Calculated fields and expressions in custom forms

This is a companion guide for the Calculated fields and expressions in custom forms learning path on Workfront One. This guide includes things to know and remember when it comes to building expressions, what the structure of a data expression looks like, the exercises found in the learning path, and additional exercises to practice what was taught.
Data expression structure

With all the data expressions that can be built in Workfront, it’s key to remember that no matter what kind of expression you create, there are always fundamental elements that have to be included for the expression, whether simple or complex, to work. Those elements are:

- The name of the expression
- An open and close parenthesis
- The data points or strings within the expression
- Commas

With the elements laid out as follows:

<table>
<thead>
<tr>
<th>Name</th>
<th>( Data Point/String 1 , Data Point/String 2 , Data Point/String 3,etc. )</th>
</tr>
</thead>
</table>

You can use this table, as you do the exercises in this guide, as a reminder for what elements are included in expressions built in Workfront.
Learning path exercises

This section includes exercises found in the learning path. Answers to all exercises can be found at the end of the guide.

Date & Time

1. There is a 14-day period between when a request has been approved and when it’s converted to an active project in Workfront. In order for the requestor to know roughly when the project should start, use the ADDDAYS data expression in a calculated field in an issue custom form. Attach the custom form to any requests being submitted so the potential project start date can be found in the details area of the request.
   • **Note:** Remember that requests are synonymous with the issue object type.

2. Build a calculated field using the DATEDIFF data expression to determine how many days it took to complete an issue/request.

Mathematical

1. Create a calculated field to determine the difference between the number of hours planned and the hours actually logged on a task. Title the field Remaining Hours.
   • **Hint:** In Workfront, time is tracked in minutes. An additional piece needs to be added to the expression to show the information in hours.

2. Create a calculated field to know, for projects, the monetary value of what has actually been completed. Title the field Planned Earned Value.
   
   For example, if someone marks a task as 50% complete and the planned labor cost (based on planned hours and billing per hour) is $100, you want Workfront to calculate the value gained up to that point, which is $50.
   
   • **Hint:** This calculation uses both division and multiplication and can be written in several ways.

3. Using the Planned Earned Value field and the actual labor cost, create a calculated field to show whether the project is over or under budget, based on the monetary value, up to the current date. Title the field Cost Variance.

4. Build a calculated field that shows the percent of the work remaining instead of the percent of the work that has been completed. Make sure the percentage shows as a whole number. Title the field “Percent Remaining.”
1. Create a CONCAT expression for a task custom form that includes:
   - Priority
   - Name
   - Progress Status
   - Person assigned to the task
   - Projected Completion Date

Include spaces or dashes between each piece of information to make the field easier to read.

**Bonus CONCAT Exercise:** Add the section labels in the concatenated field.

A common practice, instead of just adding spaces and dashes, is to provide labels to know what each section is. For example, instead of just listing the priority and progress status in the field, the field would show: Priority - 1, Progress Status - On Time, etc.

2. Using the RIGHT expression, modify the Projected Completion Date field in the CONCAT expression from the previous exercise to show just the year the task will be finished.

3. Create an IF text expression to state that if the projected completion date of a task is past the planned completion date of a task, show the term “Off Track.” If the projected completion date is the same or before the planned completion date, then the calculated field should say “On Track.”

4. Create another IF expression to indicate if the planned cost of the project is above or below $5,000. If the cost is more than $5,000, have the calculated field show “Above.” If it’s not, have the field show “Below.”
Additional exercises

This section includes additional expression exercises to test your understanding of the concepts taught in the learning path.

Find the mistake

The following expressions are written incorrectly. Identify the mistake and write the expression correctly.

1. DATEDIFF(plannedStartDate,plannedCompletionDate)
2. IF(ISBLANK(Description,"Missing Description")
3. ADDDAYS(Project:Planned Start Date,5)

Build the expression

Write the expression for the scenarios provided.

1. On an issue custom form, how would you build a calculated field to show the number of weekdays between the entry date of the issue and the actual start date of the issue?

2. On a project custom form, build a calculated field that shows the words "Over Budget" if the project's actual cost is greater than its budget. Have it display "Under Budget" if its actual cost is less than or equal to the budget.

Bonus Question: What issue could you run into with this expression?

3. In a user custom form, create a date field called "Hire Date." Then create a calculated field to determine the number of days between the hire date of the employee and today’s date. Make sure that the term "Days" is added to the number that appears.
Things to know about expressions

These concepts are good to know when working with custom calculated fields in Workfront.

Casing doesn’t matter in expression names

When it comes to the expression names, casing does not matter. You can use uppercase, lowercase, or a mix of both. With the expression ISBLANK(Description), the “ISBLANK” can be written as:

- ISBLANK
- Isblank
- IsBlank
- isBLANK

All of them will work.

Hours are stored in minutes

Hours in Workfront’s database are stored in minutes. If you’re referencing fields like Planned Hours or Actual Hours, divide by 60 to show the time in hours rather than minutes.

Spacing doesn’t affect expressions

The recommended way to write expressions is with little to no spacing between each part of the expression.

- IF(ISBLANK(Description),"No Description","Has Description")

However, if spacing helps you see what is going on, some extra spaces can be added to the expressions. The extra spaces shouldn’t prevent the expression from gathering or calculating a value in Workfront.

- IF (ISBLANK (Description), "No Description", "Has Description")
Quotation marks must be straight

When using quotation marks in an expression, make sure the quotation marks are straight ("."). If the quotation marks are curved (”) the Workfront system will continue to display a "Custom Expression Invalid" message.

