Tips and Tricks for Alma Analytics

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For today’s talk:

• Random tips on organizing & formatting
• Helpful functions for extraction & display
• Data sorting tricks
• MINUS & UNION queries
Random tips on organizing & formatting
Tip #1 — Create folders for different library functional areas (Acquisitions, Fulfillment, Resource Management, Assessment, etc.) and “In process” folders for individuals.
Tip #2 — Give reports meaningful names

- Easier to identify when scanning a list
- Helps distinguish similar reports
Tip #3 — Use the “Description” field to explain the purpose of the report

• If applicable, state who requested the report
• Add your name in parentheses, along with the date you created the report
Tip #4 — If/when creating a folder in the Community area, please consider that the purpose is to share with other institutions, not within your own. Use helpful descriptions, report names, etc.
Tip #5 — For locating reports you’ve already created, use the Oracle BI Search feature

The better, more descriptive content you add to these reports (via the name, description, etc.) the easier it will be to re-locate them in the future.
Tip #6 — Rename a column using “Column Properties – Column Format” tab

Check the “Custom Headings” box, then change “Column Heading” text to be whatever you want.
Tip #7 – Hide a column using “Column Properties – Column Format”
Tip #8 — Use % and _ as wildcard characters with “Is LIKE” and “Is NOT LIKE” filters

% = multiple characters  
_ = single character

*For call number range PA3520 – PA3549
Helpful Functions
Functions are added to formulas, and provide more control over the query logic and data output.
The image shows an Edit Column Formula dialog box with the following settings:

- **Folder Heading**: Bibliographic Details
- **Column Heading**: Count of Distinct Bios
- **Aggregation Rule (Totals Row)**: Default
- **Column Formula**: COUNT(DISTINCT "Bibliographic Details","MMS Id")

The dialog box also includes options for Custom Headings and Contains HTML Markup.
SUBSTRING – extracts a portion of a string

SUBSTRING("dimension"."field" FROM n FOR n)

Example: Let’s say we want to shorten the title field to the first 45 characters

* Laws related to Securities Commission, exchanges and holdings companies

SUBSTRING("Bibliographic Details"."Title" FROM 1 FOR 45)

Result:

* Laws related to Securities Commission, exchan
**COUNT** – extracts a portion of a string

COUNT("dimension"."field")
COUNT(DISTINCT "dimension"."field")

Example: In certain cases (perhaps when there is not a measure field available), you might need to produce a count. We needed to produce a count of unique bib records for all our E-books. There was no measurement field available for this, so ...

COUNT(DISTINCT "Bibliographic Details"."MMS Id")

**Result:** Counts the distinct number of Bib records
CONCATENATION – combine two or more strings into one

"dimension"."field"||"dimension"."field"

Example: Rather than have a column with User last name and a column with user first name, let’s say we want to combine the two into one column in the format “lastname, firstname”

"User Details"."Last Name"||', '||"User Details"."First Name"

Result: Creates a single column with Lastname, Firstname
TRIM – removes leading and trailing data from a string

TRIM(LEADING "trim_text" FROM "dimension"."field")
TRIM(TRAILING "trim_text" FROM "dimension"."field")

Example: Let’s say we want to remove the trailing forward slash from the title field

Handbook of environmental sociology /

TRIM(TRAILING '/' FROM "Bibliographic Details"."Title")

Result:

Handbook of environmental sociology
REPLACE – replace some text with something else

REPLACE("dimension"."field","some text","something else")

Example: We want to remove the subfields from this call number

$$hPN1005.B5$$iH45 2006

REPLACE(REPLACE("Loan Details"."Call Number","$$h'','"'),"$$i'','")

Result:

PN1005.B5H45 2006
LOCATE with SUBSTRING – facilitates the extraction of data within a string

SUBSTRING("dimension"."field" FROM LOCATE('string to locate', "dimension"."field")+n FOR n)

