

**Excel 2010 - Pivot table tips using moviebus.xls**  
 JOUR 772 and 472 /Chinoy

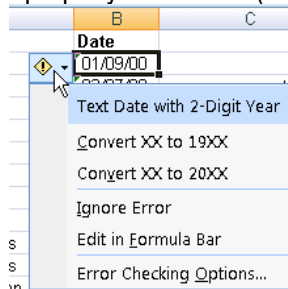
**Examine the database:**

Doing this first will save you a lot of heartache later. For example, in the fields you would like to analyze, the data entered consistently? Do you see any obviously dirty data? We'll talk about what we can do with what you find.

Also, notice the error flags – small green triangles in the upper left of the dates:

	A	B	C	D	E
1	<b>School</b>	<b>Date</b>	<b>Trip</b>	<b>Numstud</b>	<b>Cost</b>
2	Alban	01/09/00	movie	75	96
3	Alban	03/07/00	stripmall	33	7
4	Alban	05/18/00	putt	25	50
5	Alban	05/30/00	roller	80	165
6	Alum Creek	02/16/00	movie	130	45
7	Alum Creek	03/28/00	bowling	35	34

If you click on one of these, you'll see a caution message with some choices. The problem here is that Excel recognizes that what appear to be dates are entered in this spreadsheet as "text" rather than true date cells. They will not sort properly as a result (among other issues).



We will leave these cells as they are for now. There are some notes later in this handout about how one could fix this problem.

**Assign unique record numbers and define the table:**

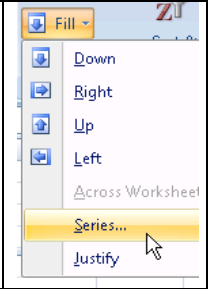
Because this is a long table, we will need to split the view between top and bottom. Click on **cell A5** and then from the View tab, click on the Split icon. On the right side of the screen, where there are now two scroll bars, use the lower one to show the bottom of the table in the lower half of the screen. You **should see the last row of data, Row 229** (after removing one record earlier on).

	A	B	C	D	E	F
1	<b>School</b>	<b>Date</b>	<b>Trip</b>	<b>Numstud</b>	<b>Cost</b>	
2	Alban	01/09/00	movie	75	96	
3	Alban	03/07/00	stripmall	33	7	
4	Alban	05/18/00	putt	25	50	
227	Weimer	01/31/00	bowling	75	15	
228	Weimer	04/07/00	bowling	70	55	
229	Weimer	05/26/00	movie	75	138	
230						
231						

Type **RECNO** in cell **F1** and **END** in cell **G1**. Then type a **1** in cell **F2**. Highlight that cell, hold down the **Shift** key, and click on cell **F229**, the cell in the last row of the table:

	A	B	C	D	E	F	G
1	School	Date	Trip	Numstud	Cost	RENO	END
2	Alban	01/09/00	movie	75	96	1	
3	Alban	03/07/00	stripmall	33	7		
4	Alban	05/18/00	putt	25	50		
227	Weimer	01/31/00	bowling	75	15		
228	Weimer	04/07/00	bowling	70	55		
229	Weimer	05/26/00	movie	75	138		
230							

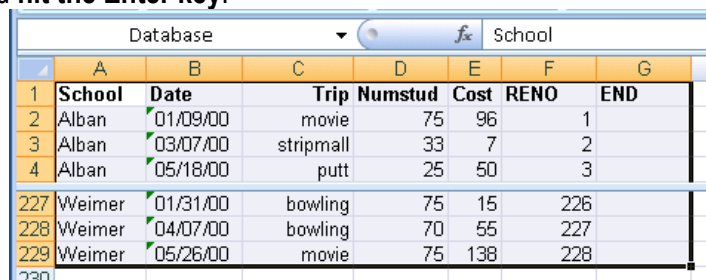
Leaving that range of cells highlighted, from the **Home** tab click on **Fill** and then **Series...**



Each row of data should now have a unique record number, from 1 to 229, in column F:

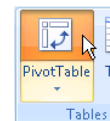
	A	B	C	D	E	F	G
1	School	Date	Trip	Numstud	Cost	RENO	END
2	Alban	01/09/00	movie	75	96	1	
3	Alban	03/07/00	stripmall	33	7	2	
4	Alban	05/18/00	putt	25	50	3	
227	Weimer	01/31/00	bowling	75	15	226	
228	Weimer	04/07/00	bowling	70	55	227	
229	Weimer	05/26/00	movie	75	138	228	
230							

Next, highlight the whole table by clicking on cell **A1** ("School"), holding down the **Shift** key, and clicking on cell **G229** (the cell in the END column for the last record). Then type **Database** in the **Name Box** and hit the **Enter** key.

