Max's Distinctive, Impressive BizTech Student Blog

Friday, October 7, 2016

No Sh**, Sherlock - The Case of the Lost Integrity

So, I've got a story for you. Kind of a mystery, actually. *Perfect* for Halloween.

Turned out my awesomely killer app needed a bit of...tuning up. Jumping ahead-I learned a ton and now it really *IS* awesomely awesome. Took some doing, but nothing a few hours of hair-twisting and definitely less than 8 bags of M&Ms couldn't fix. (Hey, gimme a break. They were those tiny trick-or-treat bags, ok? the "Fun" size?)

Hah. Now you want some too, eh? Ok, fire up SF and grab your chocolate. Here's how the mystery unfolded…

Seeking Validation

It started out with the smallest thing. Riley was doing her stuff, pitching investors, using my app. I was helping her out more & more with all kinds of stuff. Life was good. Until one day, I went back into SF, just browsing the database to make sure all was well & I found a **Pitch** record with an **Equity Percentage** of 125%.

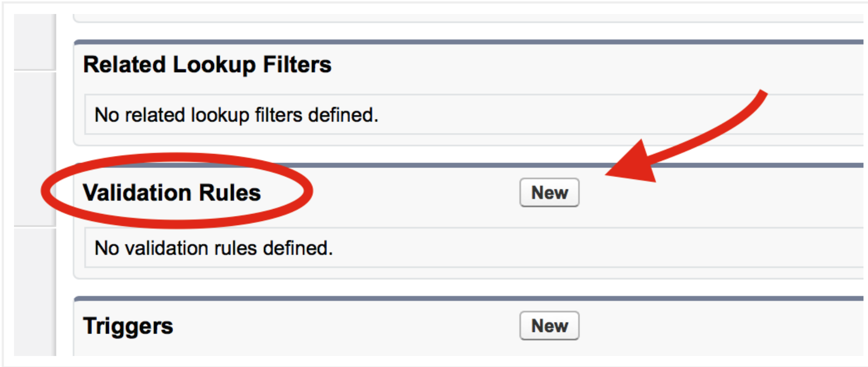
So, I'm not exactly a math wiz but I'm thinking-percentages. Pretty sure those are not supposed to run over 100 (despite what my middle school soccer coach used to tell us to give on the field). Hmm….

I tracked down Riley & turned out she had just mistyped it. Supposed to be 12.5 but it had been embedded there in the data awhile, probably throwing off reports, dashboards, etc and thereby throwing off Riley's strategic moves. Rats! I fixed it but then I thought…*there must be something in SF that helps keep wrong data from getting in there cuz data mistakes could really foul things up.*

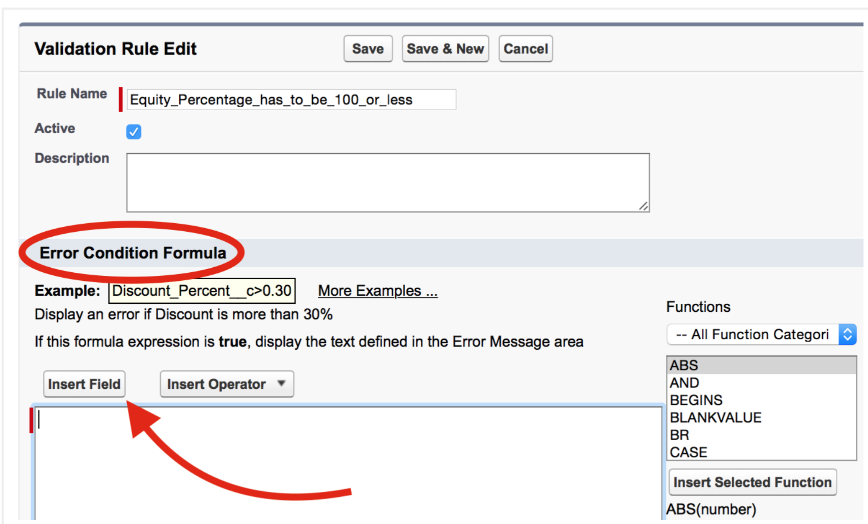
Took some excessive Googling but I finally found it-validation rules:

1. Click **Setup** > **Create** > **Objects** & then **Pitch**

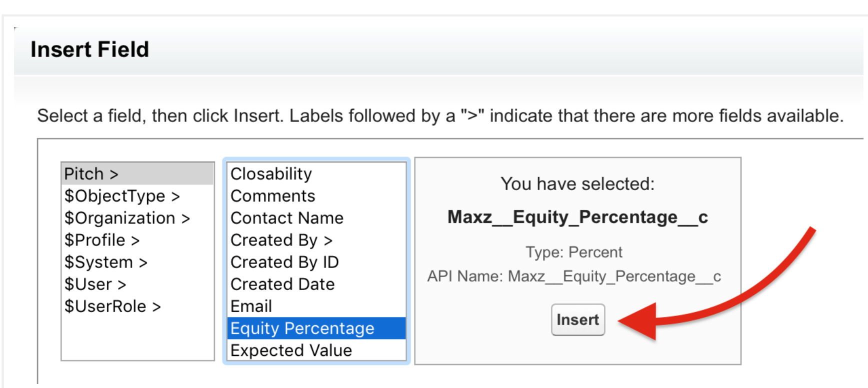
2. Scroll down to **Validation Rules** and click **New**



3. Set **Rule Name** = “Equity Percentage has to be 100 or less” (any name that would make sense to you later on if you had a bunch of rules piled up there)
4. Look down under **Error Condition Formula.** That’s where you tell what condition should trigger an error message and stop the user from adding the bad data.
5. Click **Insert Field**



