



ADVANCED ANALYTICS AND FINAL PROJECT WORKSHOP

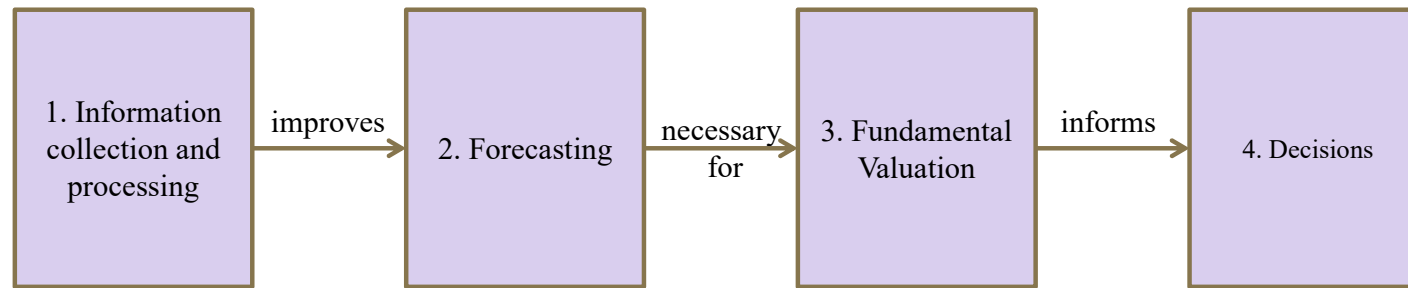
Data Analytics for Professional Accountants
(ACCTG 522)

Class 17 | MPAcc Class of 2026



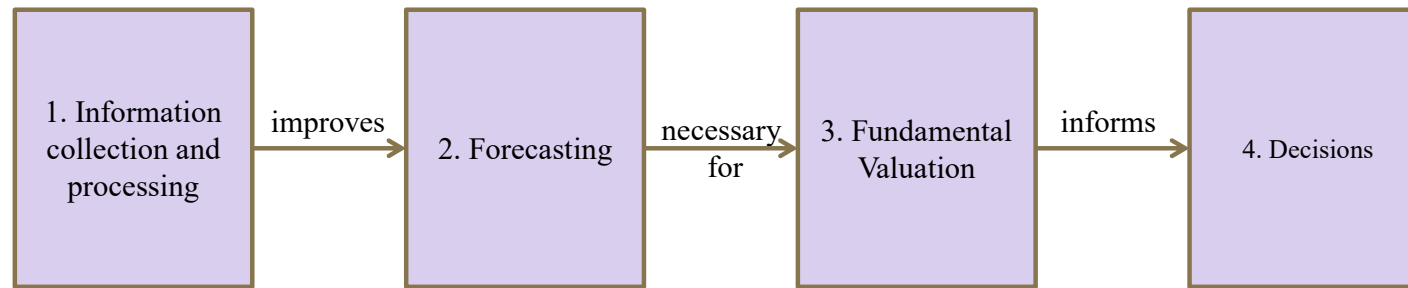
Agenda

- **Welcome!**
- **Review: Final Project**
 - Thoughts on eVal integrations
 - Final Project Checklist
- **Advanced Alteryx Workflows:**
 - Core v. Advanced v. Expert Certification Tools
 - Using Macros
- **Final Project Workshop:**
 - Teams to work on the Final Project Checklist
 - Finalize any requests



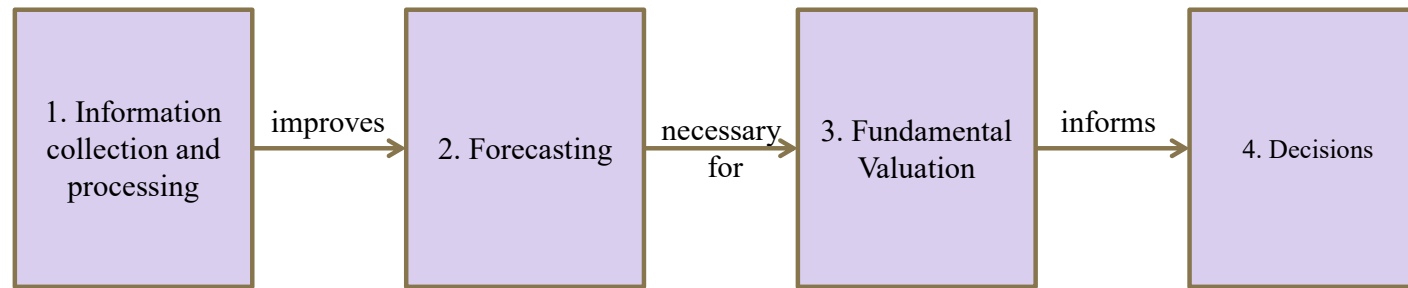
1. Information collection and processing:

1. Screening enhancements: What are the limitations of the current screening tools? Do you want to screen on custom metrics? (e.g., accruals quality, sentiment)
2. Account-level refinements: What are the limitations of the current data aggregators groupings? Do you want more disaggregated data for risk assessments and forecasts? (e.g., multiple revenue streams and COS aggregated into single line items)
 1. XBRL tagging often includes company specific tags referenced by the company's ticker.
 2. Footnote analysis can also be possible with XBRL tags
3. 10-K Text Analytics:
 1. Sentiment analysis (usually MD&A)
 2. Risk section analysis
 3. Keyword searches
 4. LLM interpretations/summaries.



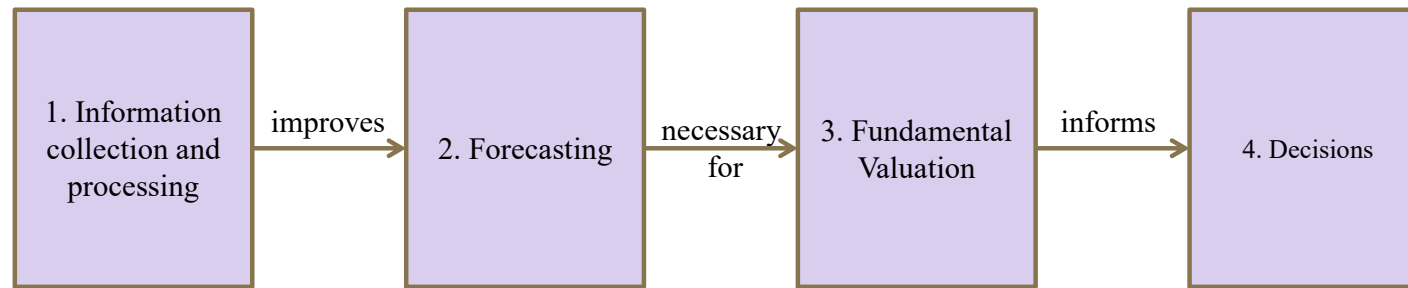
2. Forecasting

1. More advanced analytics such as time-series estimates / forecasts (regression-based, ARIMA, ML models), cointegration or comovement analysis.
2. Formal forecasting models (e.g., revenue driver models: Same store sales, revenue per sq ft etc).



3. Fundamental Valuation

1. Advanced scenario analysis supported by macros / automation, allowing for changes in multiple forecasting dimensions used in the valuation model to estimate scenarios and sensitivity.
2. Advanced analytics aimed at estimated risks and growth parameters.



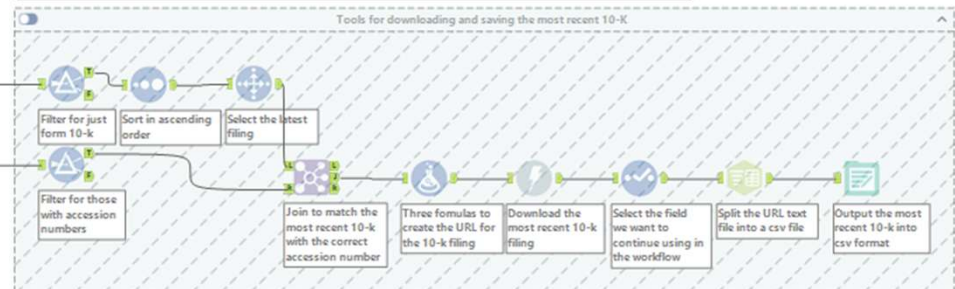
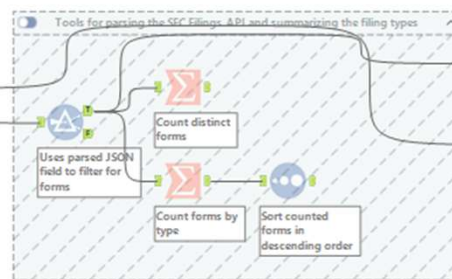
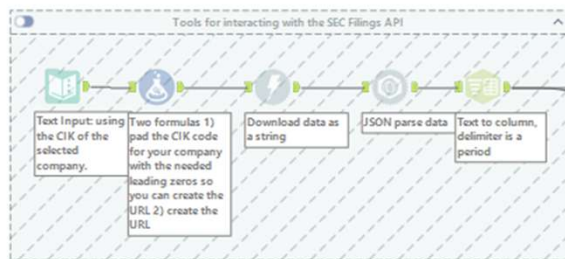
4. Decisions / Recommendations

1. Support recommendations with additional analytics supported risk analysis.
2. Support decisions with beta / market comovement analysis and potential for slippage.
3. Support decisions with other red-flag and future-looking issues that could affect short and long differently (i.e., not just the overall market changes).

