

APP BUILDING FOR NON-TECHIES

Step by step how app builders make a [CHT](#) app

[mrjones](#)

[this preso on GH](#)



REFERENCES

- CHT Docs
 - App forms tutorial
 - Forms Reference
- Docs Cheat Sheet PR
- Capacity Building:
 - Modules List
 - App Forms Module (-> App forms tutorial)
- xls form reference site

OVERVIEW

Use cht - conf and the browser to:

gsheets -> xlsx -> xml -> upload -> data entry &
recalculating -> submit -> sync -> JSON

cht-conf

Command line utility:

- configure, upgrade and update CHT
- data and server software

cht-conf

Example: Update "test_form" form:

```
cht \  
  --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive \  
  convert-app-forms \  
  upload-app-forms \  
  -- test_form
```

cht-conf

Example: Result from "test_form" form:

```
INFO Processing config in covid-19.
INFO Actions:
    - fetch-forms-from-google-drive
    - convert-app-forms
    - upload-app-forms
INFO Starting action: fetch-forms-from-google-drive...
INFO Exporting 1eXQ-j_tf0Rxukgw5yMjnAadto0u_Lt_mlveWxDW6K00 fr
INFO Successfully wrote /home/mrjones/Documents/MedicMobile/ch
INFO Exporting 1pDNi-CVLKJCdVjYY8UxHkDCbjTKeVBwCgg9hKRWQoqY fr
INFO Successfully wrote /home/mrjones/Documents/MedicMobile/ch
INFO fetch-forms-from-google-drive complete.
INFO Starting action: convert-app-forms...
WARN No matches found for files matching form filter: test_for
INFO convert-app-forms complete.
INFO Starting action: upload-app-forms
```

GSHEETS

Easy Sharing and Revisions vs GitHub

type	name	label::en	required	relevant	appearance
begin group	inputs	NO_LABEL		./source = 'user'	field-list
hidden	source	Source			
hidden	source_id	Source ID			
begin group	user	User			
db:person	contact_id	Contact ID			db-object
begin group	parent	NO_LABEL			
hidden	_id	Parent ID			
end group					
end group					
begin group	contact	NO_LABEL			
db:person	_id	What is the patient's name?			db-object
hidden	name	Name			
hidden	short_name	Short Name			
hidden	patient_id	Patient ID			
hidden	date_of_birth	Date of Birth			
hidden	sex	Sex			
begin group	parent	NO_LABEL			
hidden	_id	Parent ID			
begin group	parent	NO_LABEL			
begin group	contact	NO_LABEL			
hidden	chw_name	CHW name			
hidden	phone	CHW phone			
end group	contact				
end group	parent				
end group	parent				
end group	contact				
end group	inputs				
calculate	patient_age_in_years	NO_LABEL			
calculate	patient_uuid	NO_LABEL			
calculate	patient_id	NO_LABEL			
calculate	patient_name	NO_LABEL			

GSHEETS

fetch-forms-from-google-drive

Copy from GDrive -> local .xlsx

App builders start by copying a gsheet - this talk will
use test_form

EDIT SYNCHED FORMS

forms-on-google-drive.json JSON config file:

```
{  
  "app/test_form.xlsx": "10X87YC6kA0vBgttjUhBL6fMdFSk",  
}
```

cht-conf FIRST RUN

test export to local file:

```
cht --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive
```

note that cht-conf allows you to string together
multiple commands

ERRORS ON CLI

Bad ", " in config file:

```
$ cht fetch-forms-from-google-drive
```

```
INFO Processing config in default.
```

```
INFO Actions:
```

```
  - fetch-forms-from-google-drive
```

```
INFO Starting action: fetch-forms-from-google-drive...
```

```
WARN Error parsing JSON in: /home/mrjones/Documents/MedicMobile
```

```
ERROR SyntaxError: Unexpected token } in JSON at position 74
```

```
  at JSON.parse ()
```

```
  at Object.readJson (/usr/lib/node_modules/cht-conf/src/lib/
```

```
  at /usr/lib/node_modules/cht-conf/src/lib/fetch-files-from-
```

```
  at processTicksAndRejections (internal/process/task_queues.
```