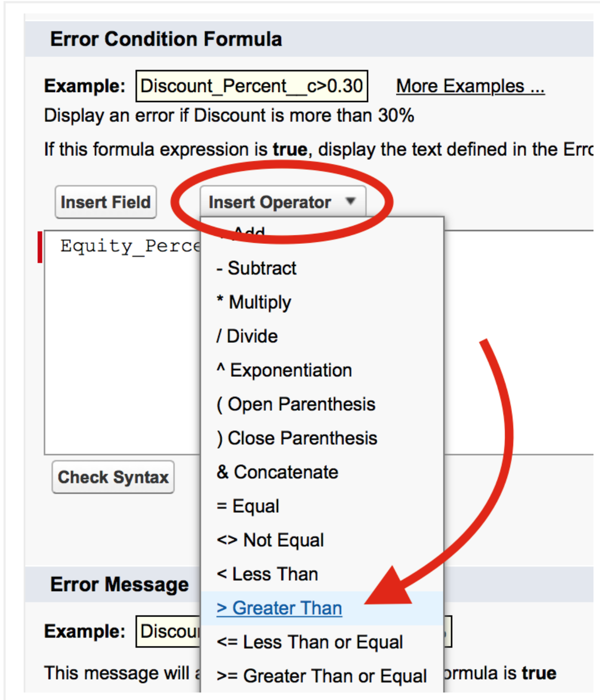
6. That should bring up a dialog box with two picklists. On the left one, **Pitch >** should be selected/highlighted already. That brings up **Pitch** fields on the right so you can choose the one you want to make the rule about.
7. Pick **Equity Percentage** and you’ll see a box pop up confirming your choice
8. Click **Insert**



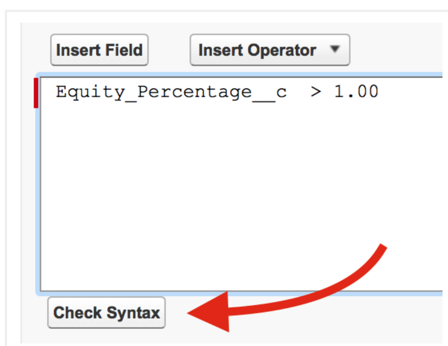
9. Now you’re back on the big empty formula text box and SF should have inserted

Equity_Percentage_c in there for you. (That's the way SF refers to it internally.)

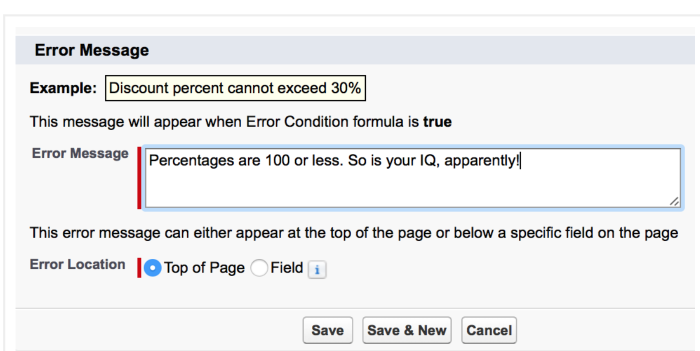
10. Now you can click on **Insert Operator** to drop down a menu and select **> Greater Than** and SF inserts the symbol into the formula box for you



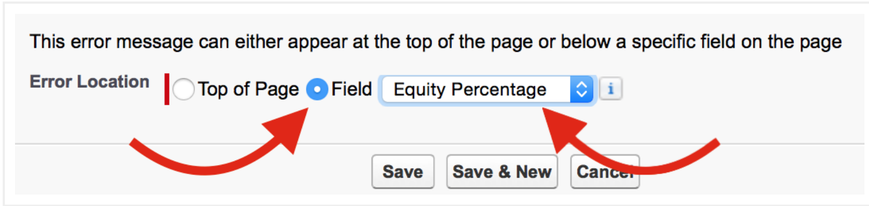
11. Now you have to type for yourself, sorry. Just the number "1.00" is needed. That's what 100% is, mathematically speaking. So now it should read "**Equity_Percentage__c > 1.00**" when you're done. (Click **Check Syntax**, just below the text box, to make sure you got it right.)



12. Now skip down to the **Error Message** text box and enter something cheeky like "Percentages are 100 or less. So is your IQ, apparently!" (For Riley, I did NOT enter that.)