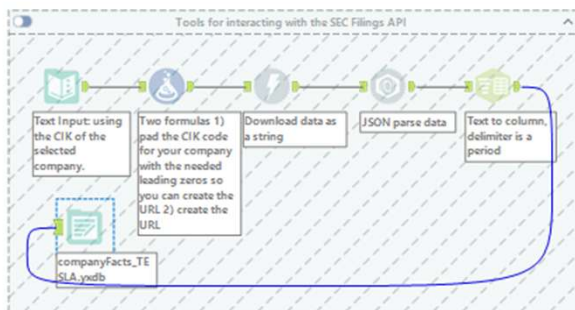
The steps here include using the input text tool to provide the URL for the download tool to connect to the API, the JSON data returned by the download tool is the parsed using the JSON tool which can then be deserialized further using the text to columns tool.

The steps here are to identify all of the components needed to answer the questions about the filings (the filter and summarize tools).

The tools in this step are used to identify the most recent 10-K filing components. First the components to construct the URL which can be used to download the most recent 10-K filing uses the filter tool, the sort and select records tools. Then using a join tool, and a formula tool, to construct the URL the download tool is used to interact with the SEC's website to download the most recent 10-K. A select tool and text to columns tool are then used to create a csv formatted 10-K which is saved using the output data tool.



Use this step first to download the SEC API data from company facts. It will provide output in the form of a json file with all of the XBRL data stored and indexed with some summary filings information (e.g., form filed 10-K/Q and dates).



.\datasets.io\ACCTG522\EDGAR_Explorer

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Thoughts on eVal Integration

	A	B	C	D	E	F	G	H	I	J	K	
1	Financial Statements (\$000s)	1. Select Input Option : <input type="radio"/> Company Name <input checked="" type="radio"/> Ticker <input type="radio"/> Textbook Case										
2		2. Enter Input in Box:					TSLA					
3							Enter Ticker Enter ticker here.					
4	Company Name, Ticker and SIC	TESLA, INC.		TSLA	3711	Link to Form 10-Ks						
5	Common Shares Outstanding	3,216,000	(in 000s at most recent fiscal year end)				Link to Industry Comps					
6	Estimated Price/Share=\$3.61											
7		Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	
8	Fiscal Year End (YYYY-MM-DD)	2020/12/31	2021/12/31	2022/12/31	2023/12/31	2024/12/31	2025/12/31	2026/12/31	2027/12/31	2028/12/31	2029/12/31	
9												
10	Income Statement											
11												
12	Sales (Net)	31,536,000	53,823,000	81,462,000	96,773,000	97,690,000	94,091,081	86,266,827	75,097,674	61,896,394	48,148,950	
13	Cost of Goods Sold	(24,906,000)	(40,217,000)	(60,609,000)	(79,113,000)	(80,240,000)	(83,944,105)	(83,069,963)	(77,630,445)	(68,365,221)	(56,589,209)	
14	Gross Profit	6,630,000	13,606,000	20,853,000	17,660,000	17,450,000	10,146,976	3,196,864	(2,532,771)	(6,468,827)	(8,440,259)	
15	R&D Expense	(1,491,000)	(2,593,000)	(3,075,000)	(3,969,000)	(4,540,000)	(4,372,746)	(4,009,125)	(3,490,055)	(2,876,544)	(2,237,652)	
16	SG&A Expense	(2,746,000)	(4,075,000)	(3,629,000)	(4,800,000)	(5,834,000)	(5,619,074)	(5,151,814)	(4,484,797)	(3,696,423)	(2,875,432)	
17	EBITDA	2,393,000	6,938,000	14,149,000	8,891,000	7,076,000	155,156	(5,964,075)	(10,507,622)	(13,041,794)	(13,553,343)	
18	Depreciation & Amortization	(399,000)	(415,000)	(493,000)	0	0	0	0	0	0	0	
19	EBIT	1,994,000	6,523,000	13,656,000	8,891,000	7,076,000	155,156	(5,964,075)	(10,507,622)	(13,041,794)	(13,553,343)	
20	Net Interest Expense	(748,000)	(371,000)	(191,000)	(156,000)	(350,000)	0	0	0	0	0	
21	Non-Operating Income (Loss)	(92,000)	191,000	254,000	1,238,000	2,264,000	2,180,594	1,999,264	1,740,415	1,434,471	1,115,869	
22	EBT	1,154,000	6,343,000	13,719,000	9,973,000	8,990,000	2,335,750	(3,964,811)	(8,767,207)	(11,607,323)	(12,437,474)	
23	Income Taxes	(292,000)	(699,000)	(1,132,000)	5,001,000	(1,837,000)	(477,283)	810,162	1,791,475	2,371,819	2,541,451	
24	Other Income (Loss)	0	0	0	0	0	0	0	0	0	0	
25	Net Income Before Ext. Items	862,000	5,644,000	12,587,000	14,974,000	7,153,000	1,858,467	(3,154,649)	(6,975,732)	(9,235,504)	(9,896,024)	
26	Ext. Items & Disc. Ops.	0	0	0	0	0	0	0	0	0	0	
27	Noncontrolling Interest in Earnings	(141,000)	(125,000)	(31,000)	23,000	(62,000)	(16,109)	27,344	60,463	80,051	85,776	
28	Preferred Dividends	(31,000)	5,000	27,000	0	0	0	0	0	0	0	
29	Net Income (available to common)	690,000	5,524,000	12,583,000	14,997,000	7,091,000	1,842,359	(3,127,305)	(6,915,269)	(9,155,454)	(9,810,248)	