Save form or edit object to update calculation

This is an important aspect of calculated fields to understand.

Information displayed in a calculated field remains the same and becomes outdated unless the custom form is recalculated. Expressions can be refreshed by using the Recalculate Expressions option in the More menu on an object.
For example, you want to see the number of days an issue has been open. You create a calculated field called “Days Open” with the expression DATEDIFF.

- **Field Name = Days Open**
- **Expression = DATEDIFF(Entry Date,$$TODAY)**

Once saved, the number of days between when the issue was first created, or entered in Workfront, and today’s date can be shown on the details page of an object or in a report view.

When viewing the same details page or report view the following day, you expect that number to increment by one. If the number is 5 today, it should be 6 tomorrow. The next day should be 7, then 8, etc.

However, the field continues to show 5 every day. The field has to be “re-run,” or recalculated, to refresh the information.

To update a field using the Recalculate Expressions option:

1. Click the name of the object to open it.
2. Click the More menu.
3. Select Recalculate Expressions from the list.

### Recalculate multiple expressions

You can also recalculate multiple expressions at the same time by using the “bulk edit” feature in a list or report.

Suppose you created a report showing a list of issues with the Days Open calculation appearing in a column. If
you want to recalculate all the issues at once:

1. Select all issues in the report.
2. Click the Edit button to bulk edit all the selected issues.

3. Click the Custom Forms label on the left to scroll down to the custom forms section.
4. Check the Recalculate Custom Expressions box at the bottom of the Custom Forms section.
5. Click Save Changes.
The screen refreshes to show updated information in the calculated field.

Note: Although there are other ways of updating, or recalculating, expressions in a calculated field, this is the fastest and easiest way.

Calculations can vary from form to form within the same field

As soon as a calculated field is saved on a custom form, and the custom form itself is saved, the calculated field is added to the Field Library so it can be used on other custom forms.

However, if you have a calculated field on form A and the same calculated field on form B, the initial thought is that the calculations are exactly the same. That is not always the case. The calculated field on form A could be calculating an entirely different way on form B.
When a calculated custom field is selected from the field library and added to a custom form, the field is added but the calculation is blank. One reason this happens is that the calculation may be referring to fields that don't exist for another object type.

For example, you created a calculated field, “Days to Completion,” to determine how long it took to complete a task in a project.

• WEEKDAYDIFF(Actual Start Date, Actual Completion Date)
You want to do the same thing for an iteration or sprint. You can use the same expression; however, the fields available for a task object are not always available for an iteration object. So Workfront gives you the chance to build the calculation with the correct object fields.

**Pro Tip:** Copy the calculated expression from the Calculation box to the Instructions field when creating custom fields. This field is not erased when a calculated custom field is added to the custom form from the Field Library.
Exercise answers

Date & Time

1. ADDDAYS(Approval Path Completion Date,14)

2. DATEDIFF(Actual Start Date,Actual Completion Date)

Mathematical

1. Any of these expressions will work:
   - ROUND(DIV(SUB(Planned Hours,Actual Hours),60),0)
   - ROUND(SUB(Planned Hours,Actual Hours)/60,0)
   - ROUND((Planned Hours-Actual Hours)/60,0)

2. Any of these expressions will work for the Planned Earned Value calculated field:
   - PROD(DIV(Percent Complete,100),Planned Labor Cost)
   - DIV(Percent Complete,100)*Planned Labor Cost
   - (Percent Complete/100)*Planned Labor Cost

3. Any of these expressions will work for the Cost Variance calculated field:
   - SUB(Planned Earned Value,Actual Labor Cost)
   - (Planned Earned Value-Actual Labor Cost)

4. Any of these expressions will work:
   - ROUND(SUB(100,Percent Complete),0)
   - ROUND((100-Percent Complete),0)
1. CONCAT(Priority,"-",Name,"-",Progress Status,"-",Assigned To.Name,"-",Projected Completion Date)

**Bonus Text Exercise:** CONCAT("Priority - ",Priority," - ","Name - ",Name," - ","Progress Status - ",Progress Status," - ","Assignee - ",Assigned To.Name," - ","Projected Due Date - ",Projected Completion Date)

2. The RIGHT expression should look like this:
   • RIGHT(Projected Completion Date,2)

   The CONCAT expression should look like this:
   • CONCAT("Priority:",Priority,"-","Name:",Name,"Progress Status:",Progress Status,"-","Assignee:",Assigned To.Name,"-","Projected Due Date:",RIGHT(Projected Completion Date,2))

3. IF(Projected Completion Date>Planned Completion Date,"Off Track","On track")

4. IF(Planned Cost>5000,"Above","Below")

### Additional Exercises

#### Find the mistake

1. DATEDIFF(Planned Start Date,Planned Completion Date)
2. IF(ISBLANK(Description),"Missing Description")
3. ADDDAYS(Project.Planned Start Date,5)

#### Build the expression

Write the expression for the scenarios provided.

1. WEEKDAYDIFF(Actual Start Date,Entry Date)
2. IF(Actual Cost>Budget,"Over Budget","Under Budget")

**Bonus Question Answer:** When you're referencing a value that continually updates, like the actual cost, the information in the calculated field can become stagnant. Any time hours are added to the object, the actual cost will change. Adding hours is not considered an edit. The custom field will still show the original number unless it is recalculated.

3. CONCAT(DATEDIFF($$TODAY,Hire Date)," Days")