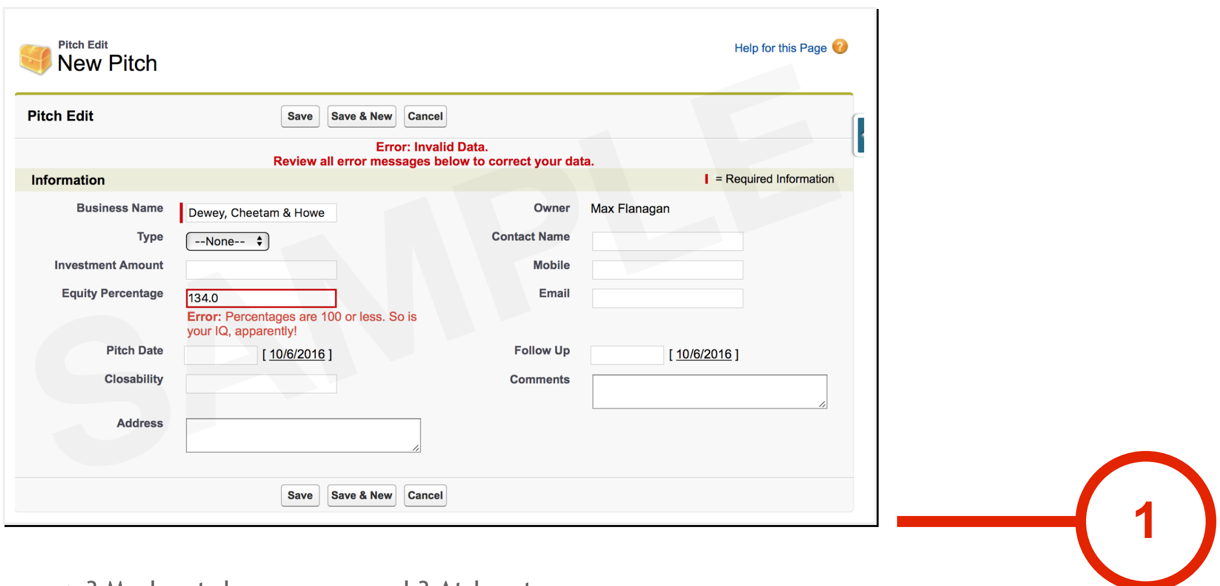
13. Finally, find the **Error Location** choice buttons at the bottom and click **Field** instead of **Top of Page**. A drop-down menu will appear.



14. Pick **Equity Percentage** so the error message will appear right there, next to the bad value, when a user tries to enter it.
15. Click **Save**

Now try it out to make sure it's working.

16. Go to your **Pitches** tab, click **New**, make up something to fill in for **Business Name**, ignore the other fields but enter a number over 100 for **Equity Percentage** and click **Save**



See the error message? Moderately awesome, eh? At least.

17. You can just click **Cancel** to skip the edit when you're done admiring your work ;-J

So I figured I had Riley's data pretty under control—pretty well protected, safe, until...I noticed she had two **Pitch** records with the same **Business Name**. What the...?

I went in and looked at all their fields. They had the same **Address** too! But the **Investment Amount** and the **Equity Percentage** were different. They had the same contact info, i.e. **First Name**, **Last Name**, **Mobile**, etc. but the **Pitch Dates** and **Follow Up** dates were different too! Weird enough. But then I noticed the **Pitch Date** for one was the same as the **Follow Up** date for the other! Ultra-weird. [*Twilight Zone* soundtrack]

As Richard Dreyfuss would say-"*This* was no typing accident!" [switch to *Jaws* soundtrack]

A bit more sleuthing with Riley revealed the culprit-Killer Clones...

Data Redundancy (aka "Evil Twins")

So, I never got this before somehow but it turns out when you pitch an angel or VC firm, it takes awhile for them to warm up to giving you a bunch of their money (duh!) and so you might have multiple meetings with them which (unfortunately) I hadn't really accounted for when setting up my app (d'oh!).

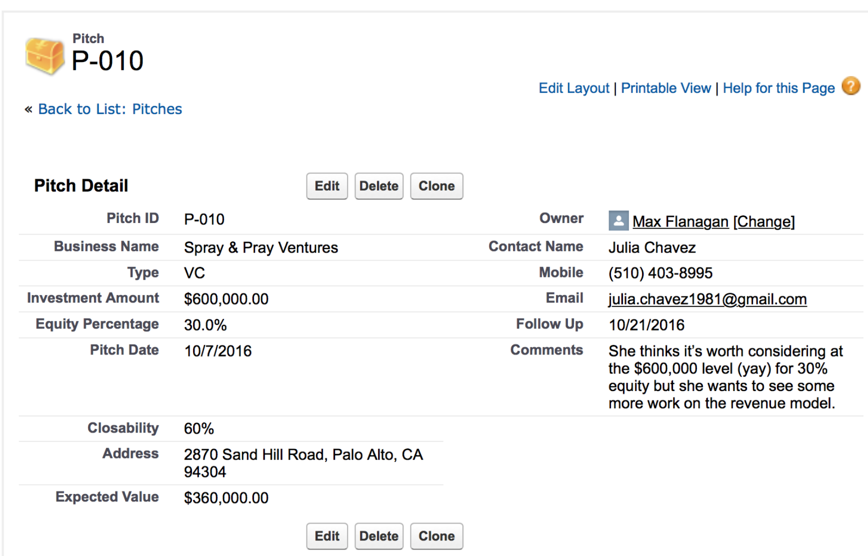
When I finally got a clue, I got this queasy feeling. You know that feeling you get about 20 minutes into *Aliens* that you know the monster's lurking somewhere on the ship, but there's no telling where or when it will appear? This was way worse.

At least I didn't have to wait long. I was staring at those messed up records, half the same, half different and it suddenly dawned on me–this was the monster's doing! Pretend you're Riley & I'll show you how it happened (making up fake names, etc., of course).

Today is 10/7/2016. You just had your first meeting to start a new pitch with a VC firm named "Spray & Pray Ventures," located at 2870 Sand Hill Road, Palo Alto, CA 94304. You met with Julia Chavez, (510) 403-8995, julia.chavez1981@gmail.com. Your meeting notes say "She thinks it's worth considering at the $600,000 level (yay) for 30% equity but she wants to see some more work on the revenue model. Estimated closability: 60%. Meeting again on the 21st."