XBRL Data

JSON_ValueString	JSON_Name1	JSON_Name2	JSON_Name3	JSON_Name4	JSON_Name5	JSON_Name6	JSON_Name7
FY	facts	us-gaap	AccountsPayableCurrent	units	USD	51	fp
10-K	facts	us-gaap	AccountsPayableCurrent	units	USD	51	form
2018-02-23	facts	us-gaap	AccountsPayableCurrent	units	USD	51	filed
CY2016Q4I	facts	us-gaap	AccountsPayableCurrent	units	USD	51	frame
2017-03-31	facts	us-gaap	AccountsPayableCurrent	units	USD	52	end
2075333000	facts	us-gaap	AccountsPayableCurrent	units	USD	52	val
0001564590-17-009968	facts	us-gaap	AccountsPayableCurrent	units	USD	52	accn
2017	facts	us-gaap	AccountsPayableCurrent	units	USD	52	fy
Q1	facts	us-gaap	AccountsPayableCurrent	units	USD	52	fp
10-Q	facts	us-gaap	AccountsPayableCurrent	units	USD	52	form
2017-05-10	facts	us-gaap	AccountsPayableCurrent	units	USD	52	filed
CY2017Q1I	facts	us-gaap	AccountsPayableCurrent	units	USD	52	frame
2017-06-30	facts	us-gaap	AccountsPayableCurrent	units	USD	53	end
2359316000	facts	us-gaap	AccountsPayableCurrent	units	USD	53	val
0001564590-17-015705	facts	us-gaap	AccountsPayableCurrent	units	USD	53	accn
2017	facts	us-gaap	AccountsPayableCurrent	units	USD	53	fy
Q2	facts	us-gaap	AccountsPayableCurrent	units	USD	53	fp
10-Q	facts	us-gaap	AccountsPayableCurrent	units	USD	53	form
2017-08-04	facts	us-gaap	AccountsPayableCurrent	units	USD	53	filed
CY2017Q2I	facts	us-gaap	AccountsPayableCurrent	units	USD	53	frame
2017-09-30	facts	us-gaap	AccountsPayableCurrent	units	USD	54	end
2385778000	facts	us-gaap	AccountsPayableCurrent	units	USD	54	val
0001564590-17-021343	facts	us-gaap	AccountsPayableCurrent	units	USD	54	accn

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Checklist

For each item you wish to enhance with data:

- Where can I get the data? Is it free? Do I have an API key? Are there restrictions on the data?
- Is the ETL easy or difficult to get into eVal? What kind of workflow do I need to use? Will the transpose be easy or difficult?