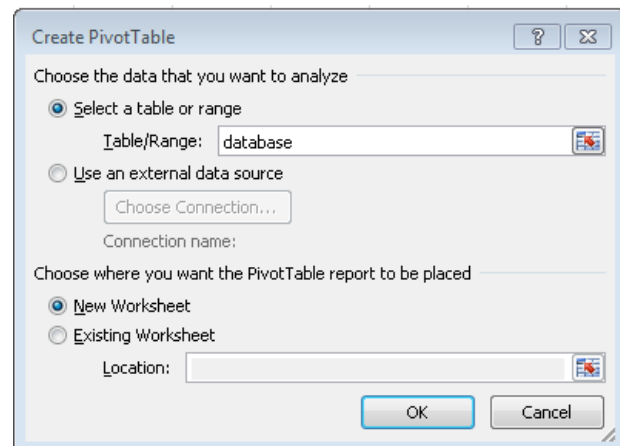


### Creating a pivot table:

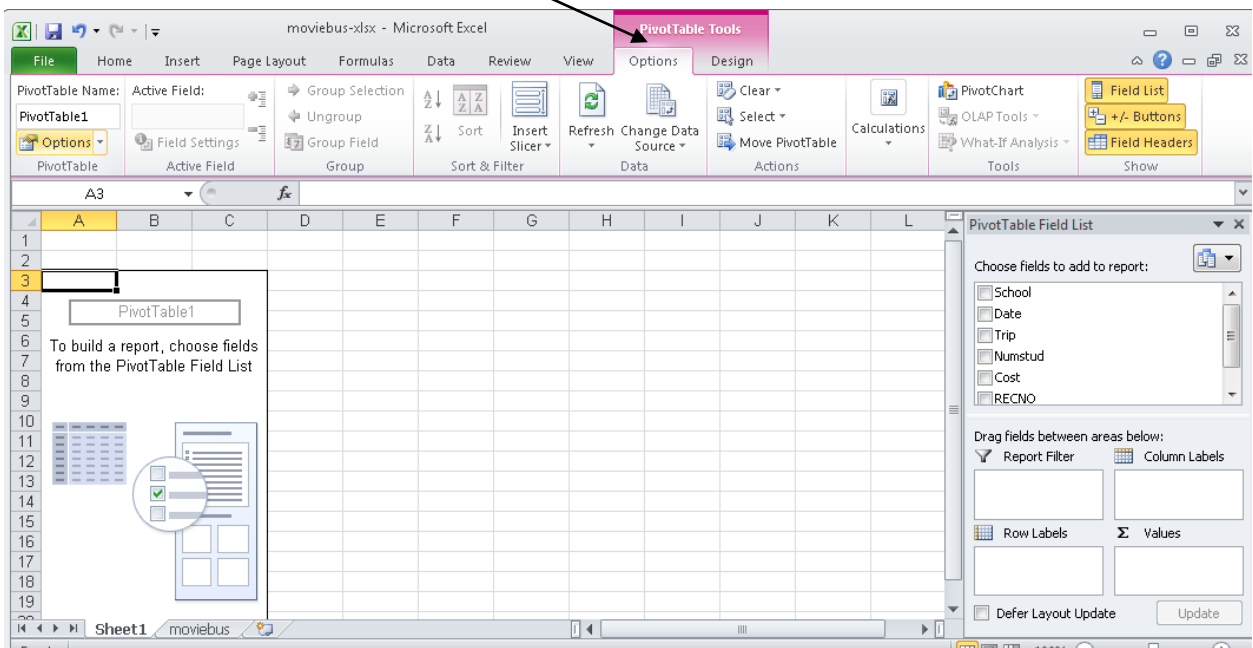
Click on the **Insert** tab to find the icon that says **PivotTable**:



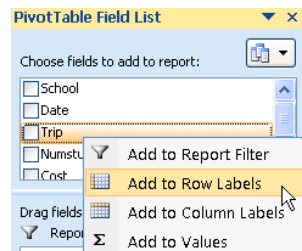
In the **Create PivotTable** dialog box, type **Database** in the text box to the right of **Table/Range**. Leave the other defaults in place, including placement of the PivotTable in a new worksheet.