EXPORT -> CONVERT -> UPLOAD

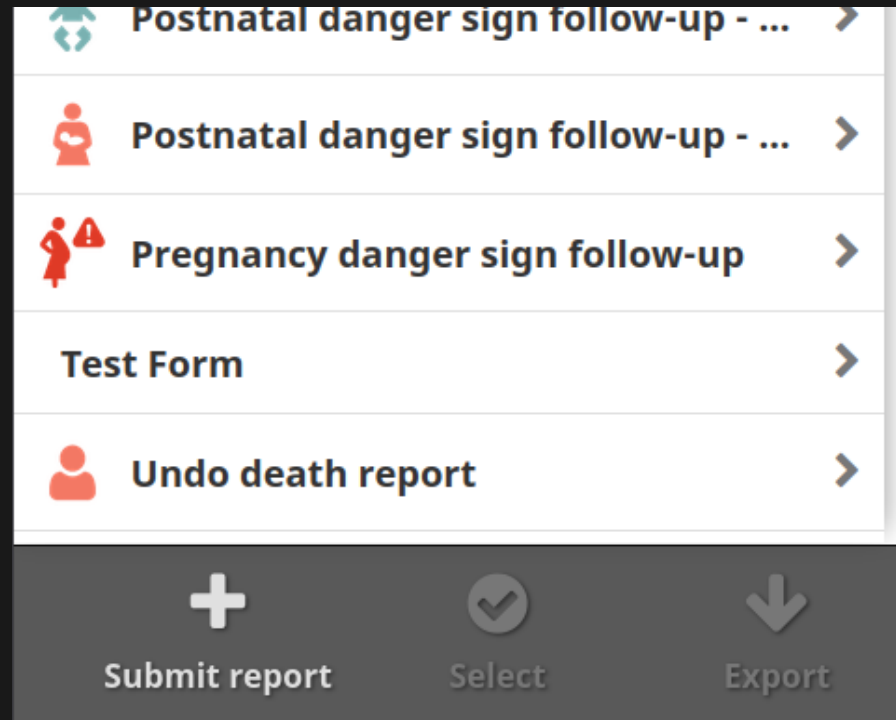
Let's import our new `test_form` by adding `convert-app-forms (xlsx -> xml)` and `upload-app-forms (xml -> CHT)`:

```
cht --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive \  
  convert-app-forms upload-app-forms \  
  -- test_form
```

EXPORT -> CONVERT -> UPLOAD

see if it's there!

1. <http://localhost:5988/#/reports/>
2. Submit report
3. Test Form



FORM PROPERTIES JSON

Before we start form building, let's set some properties
via the forms/app
/test_form.properties.json:

```
{ "title": "Test Form",  
  "icon": "icon-person",  
  "context": {  
    "person": true,  
    "place": false,  
    "expression": "contact.type === 'person' && summary.alive  
  }  
}
```