You're back in your car, you pull out your phone and you're creating the new record (but just use your computer for now, it's easier):

18. Click on your **Pitches** tab and then click **New** to create a record for this new pitch that *began* with that 1st meeting today with Julia
19. Fill in the field values using the info above ("Spray & Pray", etc) & for **Comments** enter the whole part above about "She thinks...the revenue model." (you can resize the **Comments** textbox, if you want, by dragging the little diagonal lines on it's lower right corner)
20. When all your data is in, click **Save** and then just stay on that **Pitch Detail** screen for now

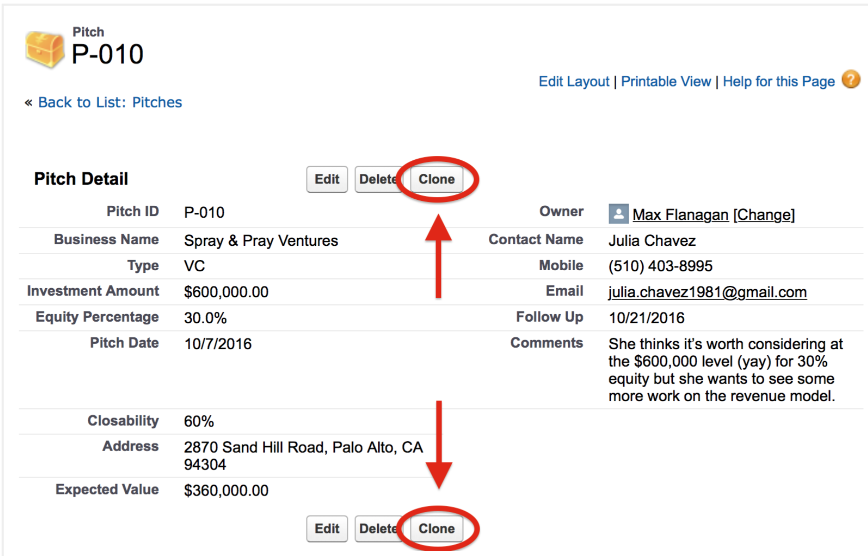


Now, unsurprisingly, the part of your business plan these investor-types like Julia seem to be obsessed with is a silly detail–where is the revenue going to come from? (*the revenue model)*. Julia thought your plan needed work so you had to revise your business plan for the 2nd meeting.

Now pretend today's the 21st, three weeks later. You just had your 2nd meeting with Julia. You showed her the new revenue model and she liked it but she's kinda snarky. She offered to up their investment to $750,000 but...

...now she says they want a 40% equity stake instead of 30%. Hey! That's 10% less for you to bargain to other investors (or for you to split with your co-founder). Doesn't seem like much now but if your company gets bought out by Google someday for $500M, Spray's extra 10% is $50 million more for them. That's $50 million less for you. Less for you to share with your co-founder & any other investors, that is. Nothing to sneeze at. You tell them you'll need to discuss it with your co-founder and get back to them in about a week. You set a follow up meeting for 10/31.

Meeting's over. Back in your car in the parking lot, you get on your phone to save your 2nd meeting info. Fast. How? Behold the **Clone** button(s)-two to choose from, right there next to **Edit** & **Delete**.



Looks perfectly innocent. Let's give it a try:

21. Click **Clone** and you'll see a new **Pitch** record record appear–a duplicate that will get a new **Pitch ID** but all the other fields are filled with all the same data you just entered.

Now on this new 2nd copy, you can just change all the fields that need changing:

22. Change **Pitch Date** to the pretend today date, 10/21/2016
23. Change **Follow Up** to the pretend next week meeting date, 10/31/2016
24. Change **Investment Amount** and **Equity Percentage** to show the new current terms of the deal ($750,000 & 40%)
25. Raise **Closability** to 70%
26. For **Comments** enter "She liked the new revenue model but now she's driving a hard bargain!"
27. Click **Save**

See *that's* how she wound up with two **Pitch** records for one firm. No problem, right?

Ok, then. Fast forward to 10/31. You're going to clone another record for the 3rd meeting today:

28. While you're viewing the 2nd meeting record you just created, click **Clone** again to make a quick & easy 3rd meeting record

In this 3rd meeting, you proposed another, even better revenue model fix (3rd version) and proposed better terms (for you), upping their investment to $800,000 and lowering their equity to 35%. Julia says they'll think it over and she wants another meeting on 11/15. Oh, and BTW, between now and then they're moving their offices to 455 Castro Ave, Mountain View, CA 94041.

Now edit your 3rd meeting record accordingly:

29. Update **Address** to the new Mountain View location above so you have it for the next meeting
30. Change **Pitch Date** to 10/31/2016 (pretend today)
31. Change **Follow Up** to 11/15/2016 (next month's meeting date)
32. Enter the new current terms (**Investment Amount** = $800,000; **Equity Percentage** = 35%)
33. Lower **Closability** to 65% (because you're pushing back a little)
34. Set **Comments** to "Counter-offered her. Hah! Hope she doesn't call my bluff."
35. Click **Save**

Still good? Yeah, not so much.

See, the **Pitch** record is trying to record things about the pitch, which is pitched to one firm with one type and one address, etc. But it's also trying to record things about each of the *multiple* meetings that make up a single pitch, like the dates of all the meetings for that pitch, comments and who you met with at each of those meetings, etc. Mixing one/pitch things in the same record structure with some/pitch things is where I made my big mistake...and took you along for the ride!