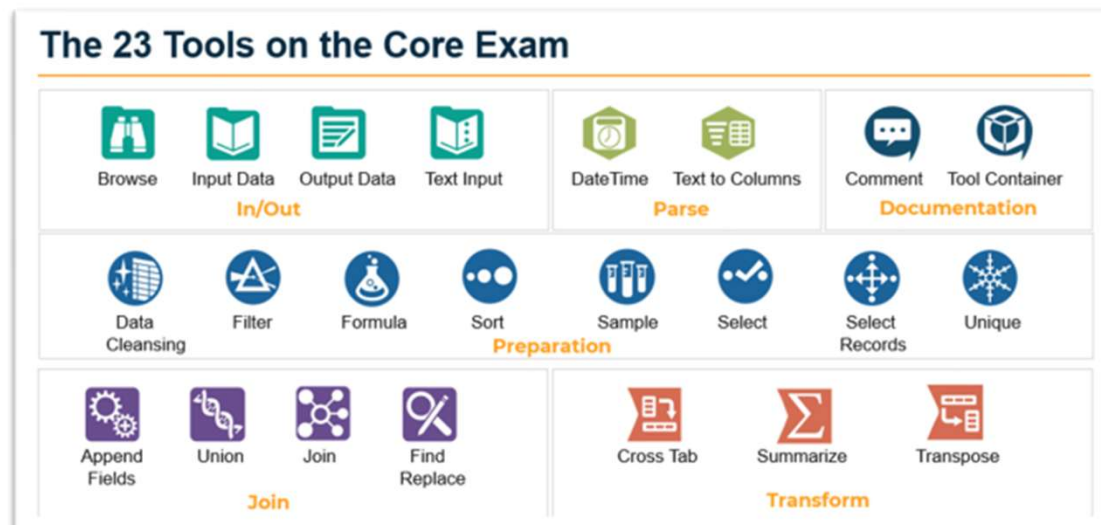
Checklist

Task	Access to Data?	ETL Comments
Replace eVal historical with EDGAR	EDGAR Explorer / SEC API	Data needs extraction using CFAME and will need to be transposed to be pasted to eVal Financial Statements Tab
Replace eVal forecasts with Predictive tools based forecasts	Workflow to be developed in Alteryx	Leverages data above, need to better understand predictive tools.

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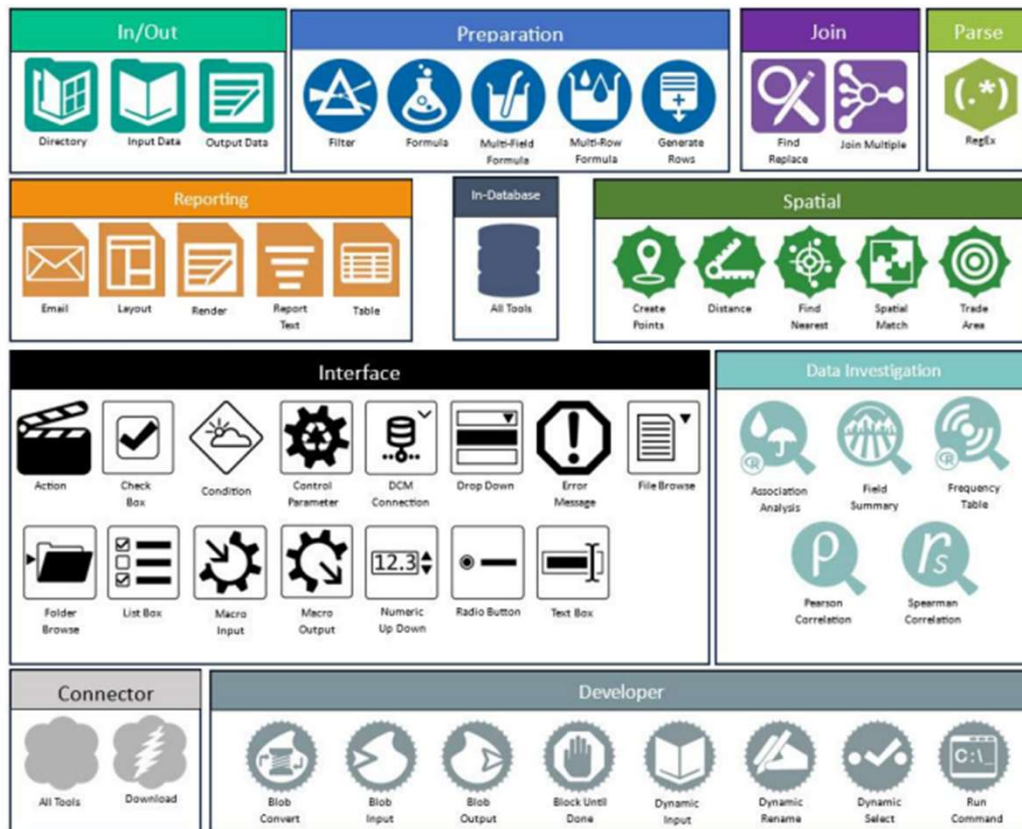
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Core Certification Tools



https://alteryx-academy-certifications.s3.us-east-1.amazonaws.com/Alteryx_Core_exam_prep_guide_2025.pdf

Advanced Certification Tools



https://alteryx-academy-certifications.s3.us-east-1.amazonaws.com/Alteryx_Advanced_exam_prep_guide_2025.pdf