GO FASTER cht-conf

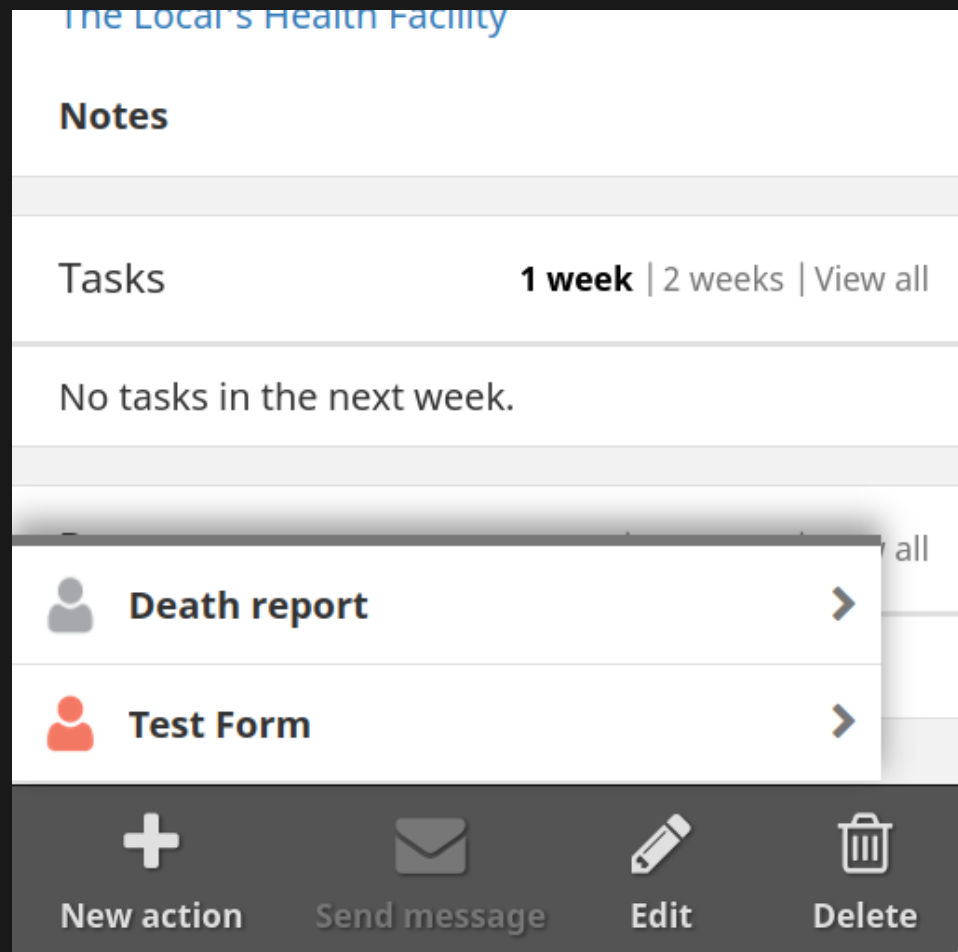
Add upload-resources to the cht to send the json as well:

```
cht --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive \  
  upload-resources \  
  convert-app-forms \  
  upload-app-forms \  
  -- test_form
```

UPDATED PROPERTIES

Back on your server, form is no longer available anywhere but on patients who are ≤ 5

<http://localhost:5988/#/reports/>



XFORMS STRUCTURE

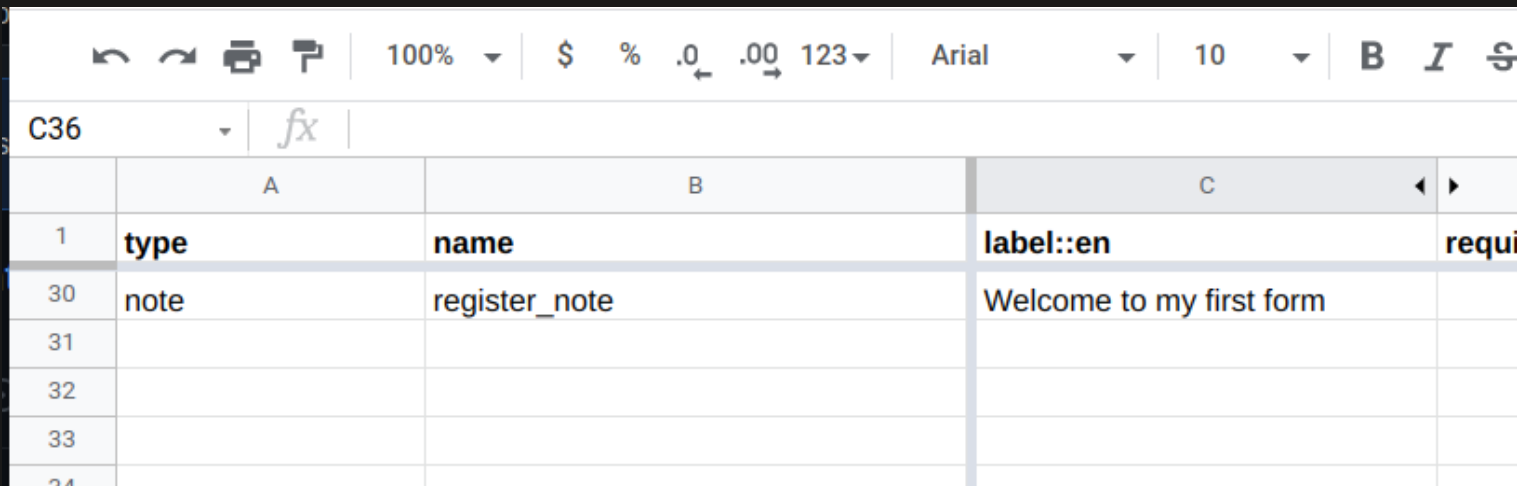
Inputs - Calculated - Questions - Summary - Outputs

