Simulation FEA

- General
  - Really sad that buckling analysis is not included into standard package (but only in F360 Ultimate). High price for only that single missing
  - We can't do more than 1 simulation locally at the same time (I know it makes you sell cloud credit, but not really useful for me because my computer is about as fast as calculations in cloud). We can do 2 or more analysis at the same time with Inventor if we load it individually
  - In simulation windows, I have 7 simulations studies already calculated with 7 results. If I make the mistake to go to model window and enter a sketch **without changing anything**. Close the sketch and return to simulation windows. "Compute started, computing createcomponent...". All my 7 simulations are now yellow flag out of date result. F360 would have to know that nothing have changed and all simulations studies are still OK. From now on, I can't say what studies were already calculated and OK and what others were not, I have to start calculations again for about 30-60 min each.
- Contact manager
  - With more than 500 contacts in my model, it is really hard to work with because :
    - "List by contact set" by default. Can't make default "List by bodies". Each time I close contact manager window and reopen it return to "list by contact set". Each contact set that were opened for each body are then closed too. Same thing when I add manual contact.
  - About #1 to #500 contacts, many studies already done in simulation. 3 times, after minor change in model and return in simulation. All contacts were updated to "Bonded". The contacts number were also renumbered from #501 to #1000. I have to make them all again to the right contact type
  - When listed by bodies, the name of them is very important to have them all sorted by name. But the problem is when bodies are not in the same level (or how it has been added into 3D model). In that case the bodies sort is changed and not useful because they do not follow each other by bodies names, but by bodies names into each level. If we can have choice between level of name (not level/name) would be nice.
    - ///a
    - ///b
    - //a
    - //b
    - /a
    - /b
- Load case
  - We are able to put equation into force in x,y,z resultants but each individual data of the equation is lost. Only little windows showing the few last entered (not useful when many different equations)
    - Fx = 100 + 200*sin(5°) = 117.43

        - Can't see the equation, only the result
        - Data :100, 200, 5° are lost, the windows of Fx is only showing 117.43
            - In Inventor Pro the equation was always there and we could change only data we wanted of the equation.
    - We are not able to put parameter already used in 3D model (d1, d2...)
        - Like in the preceding example, we could have
            - Fx = d1 + d2*sin(d3)
        - In Inventor Pro, we were not able to put 3D model (d1, d2...) into simulation equation but we were able (at least) to link sa_x variable that was already used in another simulation equation.
        - Since 2015 this important problem has been flagged.
            - https://forums.autodesk.com/t5/fusion-360-ideastation-request-a/ability-to-reference-driven-dimensions/idi-p/5867029
            - https://forums.autodesk.com/t5/fusion-360-design-validate/use-driven-dimension-as-a-parameter/td-p/6253015
        - Is there a way it would be introduce in F360. Too much lost time (and high possibilities of mistake) in rewriting data at each design analysis
        - It would be good at least to be equivalent as Inventor Pro and have editable equation with variables sa_x. But it would be better to be able to put 3D (dx...)
- Computer Calculation status
    - When a complex FEA calculation (more than an hour) is proceeding, It would be nice to know if the calculation continues of if it has crashed. It often happened that the rule was stucked at the same place without knowing it has crashed. It would be nice to see Status % calculation or a moving/turning rule to know F360 is not dead.
- Result
    - Larges assembly
        - In large assembly, it's hard to see everywhere the stress are to high. For example, red zone if SF>1. These red zones are not always easy to find when we have hundreds of parts into assembly about 10' long. It's easy to find Min/Max we can hide or not, but all the others zone into a zone I could edit (for SF ex : 0 > SF > 1) could be identified by 1 arrow indicating (stress or SF with information) at the peak point. And that for all identified zone. If it's too messy, we only have to limit the edited zone.
    - Legend
        - It would be nice to be able to set the threshold without to try to slide it. Ex : set exactly to 10000 psi and not trying to hardly slide approximately to 10000
        - Minimum safety factor is indicated at the right of color rule at the same color of it. If I have a SF < 1 (red zone), the Min SF is indicated in red and really hard to see. It would be better to write it "black" as all the others with a better contrast.

        - In legend options, is there a way to lock my favorite. By default, F360 can't be changed and put Legend size to small and color transition to smooth. If I want other I have to change at each new simulation
            - There is about no choice in Simulation preferences (where I think these choices should be located)
    - Animate
        - Same thing as legend options. By default : one-way, speed normal. Have to change at each new simulation
    - Reaction
        - Reaction can only be retrieve from report. Not really practical
            - We can't retrieve directly with right mouse click "reaction force" as Inventor Pro
- Simplify
    - The new (few months ago) simplify is worst than is was last year.
        - We have to change window and go to "Simplify" for less use than it was before. I don't see logical reason in that change
        - If we remove a component in the simplify window, it can't be restored. It's like it has never existed
        - In the old version, we have checkbox directly in simulation for :
            - Visual (see or not)
            - Simplify (put components into calculation of not)
            - And each of them could be easily restored
    - In each study, we have "Contact" & "Mesh" but there is no "Simplify" nor "model components"
        - With no "Simplify" for each study, we can't change design and make other studies without applying to all of them. In that case we have to save another file with that particular "Simplify" case.
        - It would also be nice to see or not different components into differents studies. Actually, "model components" setting is for all studies.
        - It would be also practical to be able to link or not "Contact, Mesh and model components" to the first study from whom it was first copied (if it apply). In that case, a change in study 1 would apply to other studies that would be linked.
    - Another improvement would be nice. Possibility of not only copy studies into the "Simulation Model 1" but copy the total "Simulation Model 1" and create a new one "Simulation Model 2". At this time, it's not possible