Calculated Fields

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Overview

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With Yellowfin's view builder you can create derived columns based on the fields sourced from the database. These calculations can include simple mathematical calculations or more complex SQL statements.

You can create a number of different types of calculated columns including:

Type	Description
Simple Formulas	This allows you to build calculations through a builder interface, rather than having to write the SQL yourself.
Calculated Fields#Pre-Defined	This allows you to build a calculation using a template, rather than having to use a builder, simply by specifying the fields it requires.
Calculated Fields#Freehand SQL	This allows you to build a calculation by writing the SQL, rather than using a builder.

Simple Formula

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The formula builder assists you to write valid formulas for your view. Calculated fields written in this way can be used as normal fields within a report – i.e. all functions can be applied to them such as aggregations etc. This is not possible with SQL calculated fields. To begin you will need to work out what type of field your resulting value will require and select either Metric or Dimension.

Metric

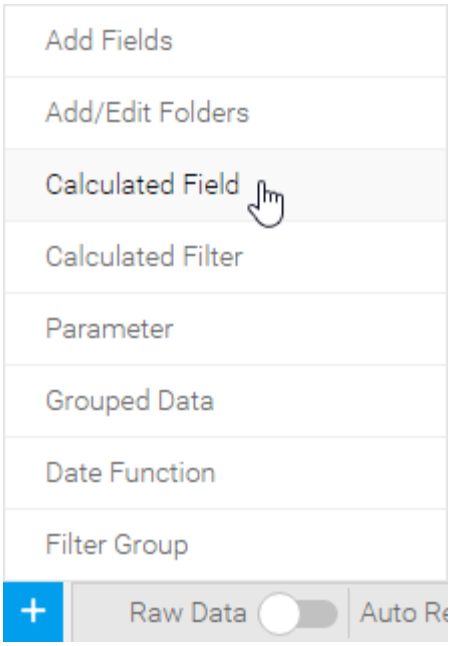
This calculation returns numeric values and allows for standard Metric formatting options such as decimal places, prefix, suffix, and default aggregation.

Dimension

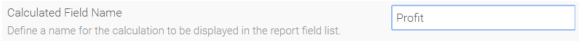
This calculation allows for all the standard Dimension formatting and functionality such as inclusion in Drill Down Hierarchies.

Creating a Calculation

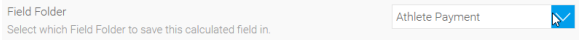
1. Click the **Create** button and select the **Calculated Field** option.



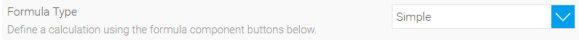
2. Provide a **name** for the field, to be displayed in the report builder.



3. Select a **Field Folder** to place the calculation into.

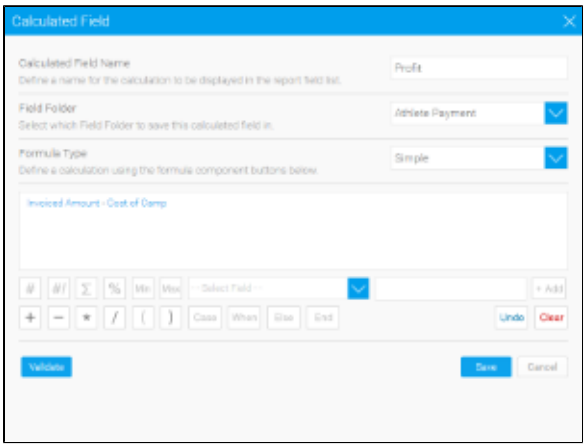


4. Leave the **Formula Type** set to **Simple**.

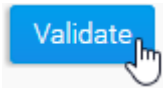


5. Define your calculation using the buttons at the bottom of the window, for example:

   - Search for the **Invoiced Amount** field in the **-- Select Field --** drop down list and click on it to add it to the formula box
   - Press the minus (**–**) button
   - Search for the **Cost of Camp** field and add it to the formula
   - You will now have **Invoiced Amount - Cost**

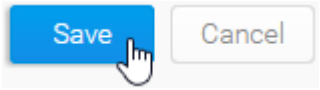


6. Test your formula by clicking the **Validate** button.



You will now see a message confirming that your formula is valid. If something has gone wrong you will see a relevant error message instead.

7. **Save**



Case Statements

More complex calculations can be created using the case statement. The case statement allows you to create new values in columns based on business logic. For example IF age is less than 20 then print “Young”.