1	type	name	calculation	choice_filter	hint::en	default	media::image	instance::tag	repeat_count
2	begin group	inputs							
3	hidden	source				user			
4	hidden	source_id							
5	begin group	user							
6	db:person	contact_id							
7	hidden	phone							
8	end group	contact							
9	end group	parent							
10	end group	parent							
11	end group	contact							
12	end group	inputs						hidden	
13									
14	calculate	patient_age_in_years	floor(difference-in-months(./inputs/contact/date_of_birth, today()) div 12)					hidden	
15	calculate	patient_uid	./inputs/contact/_id					hidden	
16	calculate	patient_id	./inputs/contact/patient_id					hidden	
17	calculate	t_pregnancy_follow_up_date	./anc_visits_hf/anc_visits_hf_next/anc_next_visit_date/appointment_date					hidden	
18	calculate	t_pregnancy_follow_up	./anc_visits_hf/anc_visits_hf_next/anc_next_visit_date/appointment_date_known					hidden	
19	calculate	t_danger_signs_referral_follow_up_date	date-time(floor(decimal-date-time(today())) + 3)					hidden	
20	calculate	t_danger_signs_referral_follow_up	./danger_signs/r_danger_sign_present					hidden	
21									
22	begin group	gestational_age							
23	begin group	register_method							
24	note	register_note						hidden	
25	select_one_imp_meth	imp_method			Select one.				
26	begin group	tetanus							
27	select_one_yes_no	tt_imm_received							
28	note	tt_note_1						hidden	
29	note	tt_note_2						hidden	
30	end group	tetanus							
31			if((selected(./tetanus/tt_imm_received, 'no') or selected(./hiv_status/hiv_tested, 'no') or selected(./deworming/deworming_med, 'no') or selected(./iron_folate/iron_folate_daily, 'no')), 'yes', 'no')					hidden	
32	calculate	request_services							
33	end group	safe_pregnancy_practices							
34	begin group	summary						hidden	
35	note	f_submit_note							
36	note	f_summary_details							
37	note	f_patient_details							
38	note	f_summary							
39	note	f_pregnancy_details							
40	note	f_pregnancy_details_unknown							
41	note	f_risk_factors							
42	begin group	custom_translations							
43	select_one_translate	custom_woman_label_translator	"woman"						
44	calculate	custom_woman_label	jr:choice-name({custom_woman_label_translator},{custom_woman_label_translator})						
45	select_one_translate	custom_woman_start_label_translator	"woman-start"						
46	calculate	custom_woman_start_label	jr:choice-name({custom_woman_start_label_translator},{custom_woman_start_label_translator})						
47	end group								
48	end group								
49									
50	begin group	data						hidden	
51	calculate	_imp_method	\$(imp_method)						
52	calculate	_no_imp_registration_reason	\$(no_info_pregnancy_reason)						
53	calculate	_imp_date	\$(imp_date_B601)						
54	calculate	_imp_approx_weeks	\$(imp_approx_weeks)						
55	calculate	_imp_approx_months	\$(imp_approx_months)						

YOUR 1ST LINE OF XFORM CODE

Let's add some questions!

