Hometap Project

Mortgage Calculator

New Feature: Interest Rate

Test Design Summary

Since this is the latest feature to be added to the calculator we must decide on an initial assumption of the state of testing prior to this latest build,

1. It is the last feature needed for a working calculator, and up to now that calculator did not work, so we need to test not only the field, but that the calculator functions (a value for the payment is generated) and it's mathematically correct as well, as a whole.
    a. A possible consideration is that if this was a more complex calculation that there might yet be more to fill in on the back end that might not be done yet or sussed out so it may be that we don't expect a valid value, just that it is functioning as we exercise the field.
    b. It could be that we are checking only the backend and the display of the value is not yet there yet (tho here we see that it is).
2. The calculator works, and had a hard coded value for the interest rate before this, so all math functions are known to work, and all other fields have been fully tested.
3. There was no hard coded value for interest rate, so there was no working math function up to now, but each field was tested as a field of entry with it's unique entry, limits, and errors, etc. fully exercised.

We will assume this is the last ui code added to a working calculator that the math tested previously (before any ui was set to it). That won't discount checking our result, just the need for extensive retesting of that. Mostly we are checking that the right variable is getting pulled for display here (which we assume was already tested, but a recheck and as we are doing some automation for this also, makes sense).

We are assuming that the Advanced feature is not there yet, and so we cannot turn off PMI and TAXES. This woud change things, and make automation later on easier.

NOTES:

We could also do the math based on test data sent in if not hard coded, and compare that to results of the calculator.
I would use id's for everything we create to facilitate both automation, and tracking tools like Pendo to hook onto.
IDs are inconsistent - should follow defined naming structure

Automation:

Observed:

The error message only appears for an error, such that we need only to look for its existence in the case where we expect to find it, else we get an: selenium.common.exceptions.NoSuchElementException
This could also be handled with a Try Catch assert block.

DATA:

We will use predetermined values for a predetermined result.
Home Price   : 539,000
Down Payment : 107,800 20%
Loan Program : 30 year Fixed/5 year Arm
Interest Rate   : 4.275 / 2.5
Payment   : 2731/2307

Unless noted, we assume with each change a "tab" is the entered to generate a result

Positive Tests

The Interest Rate Field ACs:

- Verify the label is "Interest Rate"
- The Interest Rate field label should be of consistent color with other labels (UI Team for details)
- A percentage sign should appear in the Interest Rate field
- The interest rate field should be marked required
- The required icon should be a red asterisks (UI Team for details)
- The circle question mark help icon when clicked should work.
- On mouseover the circle should fill gray(? UI Team for details)
- On click the circle should have a halo of blue (?   UI Team for details)

- The text for the See Current Rates should be of consistent color with other labels and have no underline
- On mouseover of See Current Rates the underline should appear
- The See Current Rates text should be linked
- The link for See Current Rates should also work.

UI Desktop/Mobile ACs

Check that Interest Rate field and all its components, adjust correctly for the breakpoints of the resizing of the page (UI Team for details)

The Calculator ACs:

- Enter a valid Home Price, down payment, loan program (default), and interest rate.
  - Get a valid result
- Using and interest rate of any positive value from 0-100 should work

Random Extra BUG?:

- Refreshing the page should show an Interest Rate Value value of 4.905 (1657 payment)
  Or 4.901 (1656) (check with Product Team on this / bug?)
- Then entering any positive value 0-100 in the Interest Rate field and hitting enter, changes the value to 4.585 (1650 payment)
- Then Entering -33 in the Interest Rate field and hitting enter causes a tooltip "Please match the requested format". (PM's how should "Enter" act on the form? Vs Tab and why tab only as implemented - Devs?)

Negative Tests and other value entry tests

- Enter a negative number and you should get an error
- Enter a 0 and it should work (1801)
- Enter .25 and it should work (1847)
- Enter a number greater than 100 (101, 1000)
  - That should generate an error in red " Rate must be less than or equal to 100 "
  - The field should be outlined in red also
- Enter a word (hometap)
  - That should generate an error in red " 'hometap' is not a valid number "
  - The field should be outlined in red also
- Enter a special chars also, for similar result
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- Verify you can paste in a value

Link to Google Sheet of Test Cases

HomeTap Zillow Mortgage Calculator Test Cases Google Sheet

Automation Review

ENV set up
git clone https://github.com/gregptm/hometap.git
python3 -m venv hometap
source hometap/bin/activate
cd hometap/
pip install -r requirements.txt

Run options by level of detail
pytest -v -s testCases/test_zillowMortCalc.py   # all tests, verbose, with debug prints
pytest -v testCases/test_zillowMortCalc.py   # all test verbose
pytest -v -s -m L0 testCases/test_zillowMortCalc.py   # just L0 tests
pytest -v -s -m L1 testCases/test_zillowMortCalc.py   # just Li test
pytest testCases/test_zillowMortCalc.py   # all tests - just pass or fail output

Issues:

- We assumed that the advanced feature did not yet exist in the cycle and we had just added interest rate to the base calculator. As such we cannot just shut off the PMI and TAXES without that UI, via front end automaton.
  Therefore a proxy is needed or defined IP or some such to get consistent taxes in the calculation of full monthly payment. So as a temporary fix, knowing the Advanced feature is planned for a near future sprint, we currently are verifying monthly P&I added a **TODO** in code to add a proxy for this test when not also testing advanced.

- Standardized custom ID's are needed on all fields! Suggest 'data-qa'.

- Weird form reaction to entering data.
    - I had to use two clears and then a click to get a stable entry point that would clear and stick
    - Even still, we need to have the last field entered not be the interest rate as it has a tendency to re assign itself a new value ?!?!

- I ran into API limits and added GH_TOKEN, but the it stopped working, ignoring the settings.
    - So I tried running just FF driver direct vs the new manager way, and FF runs.
    - However, I see that it fails to verify the new page test for the Current Rates link, added a **TODO** in code

Note: 5/31 - email arrived saying GitHub revoked the token.
    I reread the documentation and fixed the Token issue. FF still chokes on my verification of the Current Rates link - suspect a timing/window close issue.