Wisconsin Department of Children and Families

eWReport Practice Group – YJ Referral Report
Session Two: Distinct Counts with the IF Formula and Filtering

Use the IF formula to complete a distinct count of referrals

1. **Insert a column** next to (right or left) to the "REFERRAL_ID" column on the Referral_Detail tab by following the steps below:

   1a. Highlight the column labeled "REFERRAL_ID" by clicking the letter that appears above the column name

1a

   1b. Right-click the letter that appears above the column name and select "insert" from the menu that appears and a new, blank column should appear in your workbook.

   1c. Label your new column whatever you please, we used "**distinct count.**"

2. **Add an "IF" Formula.**

    2a. Note the letter name of your new column (in our example below, column E) and the letter name of the REFERRAL_ID column (in our example below, column F).

    2b. In row 2 of your newly created column (the first blank cell directly below the new column heading) type the following formula:

=if(F2=F3, 0, 1)

The cell name of row 2 in the REFERRAL_ID column

The cell name of row 3 in the REFERRAL_ID column

E	F	RECD
Distinct Count	**REFERRAL_ID**	
=if(F2=F3,0,1)	8096519	12/1
	8082138	06/0
	8082138	06/0
	8078807	04/1
	8078807	04/1
	8078856	04/1

    2c. Once the formula is typed in, hit the enter key. A 0 or a 1 will appear in row 2 of your Distinct Count column.

TROUBLESHOOTING: If your REFERRAL_ID column is not in column F, sub in the letter name of the column it is in for F in the formula above.

If you receive an error message, delete the formula and then carefully type it in again. As you're typing, double check the cells you are referencing in the formula and make sure they are the first and second cells below the column header in the REFERRAL_ID column.

What is this formula doing? We are using a "IF" function to help us do a distinct count of referrals. This function first evaluates if a condition is true and then returns one value if the condition is true and another if the condition is false. To read this formula out loud, you'd say "**if cell F2 equals cell F3**, **then return a 0**, **else return a 1.**" Let's look where this information is stored in the formula we typed in:

=if(F2=F3, 0, 1)

This communicates to Excel that we want to use the "IF" function. An equal sign always signals that you are entering a formula.

This is our condition; we are looking to see if the referral ID in cell F2 is equal (the same) to the referral ID below it (in cell F3).

We are telling Excel to put a 0 in the Distinct Count column when our condition is *true* (when the Referral IDs in cells F2 and F3 are the same).

We are telling Excel to put a 1 in the Distinct Count column when our condition is *false* (when the Referral IDs in cells F2 and F3 are different, or unique). We will count up these 1s later.

This formula ensures that regardless of how many offenses are associated with a referral, each Referral ID will only have one cell adjacent to it with a "1."

3. **Apply the formula to the rest of the column.**

3a. Hover your cursor over the bottom right corner of the cell where you just entered your formula and wait for a + sign to appear.

3b. Double-click to populate the entire column with the formula.

D	E	F	
JNTY	**Distinct Count**	**REFERRAL_ID**	**RECD**
ams	1	8096519	12/1
ams		8082138	06/0
ams		8082138	06/0
ams		8078807	04/1
ams		8078807	04/1
ams		8078856	04/1
ams		8079128	04/1
ams		8079524	04/2
ams		8088288	09/1
ams		8088288	09/1
ams		8093896	11/0
ams		8095278	11/2

3a

3b

Distinct Count	REFERRAL_ID	RECD_D/
1	8096519	12/16/2
0	8082138	06/02/2
1	8082138	06/02/2
0	8078807	04/13/2
1	8078807	04/13/2
1	8078856	04/14/2
1	8079128	04/19/2
1	8079524	04/25/2
0	8088288	09/19/2
1	8088288	09/19/2
1	8093896	11/03/2
0	8095278	11/23/2
1	8095278	11/23/2
1	8081434	05/23/2
1	8080992	05/09/2
0	8079028	04/18/2

4. **Count unique referral IDs.**

4a. Select the row 2 cell of your "Distinct Count" column. Hold your cursor down and drag until all the cells with a 0 or 1 in them in the column are highlighted.