Below "Top level calculation fields", add a bunch of blank lines and copy the first note



	A	B	C	
1	type	name	label::en	required
30	note	register_note	Welcome to my first form	
31				
32				
33				
34				

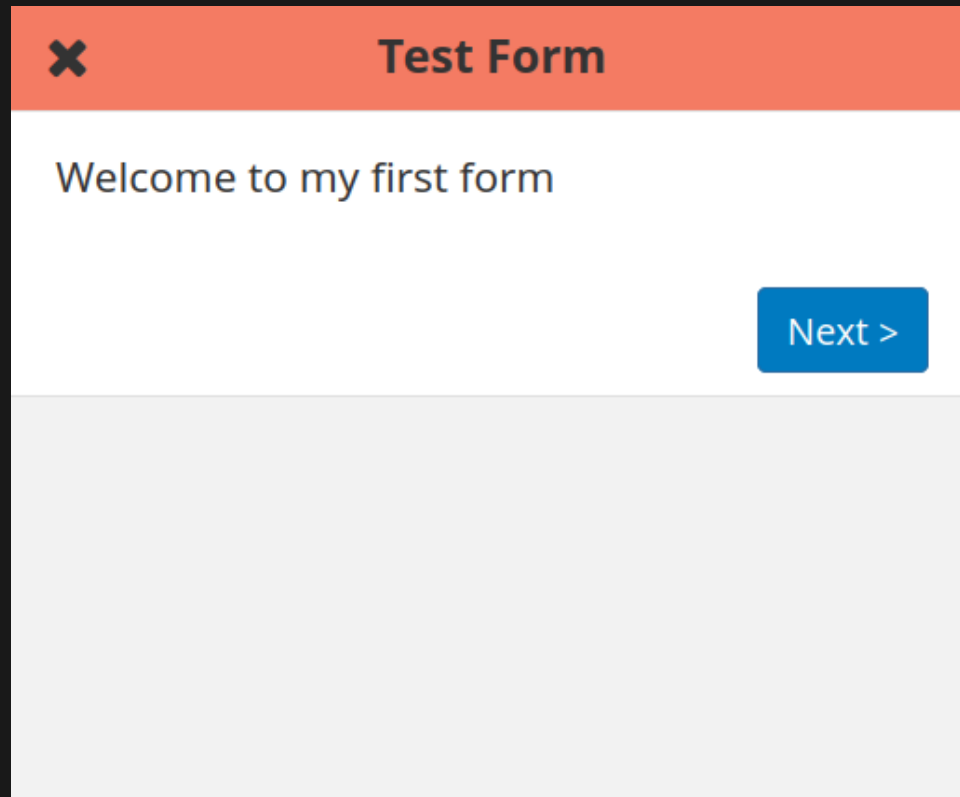
RINSE AND REPEAT

re-run our fave cht command (you could trim off
"upload-resources")

```
cht --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive \  
  upload-resources \  
  convert-app-forms \  
  upload-app-forms \  
  -- test_form
```