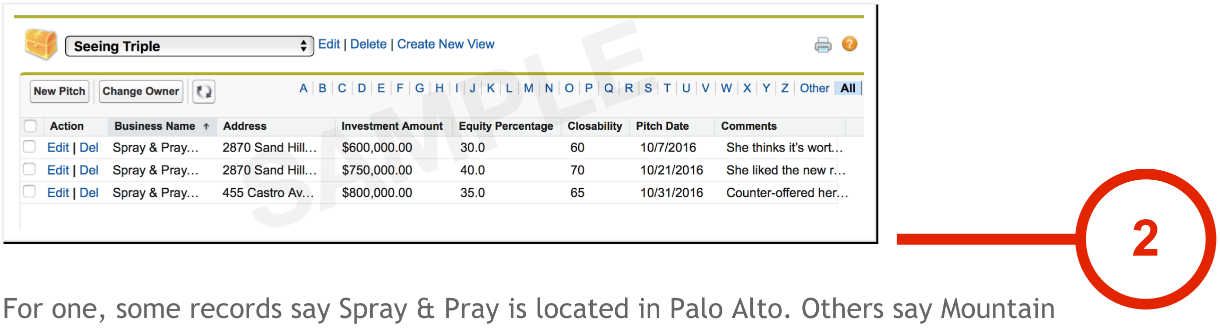
Let's take a look at the records you entered, listed next to each other:

36. Click your **Pitches** tab

See your three Spray & Pray records? Let's see more fields:

37. Click **Create New View**
38. For **View Name**, enter "Seeing Triple"
39. Tab to autofill **View Unique Name** and scroll down to **Step 2. Specify Filter Criteria**
40. On down, below **Filter By Additional Fields (Optional):** find the **Field** column, and on the first row, pull the menu down and select **Business Name**
41. Under **Operator**, on the same row, pull the menu down and select **contains**
42. Under **Value**, on the same row, enter "Spray"
43. Scroll down to **Step 3. Select Fields to Display** and under the **Available Fields** list, click to highlight **Business Name** and click the **Add** button, with the right-pointing arrow, to move it over to the **Selected Fields** list
44. Repeat the last step to also move **Address**, **Investment Amount**, **Equity Percentage**, **Closability**, **Pitch Date** and **Comments** over to the **Selected Fields** list
45. If you got them in a different order somehow, you can always shift them around by clicking one to highlight it and then using the **Top**, **Up**, **Down** and **Bottom** arrow buttons to move it the way you want
46. Under **Selected Fields**, click to highlight **Pitch ID** and click the **Remove** button, with the left-pointing arrow, to move it over to the **Available Fields** list to save space in the view
47. Click **Save** to save and display the new view with just the three Spray & Pray records
48. Click on the **Pitch Date** header to sort them by date with the first meeting at the top

49. Click/hold and drag the divider bars between the field headers to narrow the columns where you can to squeeze all the fields in so you don't have to sideways scroll to see **Comments** but you'll still see just the first few words of each
50. Totally optional but in some browsers (not Chrome), you can hover the cursor over the partial contents of any one of the **Comments** entries to see the complete contents pop up



Action	Business Name ↑	Address	Investment Amount	Equity Percentage	Closability	Pitch Date	Comments
Edit | Del	Spray & Pray...	2870 Sand Hill...	$600,000.00	30.0	60	10/7/2016	She thinks it's wort...
Edit | Del	Spray & Pray...	2870 Sand Hill...	$750,000.00	40.0	70	10/21/2016	She liked the new r...
Edit | Del	Spray & Pray...	455 Castro Av...	$800,000.00	35.0	65	10/31/2016	Counter-offered her...

See any issues? For one, some records say Spray & Pray is located in Palo Alto. Others say Mountain View. At some point, somebody's going to look it up on the wrong record and wind up missing a meeting by going to the wrong location. And they'll be mad at my app (and me). Boo.

And Riley's happy to see the meeting dates, along with the comments about each-she likes to be able to review how the history unfolded in the meetings...BUT (!) she thinks of each pitch as having ONE current set of terms on the table (one Investment Amount & one Equity Percentage) and ONE Closability score. And she reads the reports & dashboards that way. Heck, she uses those to decide how to play things, so they need to be showing what she thinks they are. But this view shows several different, conflicting terms and closability scores for Spray & Pray.

Check this out:

51. Click the **Reports** tab and click the **Average Amount & Equity by Type** report you created last time you followed along (but if you don't still have the report, it's ok-just see below)

Pitch: Pitch ID	Business Name	Investment Amount	Equity Percentage
Type: VC (8 records)			
		avg $432,500.00	avg 24.0%
P-002	Silicon Valley Extreme Venture	$360,000.00	12.0%
P-003	Net Wealth Leverage Associates	$450,000.00	18.0%
P-004	Smart Technology Investment Partners	$80,000.00	8.5%
P-008	Move Over Ventures	$100,000.00	10.0%
P-009	Applied Investments Limited	[illegible]	[illegible]
P-011	Spray & Pray Ventures	$750,000.00	40.0%
P-012	Spray & Pray Ventures	$800,000.00	35.0%
P-010	Spray & Pray Ventures	$600,000.00	30.0%
Type: Angel (5 records)			
		avg $360,000.00	avg 24.7%
P-000	Soaring Eagle, Inc	$500,000.00	33.3%
P-001	Engell & Associates	$200,000.00	25.0%

Spray & Pray shows up all three times in the VC category. One record says they're asking for 30%. Another says 40%. Another says 35%. It seems to be saying they want 105% of your company! Unreal (literally). And it seems to be saying they're thinking of giving you $2,150,000 ($750,000 + $800,000 + $600,000)! All three values are being averaged in with the other VCs, so the averages shown at the top of the report definitely don't mean what they seem to mean.