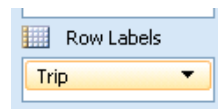
A new worksheet appears, along with a **PivotTable template** and two new tabs: **Options** and **Design**. Continue to work from the **Options** tab, which contains **PivotTable Tools**.



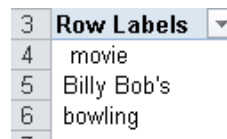
In the **Task Pane** on the right, using the **Pivot Table field list**, **right-click** on **Trip** and then choose **Add to Row Labels**.



**Trip** will show up in the **Row Labels** area of the Task Pane ...

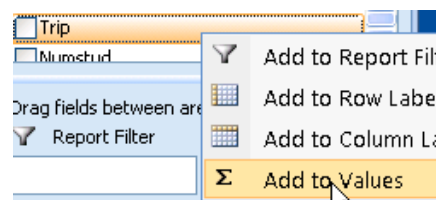


... and also in the **rows** of the pivot table.

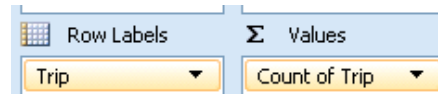


Next, we want to add something to the **data area** of the pivot table to show **how many times students went on each kind of trip**

Since we have seen that all records have an entry in the Trip field, we can use that field to count. If we **right-click** on **Trip** from the field list, we can choose **Add to Values**.



The data will become “**Count of Trip.**”



In the **data area** of the pivot table, we now see **each type of trip** that appears in the Trip column and the **number of times** that type of trip was taken.

**Do you see a problem here?**

	Row Labels	Count of Trip
3		
4	movie	1
5	Billy Bob's	1
6	bowling	80
7	cagneys	1
8	dollarstore	1
9	game farm	1
10	gore	3
11	lowes	1
12	mcds	2
13	movie	53
14	petland	3
15	petsmart	1
16	place	1
17	putt	45
18	roller	9
19	sfinstur	2
20	skating	1
21	amusement park	3
22	bowling	2
23	mall	5
24	movie	9
25	stripmall	3
26	toysrus	1
27	<b>Grand Total</b>	<b>229</b>




The pivot table, in summarizing by the **Trip** column, should show us each type of trip once. But on the surface, it looks like we have some types of trip that appear in this pivot table list more than once. For example, the word **movie** appears three times (that is, it is listed on three of the rows in the pivot table). What might be causing this?

movie	1
~~~~~	
movie	53
~~~~~	
movie	9

Look at the results carefully. The default sort order for the rows in a pivot table is alphabetical. Why does “movie” come up first, then (with a count of 1), instead of “amusement park”? Why does “movie” come up again with a count of 53, and again with a count of 9?

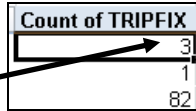
**We have another dirty data problem, one of several we have found in this table. What kind of tool would you like in Excel to be able to fix this problem?**

**We're going to fix the problem with inconsistent entries of trip descriptions to remove the necessary spaces, as follows:**