RELOAD RELOAD RELOAD

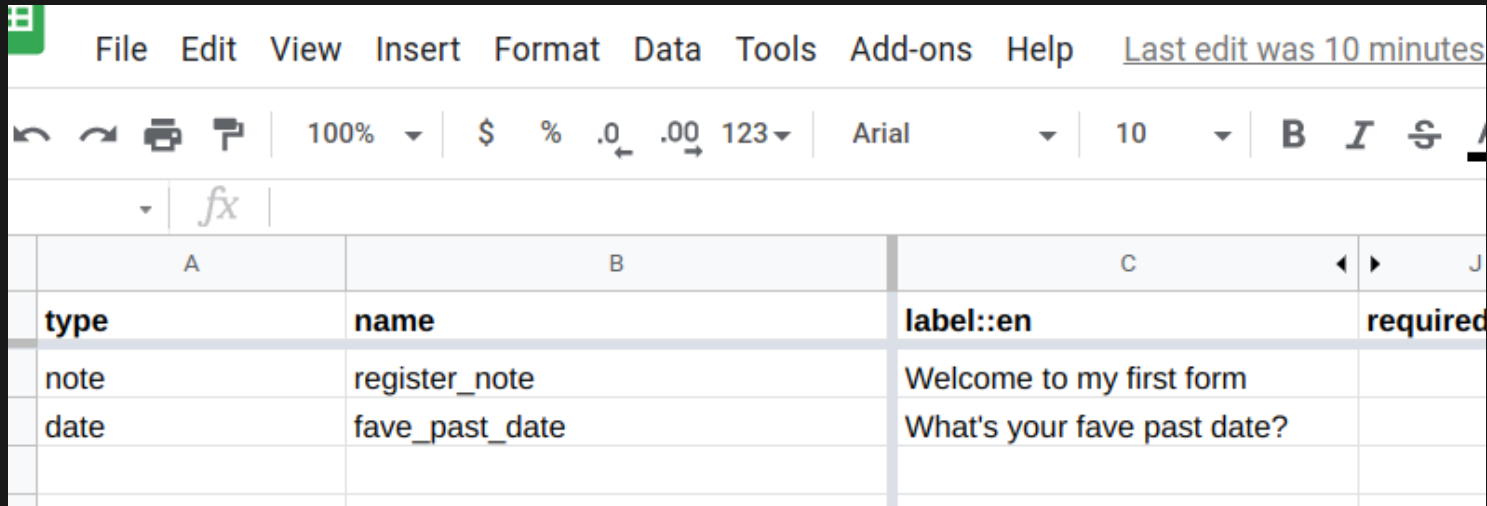
reload the form in the browser and you should see
your note



A screenshot of a web browser window displaying a form titled "Test Form". The form has a white background and a light gray border. At the top, there is a red header bar with a black "X" icon on the left and the text "Test Form" in the center. Below the header, the text "Welcome to my first form" is displayed in a dark gray font. To the right of this text is a blue button with the text "Next >". Below the button, there is a large, empty white rectangular area.

NOW WITH 100% MORE DATES

let's add a date input after the note



The screenshot shows a Google Sheets interface with a table containing form field definitions. The table has four columns: 'type', 'name', 'label::en', and 'required'. The rows define a 'note' field and a 'date' field.

	A	B	C	J
	type	name	label::en	required
	note	register_note	Welcome to my first form	
	date	fave_past_date	What's your fave past date?	