Case Statement Structure

If you are not familiar with Case Statements, the basic structure is as follows:

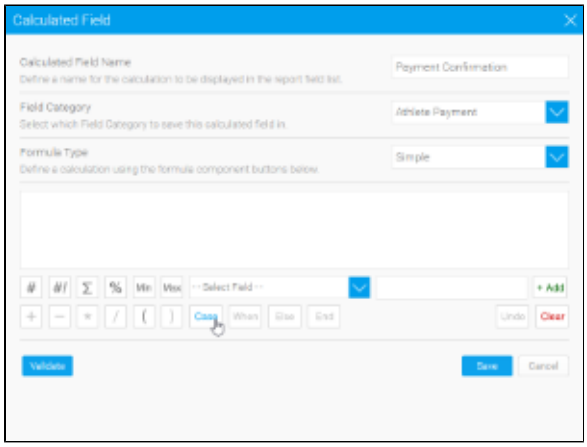
```
CASE
        WHEN this is true THEN return this
        WHEN this is true THEN return this
        WHEN this is true THEN return this
        ...
        ELSE return this
END
```

Each of the items in CAPS are a component in the case statement:

Component	Description
CASE	The calculation will always begin with the CASE component. Make sure you have added this before trying to build the formula, other components will not be available until you do.
WHEN	You can have as many WHEN components as you like in a Case statement, but they will always need to be before the ELSE component. WHEN is used to define a condition, for example: `WHEN AthleteAge < 21` This identifies any rows where the AthleteAge value is less than 21. WHEN components always have a THEN so that Yellowfin knows what to return when the condition is met.
THEN	This is linked to the WHEN component and instructs Yellowfin on what to return when the condition is met. For example: `WHEN AthelteAge < 21 THEN 'Youth'` This will mean that if the AthleteAge field is less than 21 the calculation will display the text 'Youth'.
ELSE	This is an optional component that is used to tell Yellowfin what to do when none of the WHEN conditions are met. It basically works like an extra THEN component.
END	The calculation will always end with an END component in order to tell Yellowfin that it's complete. Your calculation will not be valid if you don't have an END so be sure to add it.

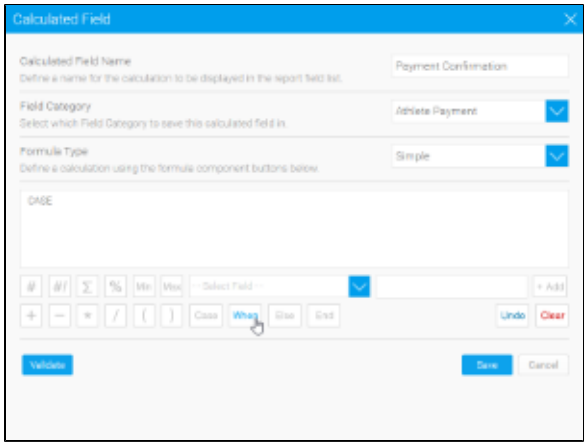
Creating a Case Statement

1. To create a CASE statement, click the **Case** button in the Simple Calculation builder (as above).



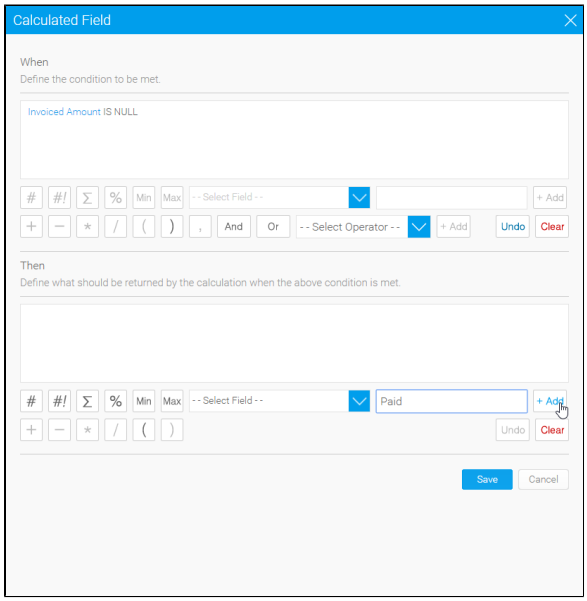
2. Click on the **When** button will open a popup and create your first **When** condition and **Then** instruction.