1. First, before we leave the pivot table, let's **change the name of the worksheet** containing the pivot table to better identify it. **Double click on the worksheet name** (yours will say **Sheet 1** or **Sheet 2**, depending on what we have done so far) and type **Pivot-Trips**.
2. **Switch to the worksheet moviebus**. Add a column called **TripFix** just to the **right of Trip**. It will be the **new column D**.
3. When you add this column, you will be prompted with the **Format Painter**. Click on it and choose "**Clear Formatting**." This will **avoid picking up the "right-justified" formatting** of Column C (the Trip column)
4. In **cell D2**, (the first data cell in the **TripFix** column), enter the formula **=TRIM(C2)**
5. **This formula** (using the **TRIM function**) will **remove any spaces that come before or after the text in the cell**, but it will not touch the spaces in the middle of an entry (such as the space between "game" and "farm" in "game farm.")
6. **Copy this formula down** the column from **Cell D2 to Cell D229**. The **best way** to copy it is to **split the screen** so you can see the top and bottom, as follows. **Highlight** the contents of **D2**, **hold down the SHIFT key**, and **click on Cell D229**. Then from the **Home tab**, click on the **Fill button** and **select Down**.
7. Now, go back to your pivot table worksheet, **Pivot-Trips**. If you click inside the pivot table, the ribbon should now show you the **Options tab** (under Pivot Table Tools, above the ribbon).
8. Make sure that in the Show/Hide group of icons, **Field List** is highlighted: 
9. You should be able to see the **Pivot Table Field List pane**. You will notice that **TripFix may not be listed**. In order to **get TripFix into the field list**, click on the **Refresh button** 
10. In the Field List pane, you will see that **Trip** appears under **Row Labels** and **Count of Trip** appears under **Values**. To reset both of these areas, look at the Field List and notice that there is a green check next to trip. . If you **click on the check**, it will disappear, and the Row Labels and Values areas will be cleared.
11. You can now add **TripFix** to the **Row Labels** and also add **TripFix** to the **Values**, where it will appear as **Count of TripFix**. Drag-and-drop will work as a way to do this.
12. You should now see a pivot table with a cleaner set of entries for the types of trips and their counts.

## Sorting the pivot table:

Pivot tables sort in their own unique way. First, **select one cell** in the column on which you want to sort. In this case, it's the first data cell in the **Total** column.



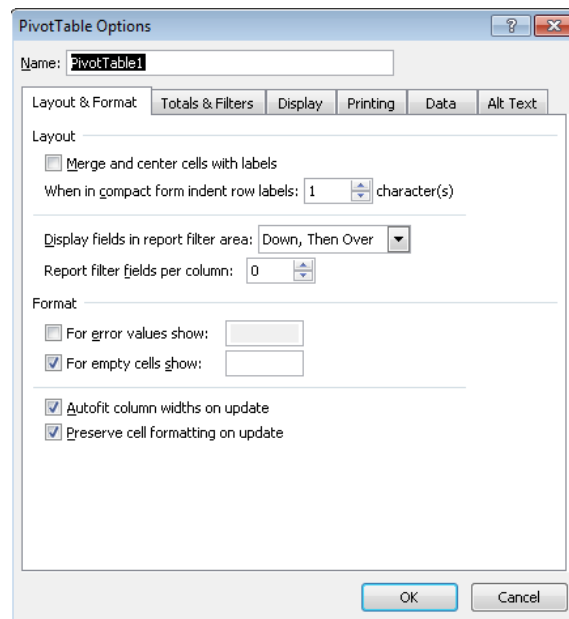
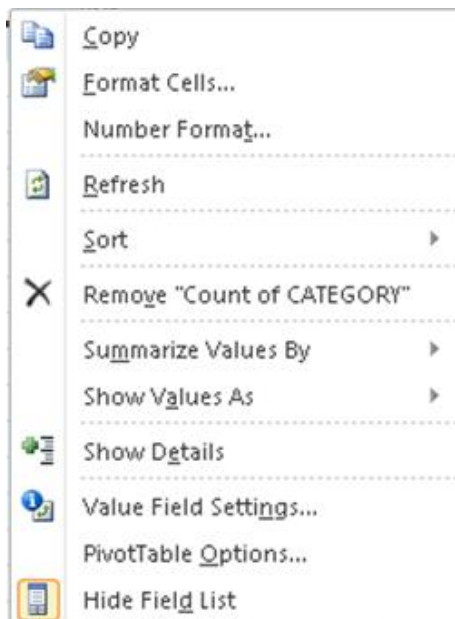
Count of TRIPFIX
3
1
82

**Right-click** on that cell, and from the menu pick **Sort** and then **Sort Largest to Smallest**. The top of the pivot table should look like this:

Row Labels	Count of TRIPFIX
bowling	82
movie	63
putt	45
roller	9

## Other Pivot Table Elements

Pivot tables can be used to display data in both columns and rows. There is a great deal of additional functionality to pivot tables that you can explore. One useful feature is the ability to change the way pivot tables are displayed. If you right-click on the pivot table, you get the set of menu items on the left. Choosing "Pivot Table Options" gets the screen in the middle



You can move through the tabs to see how some of these options can affect the content and look of the pivot table.