Example: We have a data string, and want to extract only the 8-character date

No. Loans: 003 | LastDateReturn: 20090915

SUBSTRING("Physical Item Details"."Statistics Note 2" FROM LOCATE('LastDateReturn: ','"Physical Item Details"."Statistics Note 2")+16 FOR 8)

LOCATE('LastDateReturn: ','"Physical Item Details"."Statistics Note 2")+16

Result:

20090915
LOCATE with SUBSTRING – cont.

How do we return that date in MM/DD/YYYY format?
Need to use three functions: SUBSTRING, LOCATE, and CONCATENATION

SUBSTRING("Physical Item Details"."Statistics Note 2" FROM LOCATE('LastDateReturn: ','"Physical Item Details"."Statistics Note 2")+20 FOR 2)||'/'||
SUBSTRING("Physical Item Details"."Statistics Note 2" FROM LOCATE('LastDateReturn: ','"Physical Item Details"."Statistics Note 2")+22 FOR 2)||'/'||
SUBSTRING("Physical Item Details"."Statistics Note 2" FROM LOCATE('LastDateReturn: ','"Physical Item Details"."Statistics Note 2")+16 FOR 4)

Result:
09/15/2009
**Example:** We have a text string and only want to extract the number of loans from the string. If the field is null, then we want to extract “0”

*No. Loans: 003 | LastDateReturn: 20090915*

```sql
CASE
WHEN "Physical Item Details"."Statistics Note 2" IS NOT NULL THEN CAST(SUBSTRING("Physical Item Details"."Statistics Note 2" FROM 12 FOR 3) as INT)
ELSE CAST('0' as INT)
END
```

**Result:**

3
**FILTER** – uses similar logic to CASE for performing data extraction, *but* requires a measurement value

```
FILTER("dimension"."measurement field" USING ("dimension"."field" = 'value'))
```

**Example:** We want to extract the transaction amounts for all expenditure (spent) transactions, but if the field is null, then we want to extract “0”

```
IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'EXPENDITURE')), 0)
```
Allocated Amount
IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'ALLOCATION')), 0)

Adjusted Allocation (includes allocations + transfers)
IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'ALLOCATION')), 0) + IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'TRANSFER')), 0)

Encumbered Amount
IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'ENCUMBRANCE')), 0)

Cash Balance
IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'ALLOCATION')), 0) - IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'EXPENDITURE')), 0)

Available Amount
IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'ALLOCATION')), 0) - (IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'EXPENDITURE')), 0) + IFNULL(FILTER("Fund Transactions"."Transaction Amount" USING ("Fund Transaction Details"."Transaction Item Type" = 'ENCUMBRANCE')), 0))
% Remaining

(IFnulle.Filter("Fund Transactions"."Transaction Amount" Using ("Fund Transaction Details"."Transaction Item Type" = 'ALLOCATION')), 0) - Ifnulle.Filter("Fund Transactions"."Transaction Amount" Using ("Fund Transaction Details"."Transaction Item Type" = 'EXPENDITURE')), 0)) / Ifnulle.Filter("Fund Transactions"."Transaction Amount" Using ("Fund Transaction Details"."Transaction Item Type" = 'ALLOCATION')), 0) * 100
CASE vs. FILTER?

• Both functions are extremely helpful and have their place in Analytics reporting
• CASE can sometimes be notoriously slow for Oracle response time
• FILTER can be a better option than CASE in terms of response time, but FILTER requires a measurement value whereas CASE does not
Trivia Time!
Man ‘O War won every race he was in except for one. What was the name of the horse he lost to?

Answer: Upset
Data Sorting Tricks
Example #1
This dashboard report was created in the Fulfillment subject area. It shows # of loans by month and uses the following filter:

贷款日期 is between 07/01/2015 and 06/30/2016

We want the output to sort by chronological month. How do we accomplish this?
Solution
Add a 3\textsuperscript{rd} column to the report for “Loan.Date”.”Loan Fiscal Month Key”, do a “Sort Ascending” on the new column, and then hide the column.
Example #1 (cont.)

The final results are sorted by chronological month according to the fiscal year.