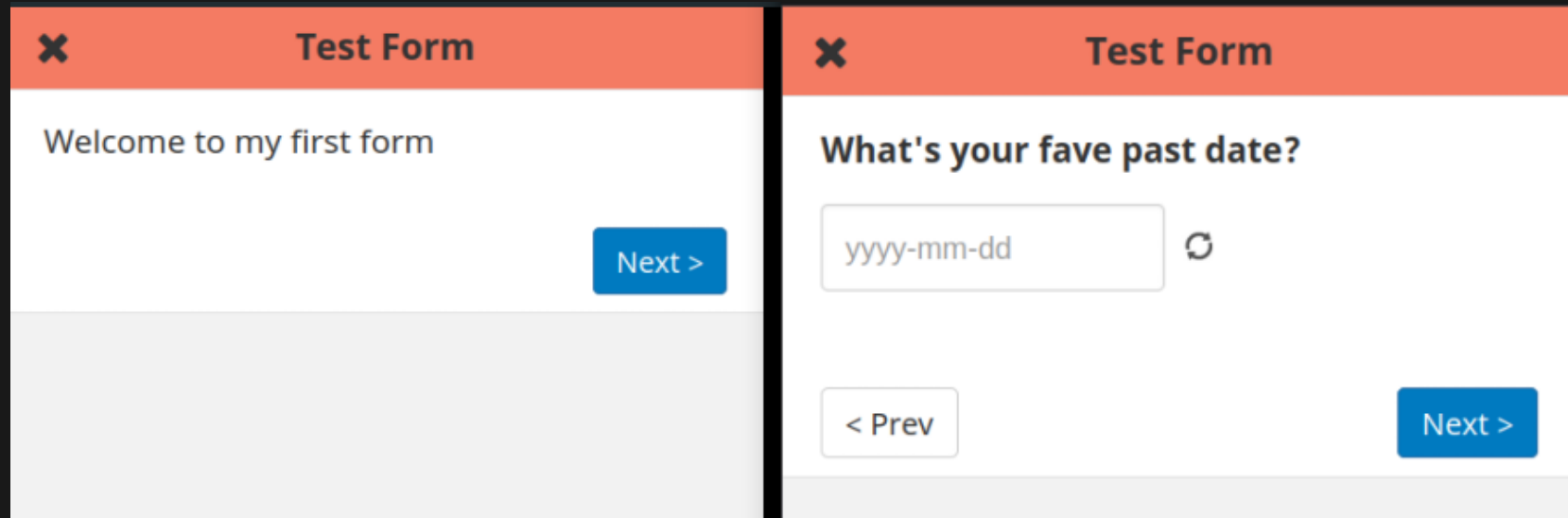
RINSE AND REPEAT

re-run our fave cht command

```
cht --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive \  
  upload-resources \  
  convert-app-forms \  
  upload-app-forms \  
  -- test_form
```

RELOAD RELOAD RELOAD

Reload the browser & note it's on two separate pages:



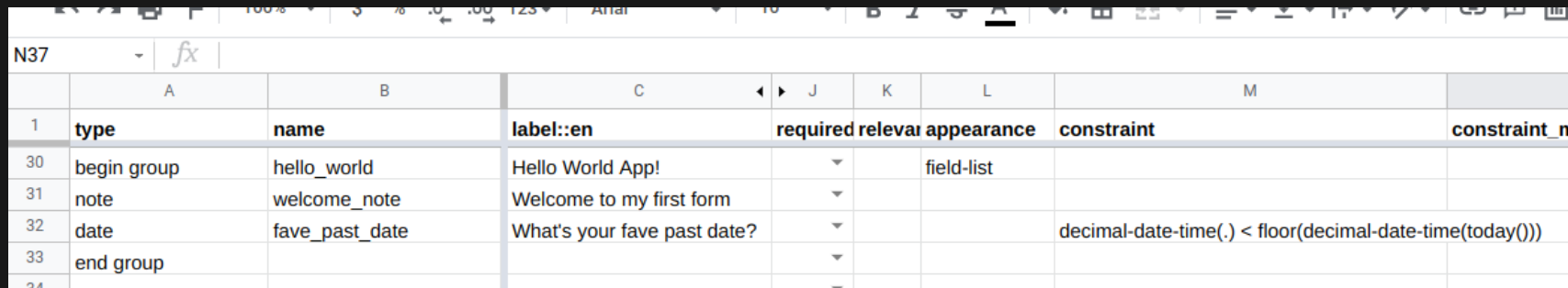
The image displays two side-by-side screenshots of a web form titled "Test Form".

Left Screenshot: The form has a red header bar with a close button (X) and the title "Test Form". The main content area is white and contains the text "Welcome to my first form". At the bottom right, there is a blue button labeled "Next >". The bottom section of the form is a light gray area.

Right Screenshot: This screenshot shows the form after a reload. It has the same red header bar. The main content area is white and contains the text "What's your fave past date?". Below this text is a text input field with the placeholder "yyyy-mm-dd" and a circular refresh icon to its right. At the bottom left, there is a button labeled "< Prev", and at the bottom right, there is a blue button labeled "Next >". The bottom section of the form is a light gray area.

FIELD-LIST

Let's put the two on one page & ensure only past dates via a constraints:



	A	B	C	J	K	L	M	
1	type	name	label::en	required	relevance	appearance	constraint	constraint_n
30	begin group	hello_world	Hello World App!	▼		field-list		
31	note	welcome_note	Welcome to my first form	▼				
32	date	fave_past_date	What's your fave past date?	▼			decimal-date-time(.) < floor(decimal-date-time(today()))	
33	end group			▼				
34				▼				

```
decimal-date-time(.) < floor(decimal-date-time(today()))
```

RINSE AND REPEAT


re-run our fave cht command

```
cht --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive \  
  upload-resources \  
  convert-app-forms \  
  upload-app-forms \  
  -- test_form
```

RINSE AND REPEAT & RELOAD

RELOAD RELOAD


Note it's on one page and there's a constraint:

 **Test Form**

Hello World App!