Description of Expert Tools

Topic	My Tips	Example exam point
In DB	In DB tools can be intimidating, but they are actually not that complex. Once you invest a bit of time to learn about them and some of the basic SQL queries (depending on the experience, this can take from 2 hours to a couple of days), they are really quite straightforward. That said, setting up the connection can be tricky. So make sure you practice with an example that involves configuring a database connection.	Connecting and writing to a database, using In-DB tools, and integrating In-DB processes with data from standard tools.
Predictive	Get familiar with the models that Alteryx's Predictive Suite has to offer. Know what models can be used to answer what kind of question (classification/regression/correlation/...). Know how to evaluate and compare model results. You might be tested for the breadth of your knowledge (for using models) rather than depth.	Using Predictive tools to identify suitable variables for predicting a target variable, compare model outcomes, and predict the result of a promotional sale.
Batch Macros	Batch macros is another one of those areas in Alteryx that can be intimidating, but once understood they become very straightforward and useful. Start with the simplest example (even I myself go back to this batch macro 101 if I haven't built one for a while and get rusty on how it works): https://www.linkedin.com/pulse/how-import-multiple-excel-sheets-files-different-schema-bingqian-gao/	Building batch macros to batch process files
Iterative / Standard Macros	I find it easiest to learn iterative macro with an example. There are many examples available on the Alteryx Community or the tutorials/sample workflows. Those who passed the Advanced Certification probably have already seen at least one example. Understand one fully, then you can apply it to other situations.	Building or troubleshooting complex macros
Apps	Alteryx has tutorials on building Apps. In general, it is a step up from building macros. It might be worth looking into how to create chained Apps.	Creating complex, dynamic apps and configuring an app's user interface.
Spatial	I learned about Spatial mainly with Concentra's own training materials, and strengthened the understanding by teaching it. Solving Alteryx Weekly Challenges is another way to get exposure to different use cases and new tools.	Constructing spatial objects and evaluating spatial relationships to calculate spatial coverages.

****Note: Not available until 2026.**

<https://www.linkedin.com/pulse/alteryx-expert-certification-exam-prep-guide-top-tips-bingqian-gao/>