You lost "data integrity". Your data's fouled up, conflicts with itself and it's telling you things that are just plain...wrong. "Ahhhhhhh...my database is lying to me!" Who needs that?

Don't feel bad–it's not your fault. :-) My data model, my one entity (object) for all **Pitch** info, just can't deal with multiple meetings for one pitch to one business firm. I realized this was the problem that Prof told us about before–when you don't break up the fields into the right logical structure of separate entities (objects) connected by relationships you can get multiple copies of the same data. ("Redundancy". Evil Twins. Boo). And when changes happen, you'll wind up with conflicts between records (lost integrity) unless you somehow manage to keep updating all the copies of each one–fairly hopeless if there's tons of data flying around.

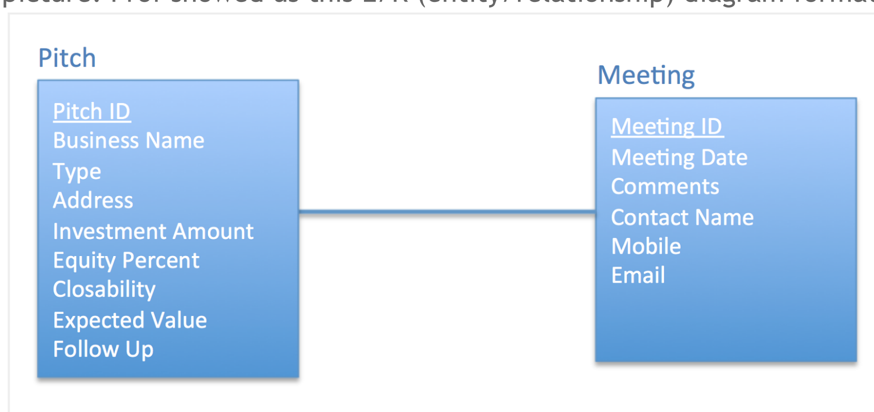
Bottom line? One value of <u>current</u> **Investment Amount, Equity Percentage, Closability** and <u>current</u> **Follow Up** date all go with the firm being pitched, just like **Business Name, Type** and **Address**. <u>Not</u> with the meeting. You shouldn't have to duplicate all these for each meeting you have with them. That's redundancy. That's trouble.

Solution? Make it so there's just one **Pitch** record for every pitch, no matter how many meetings have happened for that pitch. How? Take out all the fields that really go with each meeting–take them out of **Pitch** and make a new object (**Meeting)** out of them. Done. But then how do you know which meeting records go with which firm pitch records, you ask?

Working on Relationships

Prof told us databases let you break records apart, but also keep their data linked together, using relationships. If you link **Pitch** and **Meeting** together with a relationship, every pitched firm record is *connected* to all it's associated meeting records.

I'll draw you a picture. Prof showed us this E/R (entity/relationship) diagram format:



The line between the entities, the relationship, is supposed to have some symbols like "crow's feet" to show the "cardinality," meaning "how many of these goes with one of these," etc. I left them off here to give you a little quiz. Could you add them yourself? Gopher it! :D

K, nice pic but how do you do this in SF?

First, you're going to delete the Spray & Pray records you added for the 1st and 2nd meetings. You're going to have just one **Pitch** record for every firm being pitched from now on, right? That's the whole idea. (Yeah, in a few, you'll have to re-enter some of that data again. Sorry, but...)

52. Click on your **Pitches** tab
53. For each of the records from the first two meetings, ($600,000 and $750,000), click on the **Pitch ID** and click **Delete** and **Ok**

Now create a new custom object named **Meeting:**

54. Go to **Setup** > **Create** > **Object** and click on **New Custom Object**
55. For **Label** enter "Meeting"
56. For **Plural Label** enter "Meetings" (shows up if/when you make a tab for it)
57. **Object Name** should have autofilled already
58. For **Record Name** change it to "Meeting ID"
59. For **Data Type** select **Auto Number**
60. For **Display Format** enter "Mtg-{00}"
61. For **Starting Number** enter "1"
62. Check **Allow Reports** and check **Allow Activities**
63. Click **Save**

Now you're on the **Custom Object Meeting** page and you can connect **Meeting** to **Pitch** (create the relationship) by adding a field that tells, for every meeting record, which **Pitch** it goes with:

64. Scroll down to **Custom Fields and Relationships** and click **New**
65. For **Data Type** select **Lookup Relationship** and click **Next**
66. In the **Related To** drop-down menu, select **Pitch** and click **Next**
67. **Field Label** should already be showing "Pitch"
68. Below that, in **Field Name**, type in "Pitch" (or click in **Field Label** & tab to autofill)
69. Click the checkbox to **Always require a value in this field in order to save a record**
70. Click **Next,** then **Next,** then click **Next** again
71. Click **Save & New** (you'll be adding some more fields momentarily...)

Now, whenever you add a new record directly to the **Meeting** object, SF will give you a choice of the existing **Pitch** records to connect that meeting record to. (They'll appear in a popup window list for you to choose from.)

Ok, you created **Meeting** & you connected it to **Pitch**. Good. Now you want to move those **Pitch** fields that don't belong there into **Meeting**. Unfortunately, you can't just drag & drop them. Sorry. You have to create them in **Meeting** and then delete them out of **Pitch**.