<table>
<thead>
<tr>
<th>Loan Month</th>
<th>Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>15,208</td>
</tr>
<tr>
<td>August</td>
<td>17,582</td>
</tr>
<tr>
<td>September</td>
<td>24,692</td>
</tr>
<tr>
<td>October</td>
<td>26,070</td>
</tr>
<tr>
<td>November</td>
<td>27,992</td>
</tr>
<tr>
<td>December</td>
<td>21,147</td>
</tr>
<tr>
<td>January</td>
<td>21,963</td>
</tr>
<tr>
<td>February</td>
<td>28,390</td>
</tr>
<tr>
<td>March</td>
<td>27,592</td>
</tr>
<tr>
<td>April</td>
<td>27,683</td>
</tr>
</tbody>
</table>
What if the fiscal year is not July – June, but rather October – September?

Loan Date is between 10/01/2015 and 09/30/2016

Solution
Instead of Loan Fiscal Month Key, add a third column for “Loan Date”.”Loan Date”, use the formula below, then hide the column:

EVALUATE('TO_CHAR(%1,%2) AS CHARACTER (30), "Loan Date"."Loan Date", 'YYYY-MM')

<table>
<thead>
<tr>
<th>Loan Month</th>
<th>Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>26,070</td>
</tr>
<tr>
<td>November</td>
<td>27,992</td>
</tr>
<tr>
<td>December</td>
<td>21,147</td>
</tr>
<tr>
<td>January</td>
<td>21,963</td>
</tr>
<tr>
<td>February</td>
<td>28,390</td>
</tr>
<tr>
<td>March</td>
<td>27,592</td>
</tr>
<tr>
<td>April</td>
<td>30,464</td>
</tr>
</tbody>
</table>
Example #2
We need a report for a certain LC call number range, and sorted by call number. How do we accomplish this?

Solution
To identify call number range, use Filter(s) on Permanent Call Number.
Example #2 (cont.)

Solution (cont.) – To sort the results by LC Call Number, add a column for Normalized Call Number, do a ‘Sort Ascending’ on the column, then Hide the column
Example #2 (cont.)

Now the results appear in correct LC Call Number order. I’d also recommend doing a secondary ‘Sort Ascending’ on Description:

<table>
<thead>
<tr>
<th>Call Number</th>
<th>Description</th>
<th>Barcode</th>
<th>Aleph Loans</th>
<th>Alma Loans</th>
<th>Total Loans</th>
<th>Num of Loans (In House + Not In House)</th>
<th>Num of Loans (In House)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG62.B73</td>
<td></td>
<td>39029013111863</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 Breviariurn urbis Romae antiquae /</td>
</tr>
<tr>
<td>DG62.C6</td>
<td></td>
<td>39029019312028</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>Guida archeologica di Roma /</td>
</tr>
<tr>
<td>DG62.C62</td>
<td></td>
<td>39029032532933</td>
<td>9</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>Rome and environs : an archaeological guide /</td>
</tr>
<tr>
<td>DG62.J65</td>
<td></td>
<td>39029010510240</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Classical Rome,</td>
</tr>
<tr>
<td>DG62.K4</td>
<td></td>
<td>39029005232021</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Formae urbis Romae antiquae.</td>
</tr>
<tr>
<td>DG62.T68</td>
<td></td>
<td>39029005233451</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>Qui Roma,</td>
</tr>
<tr>
<td>DG62.5.D97</td>
<td></td>
<td>3902903212035</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>Rome : a living portrait of an ancient city /</td>
</tr>
<tr>
<td>DG62.5.F47</td>
<td></td>
<td>39029022599215</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Onofrio Panvinio et les antiquités romaines /</td>
</tr>
<tr>
<td>DG62.5.L23</td>
<td></td>
<td>39029033068937</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>The virtual tourist in Renaissance Rome : printing and collecting the Speculum romanæ magníficentiae /</td>
</tr>
<tr>
<td>DG62.5.P65</td>
<td></td>
<td>39029019142565</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Roma ampliata, e rinovata : o sia, nuova descrizione della moderna città di Roma, e di tutti gli edifizi notabili, che sono in essa ...</td>
</tr>
<tr>
<td>DG63.A57</td>
<td></td>
<td>39029028925910</td>
<td>13</td>
<td>0</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>Ancient Rome : the archaeology of the eternal city /</td>
</tr>
<tr>
<td>DG63.A75</td>
<td></td>
<td>39029005241744</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0 Rome subterranea novissima, in qua post Antonium Bosium antesignanum, Jo: Severanum Congreg. Oratorii presbyterum, et celebriter scriptores antiqua Christianorum et praecipe martyrum coemeteria, tituli, monimenta, epitaphia, inscriptiones, ac nobiliora sancta sex libris distincta illustrantur et quemplurimæae res ecclesiasticæ iconibus graphice describuntur, ac multipli tæ sacra, tum pro declarantur,</td>
</tr>
<tr>
<td>DG63.A75</td>
<td></td>
<td>39029005241751</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0 Rome subterranea novissima, in qua post Antonium Bosium antesignanum, Jo: Severanum Congreg. Oratorii presbyterum, et celebriter scriptores antiqua Christianorum et praecipe martyrum coemeteria, tituli, monimenta, epitaphia, inscriptiones, ac nobiliora sancta sex libris distincta illustrantur et quemplurimæae res ecclesiasticæ iconibus graphice describuntur, ac multipli tæ sacra, tum pro declarantur,</td>
</tr>
<tr>
<td>DG63.A85</td>
<td></td>
<td>39029038865782</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1 Atlante di Roma antica : biografia e ritratti della città /</td>
</tr>
<tr>
<td>DG63.A85</td>
<td></td>
<td>39029038868881</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1 Atlante di Roma antica : biografia e ritratti della città /</td>
</tr>
<tr>
<td>DG63.A93</td>
<td></td>
<td>39029029728189</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>0 Aurea Roma : dalla città pagana alla città cristiana /</td>
</tr>
</tbody>
</table>

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MINUS and UNION Queries
MINUS queries ...
• Subtract the results of one query from another
• Require that the columns selected in both queries must be identical

UNION queries ...
• Combine the results of two separate queries into one results set
• Require that the columns selected in both queries must be identical
• Exclude duplicate rows (although, a UNION ALL query does include duplicate rows)
A note of caution ... MINUS and UNION are powerful operators, but it can be tricky to build these queries. Experiment with a known subset of data first in order to get the syntax correct.
We have Leisure reading books held at both Main and Ag-VetMed, with some titles having copies at both locations. We want a report of those titles held *only* at AgVetMed.

We can accomplish this with a MINUS query.
Both MINUS and UNION queries are created by clicking the green “+” icon. Click the icon after you have started your first query.
You will be prompted to select a subject area for the second query. Note that you can use a different subject area, but the column(s) **must** be the same as the first query.
Next, you can then choose the type of query by clicking this drop-down icon.

Note that you are prompted to add the column(s) already specified in the first query.
Add filters to each query. Note how you can structure the filters in the second query to exclude everything needed in order to only retrieve the results you want (Leisure Reading Books from AGVET only).
Results:

• 319 Bib records contain an Ag-VetMed Leisure reading book
• 103 of these Bib records also contain a Leisure reading book for the Main Library
• So, the MINUS query returns a total of 216 Bib records containing only a Leisure reading book at Ag-VetMed
Example of UNION query

Our Library Administration wants a report of the top 10 encumbrances, ranked from highest to lowest, along with a total of all the remaining encumbrances.

How do we accomplish this?
Two separate queries combined into one results set, with Grand Total at bottom.
Same steps as creating a MINUS query...

• Create the 1st query
• Use ‘+’ symbol to add another query/subject area
• Use drop-down to define that the query is a UNION query
• Add the appropriate columns to each query (remember – they must be the same columns in both queries)
• Add the appropriate filters to both queries
Both of these queries can be found here:
Shared folders / Community / Reports / UTTennessee
Thank you for your attention!
Any questions?

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