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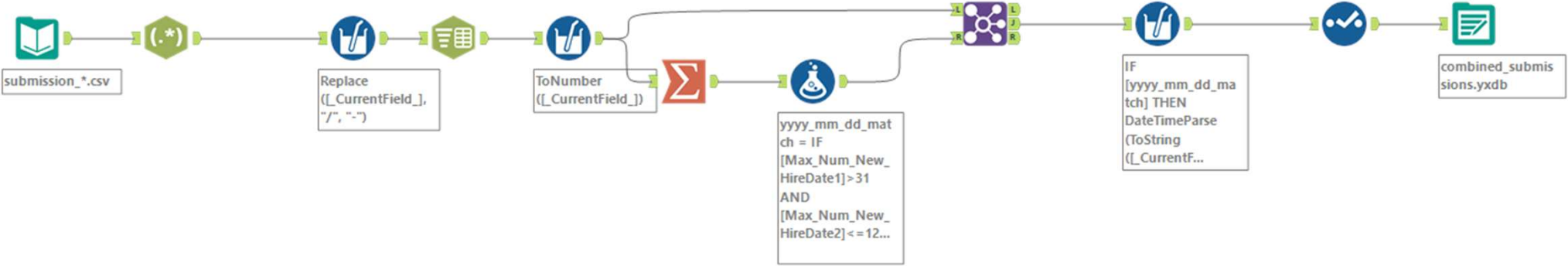
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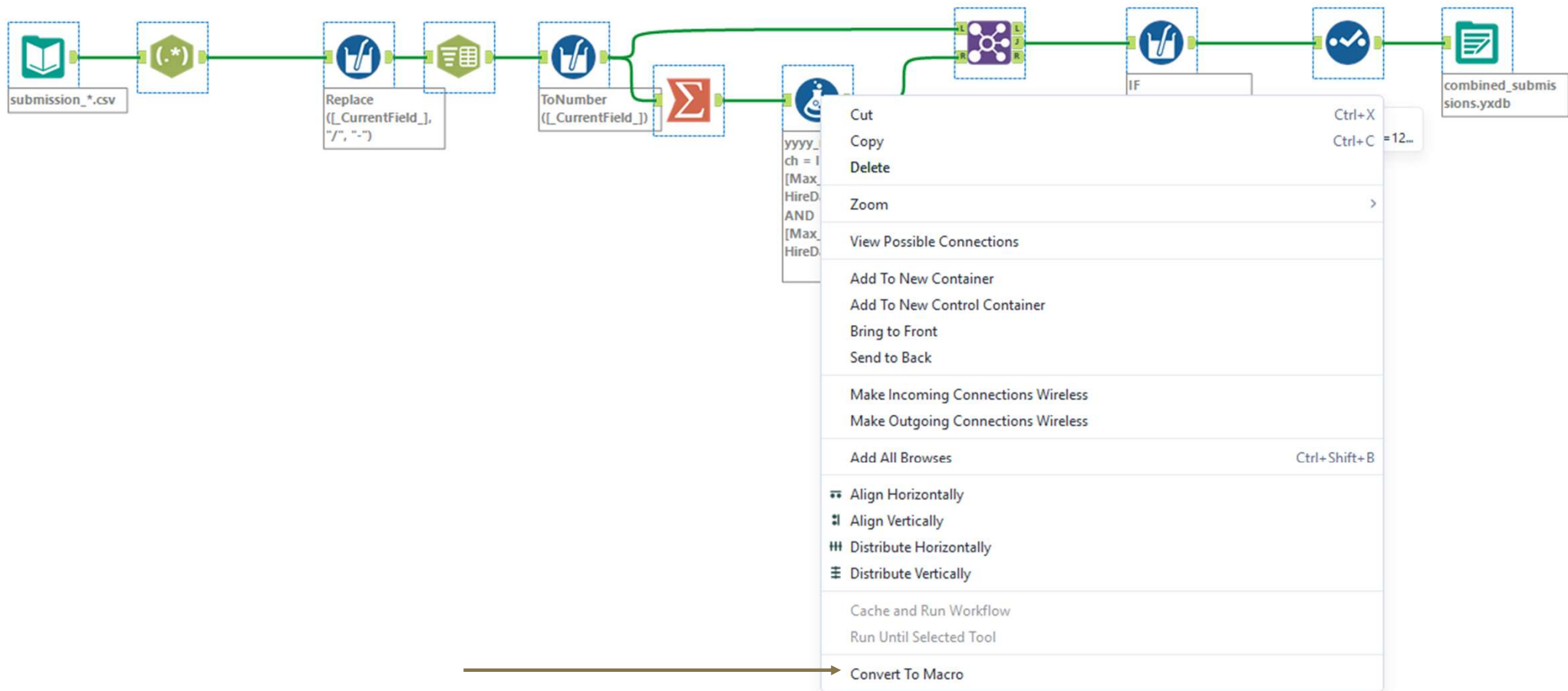
Standard Macro

A workflow can be converted to a standard macro
(select all tools, right click → convert to macro...)