Relax. You know how to add fields. For each one, you just select the data type you want, then click **Next**, then fill in field label and whatever, then click **Next** > **Next** > **Save & New**, right? Now just do all that to create those five fields from **Pitch** that will now be in **Meeting** instead. For each of the next five steps, just use the values given and add the new field:

72. To add the first one, pick data type **Date**; in **Field Label** enter "Meeting Date" and check **Required** (<u>only for this first one, though</u>) then **Next** > **Next** > **Save & New**

Now do the same thing for the rest of the four fields. Just use the values given in each step and do the **Next** > **Next** > **Save & New** thing at the end of each:

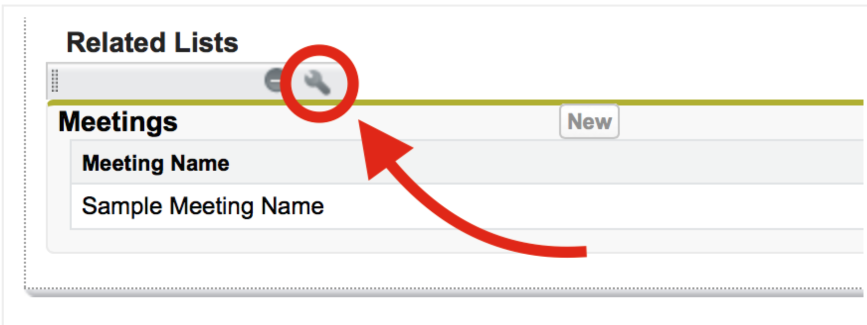
73. Pick data type **Text Area**; in **Field Label** enter "Comments" and then just finish it & go on
74. For the next one, pick data type **Text**; **Field Label** = "Contact Name" & **Length** = "30"
75. Next, pick the data type **Phone**; **Field Label** = "Mobile"
76. Last one: pick the **Email** data type; **Field Label** = "Email" (<u>but still click **Save & New** again at the end!</u>)

Now one new field–Riley said for each meeting, she also likes to record how enthusiastic the person is on a scale of 0-5 (5 being super-excited and 0 being "meh"). Guess it helps her bluffing & such.

77. Use the **Number** data type with **Field Label** = "Enthusiasm" and **Length** = 1 and **Decimal Places** = 0 but this time just **Save** at the end–no more fields to add

Now, whenever you view details of a **Pitch** record, at the bottom, SF will show a "**Related List**" of all the **Meeting** records that go with that pitch! So now, just tell SF which **Meeting** fields you want it to show there:

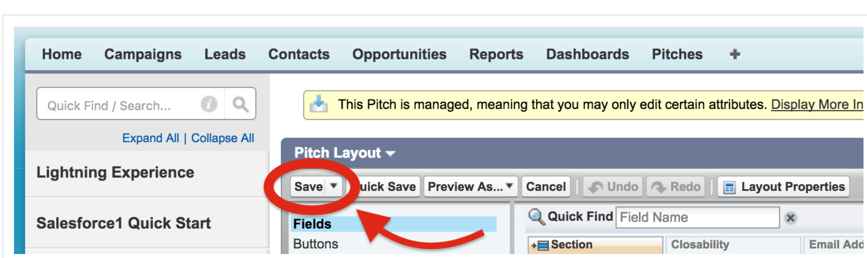
78. Go to **Setup** > **Create** > **Objects** > **Pitch** (NOT **Meeting**)
79. Scroll down to the **Page Layouts** section and click **Edit** on the **Pitch Layout** row
80. Scroll down to **Related Lists** at the bottom and click on the wrench icon to edit **Properties**



81. From the **Available Fields** list, find **Meeting Date**, click to highlight it and then click the **Add** button, with the right-pointing arrow to move it to the **Selected Fields** list
82. Repeat that last step for **Comments, Contact Name** and **Enthusiasm**
83. Click **OK** and then just scroll up a bit to the **Pitch Detail** section on the same page

Ok, one last bit of restructuring left. Those fields that didn't really belong in **Pitch** are now in **Meeting**. Cool. But the **Pitch** object still has them in it too. See? There they are showing up in the **Pitch** record layout. To keep things tidy, we really should delete the fields from the **Pitch** object. But for now, it's easier to just use this layout editor to hide them so they don't show up as part of the **Pitch** data when it's being viewed:

84. Just move the cursor over the first victim, **Pitch Date**, and you'll see it highlight in blue & the wrench and the minus button will appear on the right
85. Just click (you guessed it) the minus button to remove it from the **Pitch** display layout
86. Now repeat the last step for each of the other fields that shouldn't show up as part of the **Pitch** data anymore (**Comments**, **Contact Name**, **Mobile**, and **Email**)
87. When they're all out of the layout, click **Save** (upper left of the layout editor)

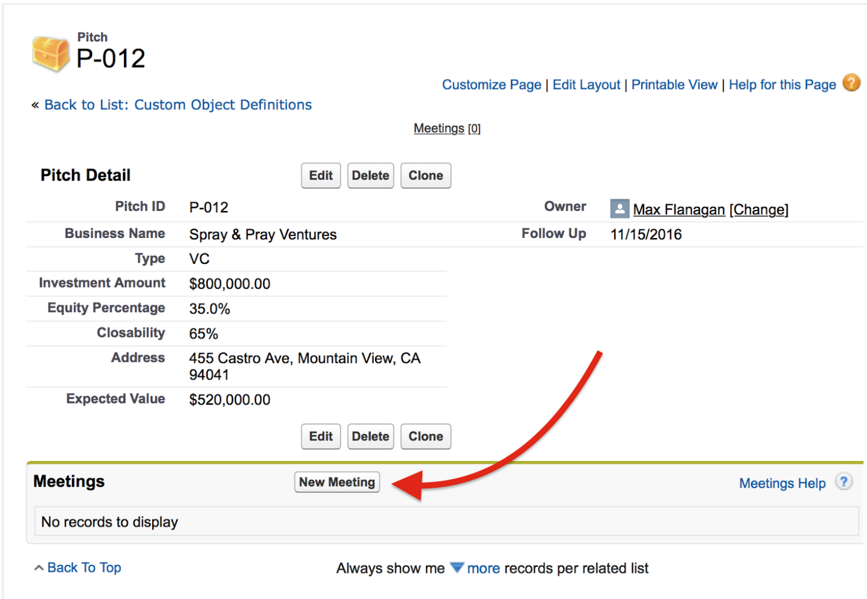


All good! That was a pain, I know, but worth it, b/c now your new structure ("schema") is super-improved and will keep your boss happy. No more lost integrity. No more mysteries.