### Fixing the dates:

We noticed earlier that the entries in the **Date** column were **quirky**, and we had an **error indicator** associated with them. What makes them quirky is that Excel recognizes on the one hand that they are dates, but it does not treat them as dates for purposes of reformatting, sorting and calculations (for example, the ability to subtract one date from another to find out how many days elapsed between them).

- To fix this, we are going **add a column to the left of the RECNO column** and call it **DateFix**. It will be the **new column G**.
- In **cell G2** type the formula **=VALUE(B2)**. Excel assigns dates a value, starting with Jan. 1, 1900, as the value 1. Jan. 1, 2001, has a value of 36,892. Although Excel doesn't treat the contents of the **Date** column in this spreadsheet as fully functional dates, the program does recognize them to some extent as dates and assigns each a value when the VALUE( ) function is used.
- The next step is to reformat this value as a date. Right-click on cell G2. In the context menu that appears, choose Format Cells... Then for Category choose Date. And for Type you can keep the default (month/day/year).
- Now copy the formula from G2 down through column G to the last record in the table.

The dates are now usable – in the DateFix field – if you wanted to look at the data chronologically.

We'll talk about some of the other features of pivot tables in class, and we'll look at examples of generating two-way pivot tables – with columns, rows and values – that resemble crosstabs.

## Links for stories on school field trips in the *Charleston Gazette*

You can find these links at: [http://jclass.umd.edu/cars/secure/stories/school\\_trips.htm](http://jclass.umd.edu/cars/secure/stories/school_trips.htm)  
(You will need your CAR class login and password to access this page)

- Feb. 4, 2001: ["Field trip of dreams; Kanawha students flock to the movies on school time"](#)
- Feb. 7, 2001: [Editorial: "Day-tripping 'Rewards' out of hand"](#)
- Feb. 9, 2001: ["School officials discuss propriety of rewarding students with movies"](#)
- Feb. 13, 2001: ["Kanawha board bans movie trips unless educational"](#)
- March 6, 2001: ["Board to lists ins, outs of field trips"](#)
- May 23, 2001: ["No more movie field trips for Kanawha school kids; Putt-putt golf outings remain among rewards"](#)
- Aug. 14, 2001: ["Schools 'go to war' against low scores; 13 Kanawha County schools, the most ever, underachieved on standardized test"](#)
- Oct. 2, 2001: ["School trips in question since terrorist attacks; Parents' choice to assess risk, board member says"](#)
- March 1, 2002: ["Gazette's Eric Eyre wins 3 more awards"](#)

*Charleston Gazette*  
Charleston, West Virginia  
February 4, 2001, Sunday

**“Field trip of dreams;  
Kanawha students flock to the movies on school time”**

**By Eric Eyre**

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It's 9 a.m. on a Wednesday at Marquee Cinemas, and nine Kanawha County school buses roar into the parking lot.

More than 450 John Adams Junior High School students pile out of the buses and hustle inside to watch a movie, munch on popcorn and drink soda pop.

Three hours later, the buses shuttle the students and teachers back to school.

About once every three school days, some Kanawha County school is sending children to a movie theater, according to a Sunday Gazette-Mail analysis of school transportation records.

The movie trips usually increase around the holidays and near the end of the school year. Marquee holds special morning showings on school days for Kanawha County students.

"In December, we did one movie for a school every day," said Rob Thompson, manager at Marquee. "We had so many in December, my brain was fogged. It was just nonstop."

During the school day, students also go bowling (84 times in nine months), play miniature golf (45 times) and shop at Town Center Mall, Kanawha Mall and the Dollar Store.

Sometimes, the buses will make several stops - the movie theater, mall and a fast-food restaurant - with the same group of students during the same school day. The field trips can last more than six hours.