Example from our last case

****If you want to consider Iterative or Batch
Macros let me know.**





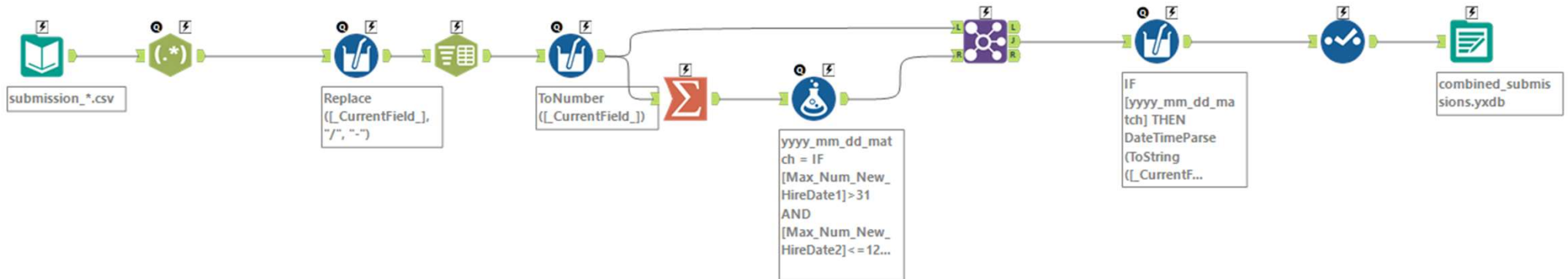
combiner1 (13) - Configuration

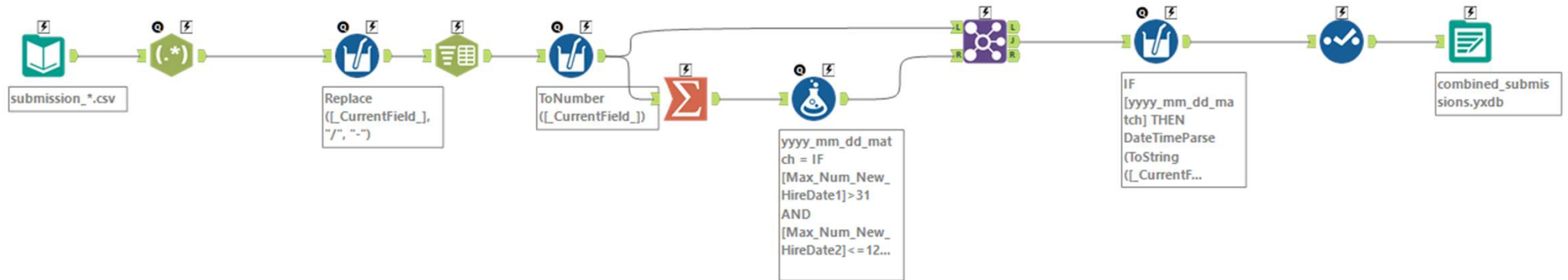
Questions

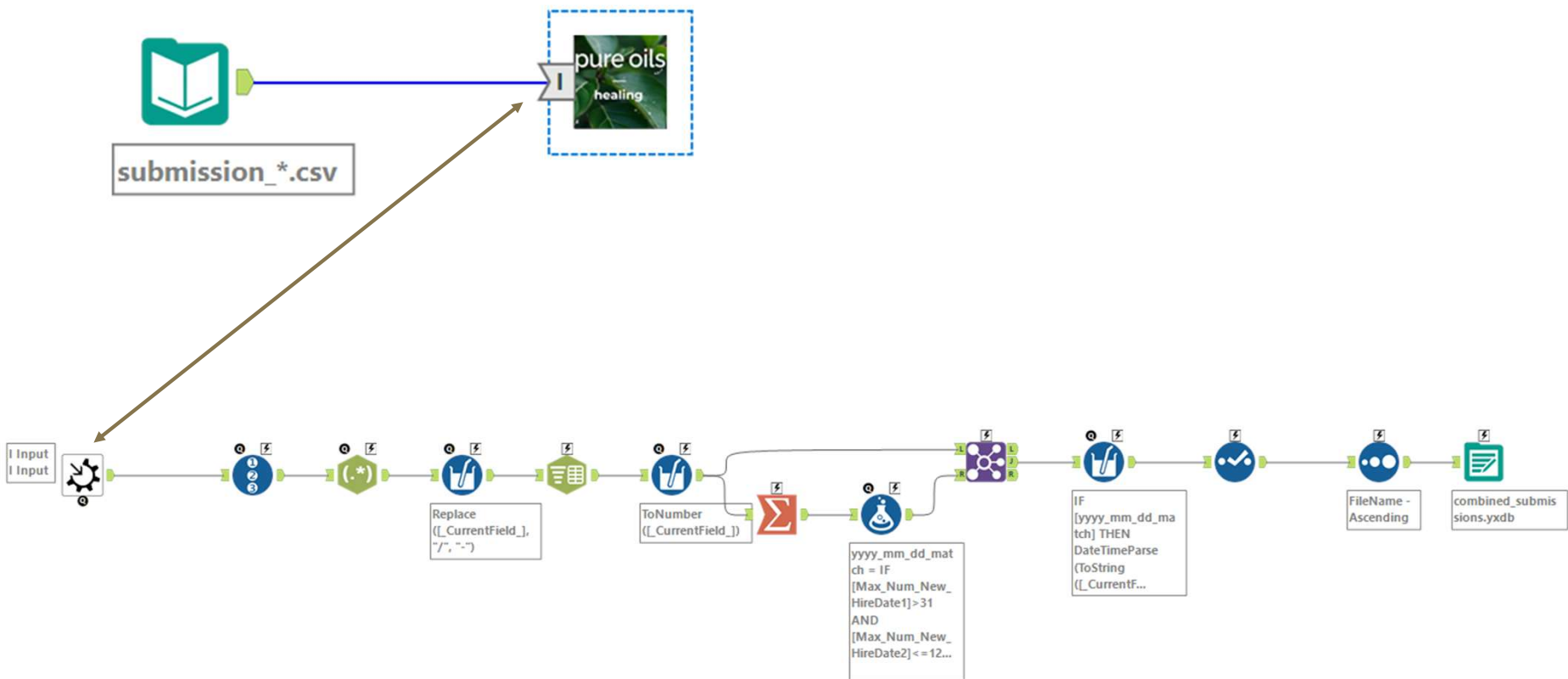
This Standard Macro requires no configuration.

solution_AC.yxmd

EscapeRoomSolutionv1.yxmd







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