Note: it operates similar to the formula builder, only allowing formula objects to be inserted where they are valid.

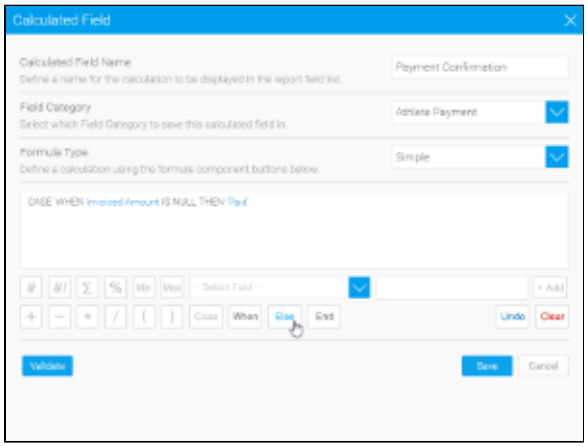


3. Click **Save** to complete your condition/instruction.

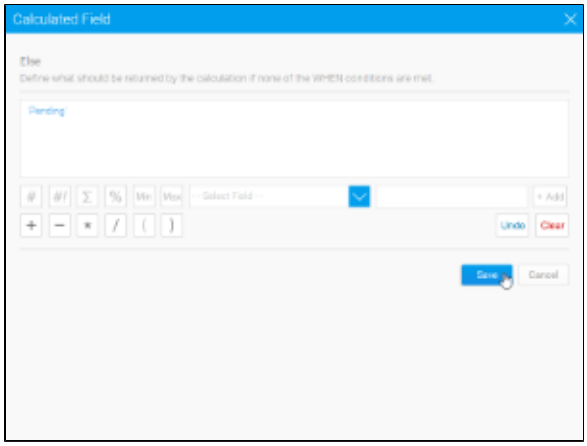
4. Continue adding **When** conditions until you have covered all the possibilities required.



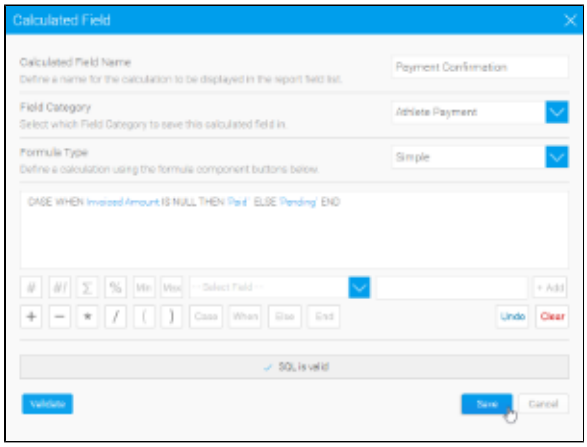
5. Add an **Else** condition if needed, this is optional, but recommended.



6. Add your **End** component.



7. **Validate** & **Save** your calculation.



Pre-Defined

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Custom functions are functions that are hand designed and that are stored in XML format on the Yellowfin server. These functions usually consist of advanced SQL functions that cannot be easily generated by the formula builder. These functions are configured by your system administrator.

1. Select the type of calculated field as Formula, and select the formula you wish to use from the drop down menu.
2. Functions defined in the XML file will require you to enter a number of parameters (or arguments). Parameters can be chosen from a list of columns where the data type matches the data type of the give parameter.
3. Assign a value by clicking each Argument and assigning a value to it. The value can either be a fixed data value or a column reference.
4. Once values for each of the arguments has been assigned, click the save button to save the column to the list.

Creating New Custom Functions

Custom functions are a configurable item within your own installation of Yellowfin. To add new custom XML functions into the application contact your system administrator or see Custom Functions for more information.

Freehand SQL

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If you have SQL skills you may wish to write your SQL directly into the SQL edit box. In this case select the ‘Enter SQL’ option from the formula tab. This will open the SQL edit box.
Insert the SQL you wish to create your column.

- You should enter an SQL SELECT fragment, not including the SELECT keyword or any FROM or WHERE clauses.
- Any columns referenced must exist in this view, and aggregate functions (AVG, MAX, MIN, SUM and COUNT) should not be used.

> **Note**
>
> You can configure how Yellowfin deals with the security around Freehand SQL. See the Available Security functions page for further information.

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Calculation Totals

Once you have created a calculation, you can formulate and display its total aggregated value. More about this in the Summaries section.

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