4b. Look to the bottom right corner of the Excel window and find the "Sum" of the area you just selected. This will be the sum of all of the "1s" in the column which represent the distinct count of referrals in your data set.

The number of distinct referrals in our Referral_Detail sheet is 13,867 (this is a very large dataset, the number you find will likely be much smaller).

4a

E	F	G	H
1	8095322	11/23/2022	
1	8087257	08/30/2022	
1	8093638	11/01/2022	
1	8077397	03/22/2022	
1	8090230	09/30/2022	
1	8091600	10/10/2022	
1	8092706	10/18/2022	
1	8093748	11/02/2022	
1	8094504	11/07/2022	
1	8095540	11/30/2022	
1	8081287	05/19/2022	
1	8088313	09/15/2022	
1	8093431	10/28/2022	
1	8096070	12/09/2022	
1	8096043	12/09/2022	
1	8082479	06/06/2022	
1	8082501	06/06/2022	
1	8082503	06/06/2022	

RAL_DETAIL   Distinct Count Me ... (+)

Average: 0.678540018   Count: 20466   **4b** Sum: 13887

TIP: You can check your work with the Referral Summary sheet! A count of unique referrals is included at the top of the sheet. Your sum should be within a few digits of the figure in the Referral Summary sheet.

Add a filter

5. **Insert filters into the Referral Detail sheet** by selecting the "Data" pane on the top of the page and clicking "filter." (You will know you have inserted the filters when a downward arrow appears to the right of each header).
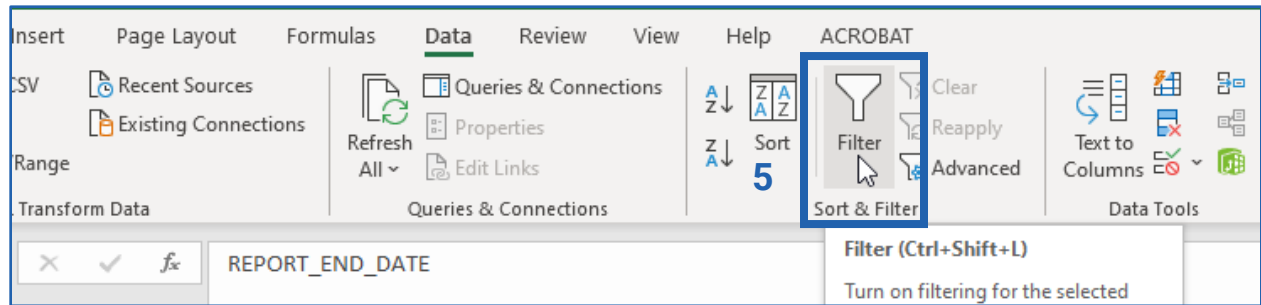

> **NOTE:** You can filter referrals by any column header you choose. For the purposes of this example, we will first filter to determine the number of JIPS Truancy referrals and the number of referrals for youth ages 12 and under.

Counting the number of distinct JIPS Truancy referrals

6. **Filter for JIPS Truancy Referrals.**

    6a. Find the column with header "Referral_JIPS_Truancy" and click the downward arrow until the window appears as shown at the right.