Welcome to my first form

What's your fave past date?

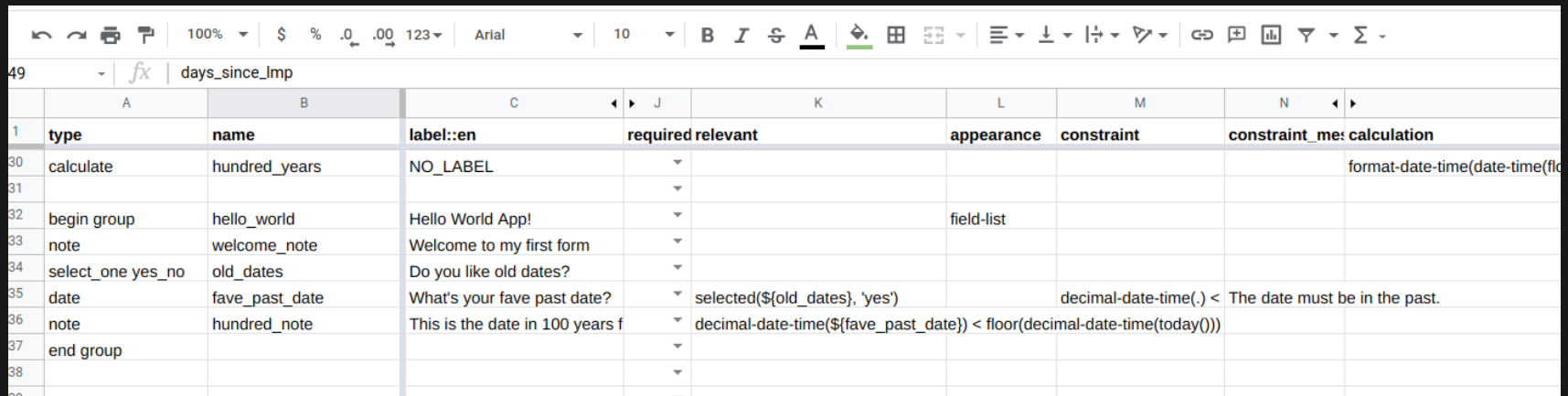


Value not allowed

[Next >](#)

CALCULATE

Finally, let's ask if they like old dates and calculate 100 years later:



type	name	label::en	required	relevant	appearance	constraint	constraint_message	calculation
calculate	hundred_years	NO_LABEL						format-date-time(date-time(flo
begin group	hello_world	Hello World App!			field-list			
note	welcome_note	Welcome to my first form						
select_one yes_no	old_dates	Do you like old dates?						
date	fave_past_date	What's your fave past date?		selected({old_dates}, 'yes')		decimal-date-time(.) <	The date must be in the past.	
note	hundred_note	This is the date in 100 years f		decimal-date-time({fave_past_date}) < floor(decimal-date-time(today()))				
end group								

```
format-date-time(  
  date-time(  
    floor(  
      decimal-date-time(  
        ${fave_past_date})) + 36525), "%Y-%m-%d")
```


RINSE AND REPEAT

re-run our fave cht command

```
cht --url=http://admin:pass@localhost:5988 \  
  fetch-forms-from-google-drive \  
  upload-resources \  
  convert-app-forms \  
  upload-app-forms \  
  -- test_form
```

a fitting end - you do this SO. MANY. TIMES. ;)

OUR FIRST APP COMPLETED

 **Test Form**

Hello World App!


Welcome to my first form

Do you like old dates?

☒ Yes

☐ No

What's your fave past date?



This is the date in 100 years from your date:
2101-01-02

Next >

THANKS!

- By: [mrjones](#)
- Source: [app-building-non-techies](#) repo
- Made: [reveal-md](#)