"We don't question them," said George Beckett, the school system's transportation chief, noting that school principals have the final say on where students go on field trips.

Of the 61 times Kanawha County schoolchildren went to movies during the past nine months, all but five trips were to Marquee Cinemas. There, they lounge in high-back chairs and watch movies such as "The Grinch," "102 Dalmatians," "The Emperor's New Groove" and "Mission to Mars."

The county bused more than 7,700 students - a number equal to more than a third of all Kanawha County elementary and middle-school children - to the movies during the past nine months.

"Maybe, the next time Walt Disney has a major movie release, we should shut down the school system for a few days to save on busing costs to Southridge," said school board member John Luoni.

Kanawha County school principals defended the movie trips.

They said many students have never been to a movie theater before. Sometimes, students watch movies at the cinema that they previously read as books in class, principals said.

But most often, principals said they hold the movies up as rewards for good behavior, grades and attendance.

"Some children have to have something immediately tangible to work for," said Carla Williamson, principal at Hayes Junior High School. "It's positive reinforcement."

Two weeks ago, a Kanawha County school bus carrying Hayes students crashed along Corridor G. No one was injured.

The children were returning from Marquee, where they had watched "The Emperor's New Groove." Charleston newspapers and television stations reported the accident and activity.

Williamson said no one has complained about the field trip. Fifty-nine children spent three hours at the movies that day.

"The community understands what we're trying to do," Williamson said. "The teachers decided it, and I approved it. They asked the kids what kind of reward they wanted to work for."

The total transportation cost of the movie trips was \$ 5,277 - a tiny percentage of the school system's transportation budget.

The fuel costs for a single trip can run as high as \$ 300. For schools near Southridge Centre, however, fuel costs may fall to \$ 30 or below.

Schools also must sometimes pick up the bus drivers' overtime pay. Many schools also pay for students' movie tickets - about \$ 5 a child.

If enough children go, Marquee throws in free popcorn and a drink.

"We as a school system need to be careful that we do not reward with food, particularly junk food," said Brenda Isaac, lead nurse for Kanawha County schools. "There have got to be better ways to reward people."

Each fall, schools receive money for field trips from the school system's general budget.

Principals can spend the money as they see fit.

They can haul students to Sunrise Museum to explore scientific principles, the state Capitol Complex to learn about government, the Civic Center to watch a play, and Kanawha State Forest and Coonskin Park to picnic and hike.

Or they can take them to the movies.

"I'm always amazed we have money for this kind of activity," said school board member Pete Thaw. "Why don't we spend the money for instruction for these children?"

In their reviews of school systems in West Virginia, state education auditors sometimes cite schools for shortchanging students on instructional time.

"There's a certain amount of time required each day for instruction," said Donna Davis, deputy director of the state Office of Education Performance Audits. "If the school is having a number of activities that are not academically related, then it might lead to a noncompliance."

Davis said the agency wouldn't necessarily flag a school that took large numbers of students to a bowling alley or movie.

The activities might be linked to the school's curriculum. Students may watch a movie based on a book they've read. Or the gym teacher may lead a unit about bowling and follow it with a trip to the nearest bowling alley.

Joyce Embrey, principal at Midland Trail Elementary, said 30 students went bowling for that reason last week. The trip also was a reward for students who had doubled the number of books they normally read as part of a school reading program.

"Some of them had never been bowling," Embrey said.

When principals need a bus for a field trip, they must fill out a "curricular" trip request form and submit it to one of five Kanawha County school bus terminals. They also may state a reason for the trip.

For movie trips, some principals put down "academics." One stated, "fun and games." But the majority list "reward" as the reason for the trip to the movies, bowling alley, miniature golf center or roller rink.

Some child psychiatrists criticize principals and teachers who dangle rewards over students for good behavior. They say such measures make children even more dependent on others for approval and recognition. Such students lack self-confidence and responsibility.

Capital High School Assistant Principal Clinton Giles said he doesn't like offering rewards for good behavior and attendance.

But he said societal and cultural changes have created a generation of students who only respond to: "What's in it for me?"

"It's no longer the carrot and the stick," Giles said. "It's carrot, carrot, carrot."