    6b. At the bottom of the drop down that displays, you'll see options to check "Select All," "No," or "Yes." These options display because this column flags if a referral is a JIPS Truancy referral (Yes) or is not a JIPS Truancy referral (No). Since we are interested in only counting JIPS Truancy referrals, we will click the check marked boxes of the fields we do not want ("No") until only "Yes" is selected as shown below-then click "OK."
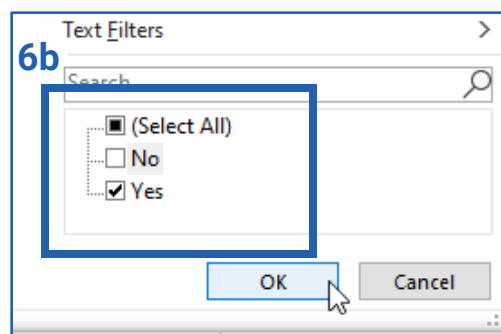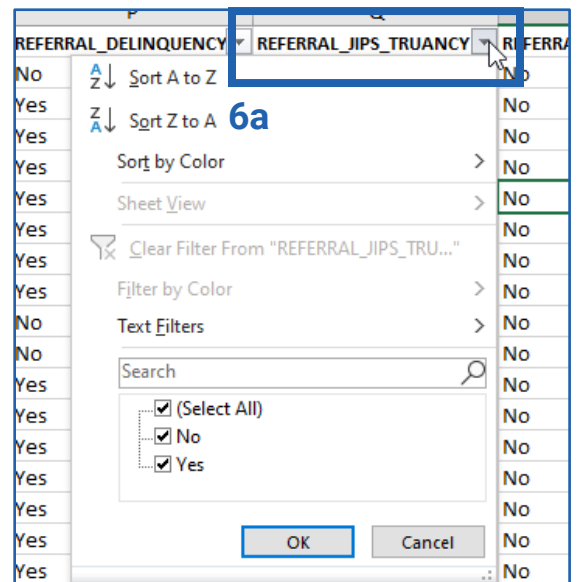
6c. Once you click "OK" you should notice that every entry in the "Referral_JIPS_Truancy" column will display "Yes." This is because Excel has filtered out all rows that are not JIPS Truancy referrals. Note that Excel hasn't deleted anything, it has just temporarily hidden the fields you do not want to see.
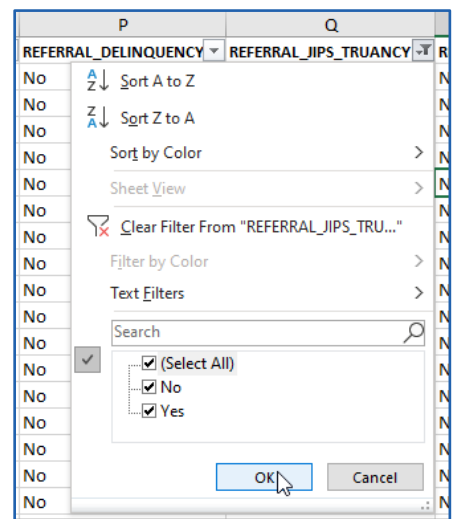
REFERRAL_JIPS_TRUANCY	RI
Yes	N
Yes	N
Yes	N
Yes	N
Yes	N

7. **Count JIPS Truancy referrals with your Distinct Count column.** Scroll back over the "Distinct Count" column that you created earlier and highlight that entire column again. Then look down to the bottom right-hand corner and note the value displayed next to sum (circled below). This number represents the number of JIPS Truancy referrals included on your referral detail tab!

