The first thing that I do is alphabetize the Username column (Sort A->Z) so that it matches the order of my gradebook. I can do this because I always have my forms automatically collect my students' usernames. If you tried alphabetizing it later, the formulas would be screwed up. Now is the time.


1. Add a row above the first student's responses.


2. Enter the correct answers in this


The table is now set up like this:
Row 1: Questions/Column Headings
Row 2: Correct Answers
Row 3: Student \#1's responses
3. You are now going to enter the IF formula in the first empty cell in Row 3 (after Student \#1's last response).

|  | A | B | C | D | E | F | G | H | I | J | K | L |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Timestamp | Username | What is the name of the highway that runs through North and South America? | What is the capital city of Puerto Rico? | In which Mexican state is Chichén Itza located? | In which country is Macchu Pichu located? | Which is the largest city in the Western Hemisphere | On which continent is Spain located? |  |  |  |  |
| 2 |  |  | Pan-American Highway | San Juan | Yucatán | Perú | Mexico City | Europe | \#1 | \#2 | \#3 | 4 |
| 3 | 1/14/2011 14:06:25 | ANDY | Pan-American Highway | San Salvador | Nayarit | México | Toronto | Asia | $=i f(\$ C 3=\$ C \$ 2,1,0)$ |  |  |  |
| 4 |  |  | Continantal |  |  |  |  |  |  |  |  |  |

$$
=I F(C 3=C \$ 2,1,0)
$$

This formula means that if the data in column C, row 3 (Student \#1's answer to question \#1) matches the data in column C , row 2 (the correct answer that I entered for question \#1), then it receives one point. If not, it receives zero points. If the questions should be worth more than one point, enter a different value where the "1" appears above. The \$ in spreadsheet formulas means that that value will not change if the formula is copied to another cell. Since the correct answers are always in row 2, it should be absolute.
4. The easiest way to procede from there is to grab that cell by the lower-right hand corner and drag it down and to the right to create an area identical to that of your student's response grid. For example: If you have five questions and ten students, you should have five cells highlighted across and ten cells down. The formula will automatically adjust for each cell, so that each cell will correspond to a particular answer by a particular student.

5. Finally, add a column next to the Name column. (Don't worry-the spreadsheet will automatically adjust the IF formulas to account for the additional column.)
6. In row 3 of this column, you are going to enter the SUM formula. This formula will total the points that each student scored. The cell coordinates that you enter should be the first and last cells in Student \#1's IF formula cell range. In this example, there are six questions. The spreadsheet set-up is like this:

Column A: Timestamp
Column B: Username
Column C: SUM formula


Columns D-I: Questions 1-6 \& responses Columns J-O: Scores for questions 1-6 (IF formula cells)

The SUM formula for this spreadsheet, then, is $=\mathbf{S U M}(\mathbf{J 3}: \mathbf{O 3})$ since the scores are in columns $J$ through O . To find the percent correct, instead enter =(SUM(J3:O3)/6)*100

You can then drag that cell by its corner box down through the column, and it will calculate the totals for the other students. Your table will end up looking like this:

|  | A | B | c | D | E | F | G | H | 1 | J | K | L | M | N | $\bigcirc$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Timestamp | Username | Score | What is the name of the highway that uns through North and South America? | What is the capital city of Puerto Rico? | In which Mexican state is Chichén Itza located? | In which country is Macchu Pichu located? | Which is the largest city in the Western Hemisphere | On which continent is Spain located? |  |  |  |  |  |  |
| 2 |  |  |  | fan-American ighway | San Juan | Yucatán | Perú | Mexico City | Europe | \#1 | \#2 | \#3 | \#4 | \#5 | \#6 |
| 3 | 1/14/2011 14:06:25 | ANDY | 1 | fan-American ighway | San <br> Salvador | Nayarit | México | Toronto | Asia | 1 | 0 | 0 | 0 | 0 | 0 |
| 4 | 1/14/2011 14:30:22 | BOB | 3 | ontinental ighway | San Juan | Yucatán | USA | Mexico City | Asia | 0 | 1 | 1 | 0 | 1 | 0 |
| 5 | 1/14/2011 14:12:25 | CHARLES | 4 | fan-American ighway | San José | Nayarit | Perú | Mexico City | Europe | 1 | 0 | 0 | 1 | 1 | 1 |
| 6 | 1/14/2011 14:15:52 | DOUG | 3 | fan-American ighway | San Juan | Oaxaca | México | New York City | Europe | 1 | 1 | 0 | 0 | 0 | 1 |
| 7 | 1/14/2011 14:13:49 | EVAN | 6 | Pan-American Highway | San Juan | Yucatán | Perú | Mexico City | Europe | 1 | 1 | 1 | 1 | 1 | 1 |
| 8 | 1/14/2011 14:07:56 | FRANK | 1 | Fan-American Highway | San José | Nayarit | USA | New York City | Asia | 1 | 0 | 0 | 0 | 0 | 0 |
| 9 | 1/14/2011 14:05:16 | GREG | 5 | ontinental ighway | San Juan | Yucatán | Perú | Mexico City | Europe | 0 | 1 | 1 | 1 | 1 | 1 |

