN DIEGO

Performance Optimization |
SQL Tuning & Jaspersoft Tricks
Your Guides: Ben Rimmasch and Dave Matzdorf

Introductions

- Take 5 Minutes
- Turn to a Person Near You
- Introduce Yourself
- Business Cards



Part I: Introduction

<Descriptor>

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Agenda

- Introduction
- What are Analytic Functions
- Why use Analytic Functions
- Working examples
 - Selecting certain records
 - Partitioning data
 - Calculating totals
 - Running totals
 - Ranking records
 - Defining windows

What Are Analytic Functions

- Used to compute aggregate values based on a group of rows
- Similar to aggregate functions but return multiple rows
- Can only appear in the SELECT or ORDER BY clause
- Used to compute cumulative, moving aggregates

Why Use Analytic Functions

- Can be done with native SQL
- Odd syntax
- Analytic functions are faster and more accurate
- Get the latest status report
 - Get the max updated date for each project and join to it
 - Not accurate if there are multiple reports updated at the same time
 - Not efficient

```
SELECT INVI.ID INVEST_ID
, INVI.CODE INVEST_CODE
, INVI.NAME INVEST_NAME
, SR.ID STATUS_REPORT_ID
, SR.CODE STATUS_REPORT_CODE
, SR.NAME STATUS_REPORT_NAME
FROM INV_INVESTMENTS INVI
JOIN ODF_CA_COP_PRJ_STATUSRPT SR ON INVI.ID = SR.ODF_PARENT_ID
JOIN (SELECT SR.ODF_PARENT_ID, MAX(SR.LAST_UPDATED_DATE) MAX_UPDATED_DATE
      FROM ODF_CA_COP_PRJ_STATUSRPT SR
      WHERE 1=1
      GROUP BY SR.ODF_PARENT_ID) MD ON INVI.ID = MD.ODF_PARENT_ID AND SR.LAST_UPDATED_DATE = MAX_UPDATED_DATE
WHERE 1=1
ORDER BY INVI.ID
, SR.ID
```

Available Functions

- AVG
- CORR
- COUNT
- COVAR_POP
- COVAR_SAMP
- CUME_DIST
- DENSE_RANK
- FIRST
- FIRST_VALUE
- LAG
- LAST
- LAST_VALUE
- LEAD
- LISTAGG
- MAX
- MEDIAN
- MIN
- NTH_VALUE
- NTILE
- PERCENT_RANK
- PERCENTILE_CONT
- PERCENTILE_DISC
- RANK
- RATIO_TO_REPORT
- REGR_
- ROW_NUMBER
- STDDEV
- STDDEV_POP
- STDDEV_SAMP
- SUM
- VAR_POP
- VAR_SAMP
- VARIANCE

Selecting Specific Records

- `ROW_NUMBER`: Get the latest status report
- `LEAD/LAG`: Get the previous and next status report
- `FIRST_VALUE/LAST_VALUE`: Get the first and last status report
- `NTH_VALUE`: Get the nth status report

Summing

- SUM – Calculate total allocations
- RATIO_TO_REPORT – Calculate percentage of total allocations
- SUM – Calculate total allocation hours
- SUM ORDER BY – Running allocation hours

Calculating an NPV

- Calculate NPV for a series of cash flows

Window clause

- BETWEEN ... AND
- UNBOUND PRECEDING
- UNBOUND FOLLOWING
- CURRENT ROW
- X PRECEDING OR X FOLLOWING



SQL Tuning 2019 Queries.txt

Questions?



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- Date Started = **Today's Date**
- Date Completed = **Today's Date**
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