	E	F	G	I	J	K	L	M	N	
	Distinct C	REFERRAL_I	RECD_DATE	CASE_ID	YOUTH_I	DOB	YOUTH_AG	GENDER	PRIMARY_RACE	HIS
va	1	8081556	05/20/2022	8541248	10881242	04/24/2005	17	Male	White	Nd
va	1	8077985	03/03/2022	8564438	10960113	04/09/2005	16	Male	White	Nd
va	1	8078634	04/12/2022	8019548	9116572	12/14/2006	15	Male	Asian	Nd
va	1	8077953	03/31/2022	8547508	11242825	07/20/2010	11	Female	Not Documented	Nd
va	1	8080607	04/19/2022	8547508	11070296	06/24/2007	14	Male	Not Documented	Nd
va	1	8078146	03/28/2022	8339518	8727252	11/05/2006	15	Female	White	Nd
va	1	8078168	03/28/2022	8339518	9559012	06/22/2010	11	Female	White	Nd
va	1	8074992	02/11/2022	8418881	10550885	04/13/2009	12	Female	Not Documented	Nd
va	1	8075196	02/16/2022	8418881	10550886	01/18/2008	14	Unknown	Not Documented	Nd
va	1	8078128	03/15/2022	8367430	9979175	10/21/2005	16	Female	Unable to Determine	Nd
va	1	8093833	10/27/2022	8367430	9979175	10/21/2005	17	Female	Unable to Determine	Nd
va	1	8093832	10/27/2022	8109443	8529780	05/10/2005	17	Female	White	Nd
va	1	8078638	04/07/2022	8579152	10135294			Female	Not Documented	Nd
va	1	8078637	04/07/2022	8579152	10135293	11/20/2006	15	Male	Not Documented	Nd
va	1	8074991	02/03/2022	8425656	9056205	06/11/2005	16	Male	White	Nd
va	1	8092079	09/29/2022	8467865	10624906	01/31/2008	14	Male	Black/African American	Nd
va	1	8094405	11/09/2022	8489368	10880337	12/11/2009	12	Male	White	Nd

7

REFERRAL_DETAIL | Distinct Counts | ⊕

Accessibility: Good to go   Average: 1   Count: 98   **Sum: 97**

8. **Clear your filter.** Before conducting any other analysis, return to the "Referral_JIPS_Truancy" column and select the down arrow to reveal the filter menu again. Ensure that all options are selected (as shown below) so that your spreadsheet now displays all rows.

P	Q
REFERRAL_DELINQUENCY	REFERRAL_JIPS_TRUANCY

- No — A↓ Sort A to Z
- No — Z↓ Sort Z to A
- No — Sort by Color >
- No — Sheet View >
- No — 🍷 Clear Filter From "REFERRAL_JIPS_TRU…"
- No — Filter by Color >
- No — Text Filters >
- No — Search 🔍
- No — ☑ (Select All)
- No — ☑ No
- No — ☑ Yes

OK   Cancel

Count the number of distinct referrals where the youth was 12 years or younger

9. **Filter for ages 12 years and below.**
   9a. Find column with header "Youth_Age" and click the downward arrow until the window appears as shown below.
   9b. In the filter menu, ensure that the only boxes that are checked are next to the ages that you want to consider. For this example, I will be selecting ages 12 and under (so only ages 10, 11, and 12 are checked in the list).

> **NOTE:** The age in this column is the age a youth was at the time their first YJ referral was received during the reporting period. Every county's data in this field will be different. There may also be ages that are obviously incorrect (for example, the county I was looking at had a youth aged 45 and some with no listed age) – these are data quality issues that you can change by updating the information in eWiSACWIS.
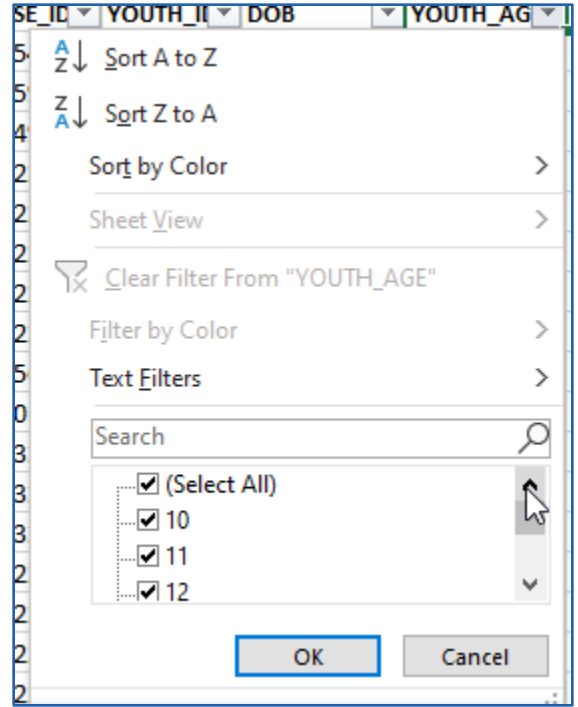
9c. Once you select "OK" the only ages displayed in your Referral Detail sheet should be 12 or under. If you notice this is not the case, click back into the filter and uncheck any age that is not 10, 11, or 12.