Check out the new structure:

88. Go to your **Pitches** tab and click on the **Pitch ID** for the one Spray & Pray record that's left, to open up the record details

The **Pitch** terms should show the current levels, as of the last (3rd) meeting ($800k, 35%) and **Follow Up** should be 11/15. Notice the new section at the bottom for listing the related meetings for this **Pitch**.



Of course, it's empty at this point but there's that **New Meeting** button just waiting to be clicked:

89. Click the **New Meeting** button
90. Notice that the new page, for adding in the data, shows the **Pitch** field already filled in with the right ID for Spray & Pray
91. Enter the **Meeting Date** for the first meeting, 10/7/2016
92. Enter the **Comments** which were "She thinks it's worth considering at the $600,000 level (yay) for 30% equity but she wants to see some more work on the revenue model."
93. Enter the **Contact Name** as "Julia Chavez"
94. Enter the **Mobile** as "(510) 403-8995"
95. Enter the **Email** as "julia.chavez1981@gmail.com"
96. Enter the **Enthusiasm** as "2"
97. Click **Save**

That'll open up a page showing the details of the new record. (And places to log tasks, calls & emails below but ignore those for now.)

To add the other two meetings easily, the **Clone** button is now our friend:

98. Click **Clone**
99. Change the **Meeting Date** to 10/21/2016
100. Change **Comments** to "She liked the new revenue model but now she's driving a hard bargain!"
101. Change **Enthusiasm** to "5"
102. Click **Save**

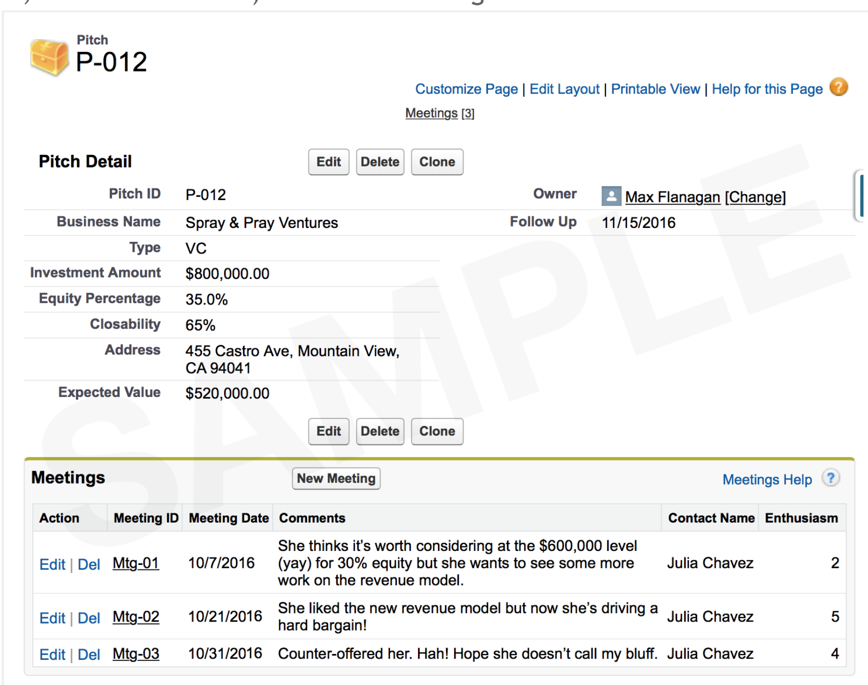
Now for the last (3rd) meeting:

103. Click **Clone**
104. Change the **Meeting Date** to 10/31/2016
105. Change **Comments** to “Counter-offered her. Hah! Hope she doesn’t call my bluff.”
106. Change **Enthusiasm** to “4”
107. Click **Save**

Now go admire your work:

108. Click on the **Pitches** tab
109. Click on the **Pitch ID** for Spray & Pray to open up it’s details

Now you see things the way Riley likes them. One **Pitch** record with one set of details that go with the firm being pitched-one business name, one set of the terms of the current deal, the one current follow up date, etc. AND all the meeting history, with one set of those details (contact name, comments, enthusiasm level) for each meeting.



Action	Meeting ID	Meeting Date	Comments	Contact Name	Enthusiasm
Edit | Del	Mtg-01	10/7/2016	She thinks it’s worth considering at the $600,000 level (yay) for 30% equity but she wants to see some more work on the revenue model.	Julia Chavez	2
Edit | Del	Mtg-02	10/21/2016	She liked the new revenue model but now she’s driving a hard bargain!	Julia Chavez	5
Edit | Del	Mtg-03	10/31/2016	Counter-offered her. Hah! Hope she doesn’t call my bluff.	Julia Chavez	4

3

Case closed, Watson. Integrity found. Mystery solved. All good. Until the next snag...

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