	YOUTH_AG	GENDER	PRIMARY_RACE	HISPANIC	REFERRAL_DELINQUENCY	REI
010	11	Female	Not Documented	Not Documented	No	Ye
010	11	Female	White	No	No	Ye
009	12	Female	Not Documented	Not Documented	No	Ye
010	11	Male	White	No	Yes	No
010	11	Male	White	No	Yes	No
010	11	Male	White	No	Yes	No
010	11	Male	White	No	Yes	No
010	11	Male	White	No	Yes	No
010	11	Male	White	No	Yes	No
010	11	Male	White	No	Yes	No
010	11	Female	White	No	Yes	No
010	12	Male	White	No	Yes	No
009	12	Male	White	No	No	Ye
010	12	Male	White	Not Documented	Yes	No
010	11	Female	White	No	No	Ye
010	11	Female	White	No	No	Ye
010	12	Male	White	No	No	Ye

REFERRAL_DETAIL | Distinct Counts | ⊕

10. Scroll back over the "Distinct Count" column that you created earlier and highlight that entire column again. Then look down to the bottom right-hand corner and note the value displayed next to sum (circled below). This number represents the number of unique referrals for youth ages 12 and under!

	Distinct C	REFERRAL_I	RECD_DATE	CASE_ID	YOUTH_I	DOB	YOUTH_A
va	1	8077953	03/31/2022	8547508	11242825	07/20/2010	11
va	1	8078168	03/28/2022	8339518	9559012	06/22/2010	11
va	1	8074992	02/11/2022	8418881	10550885	04/13/2009	12
va	0	8075513	02/11/2022	8274017	9419400	09/08/2010	11
va	1	8075513	02/11/2022	8274017	9419400	09/08/2010	11
va	1	8075528	02/15/2022	8274017	9419400	09/08/2010	11
va	0	8076801	03/09/2022	8274017	9419400	09/08/2010	11
va	0	8076801	03/09/2022	8274017	9419400	09/08/2010	11
va	0	8076801	03/09/2022	8274017	9419400	09/08/2010	11
va	1	8076801	03/09/2022	8274017	9419400	09/08/2010	11
va	1	8086758	08/17/2022	8387519	10117042	09/28/2010	11
va	1	8086413	08/11/2022	8420520	10344930	05/05/2010	12
va	1	8094405	11/09/2022	8489368	10880337	12/11/2009	12
va	1	8088654	09/23/2022	8414329	10300818	02/02/2010	12
va	1	8073363	01/06/2022	8290435	9473186	05/18/2010	11
va	1	8079704	04/26/2022	8290435	9473186	05/18/2010	11
va	1	8076931	03/07/2022	8265090	9377510	01/03/2010	12

Average: 0.783333333   Count: 61   Sum: 47

11. **Clear your filters.** Before conducting any other analysis, return to the "Youth_Age" column and select the down arrow to reveal the filter menu again. Ensure that all ages are checked so that your spreadsheet now displays all rows.

Optional Review

If you'd like to see any of the skills outlined above demonstrated in a short video, check out the following from Technology for Teachers and Students:

Advanced Excel – Using the IF Function in Excel to Program your Spreadsheets

Filtering in Excel: Basics and Beyond

The Department of Children and Families is an equal opportunity employer and service provider. If you have a disability and need to access services, receive information in an alternate format, or need information translated to another language, please call the Division of Safety and Permanence at (608) 266-8787. Individuals who are deaf, hard of hearing, deaf-blind or speech disabled can use the free Wisconsin Relay Service (WRS) – 711 to contact the department.