Static and Dynamic Data

Postgres, Kafka, and Bottled Water

CHAD BAILEY
HEROKU
Software can be chaotic, but we make it work

Expert

Trying Stuff Until it Works

ORLY?

The Practical Developer
@ThePracticalDev

The passionate, functional, micro-service approach

Expert

Résumé Driven Development

ORLY?

@ThePracticalDev
I solved several problems at once, dad-style:

So after all is said and done, hopefully you’ve said no to most (if not all) of the financier’s add-ons, and he should give you a final interest rate and monthly payment amount. Now is when you drop the bomb. In my case, he told me the best he could do was 9.9%, whereas my bank had already issued me a loan for 8.75%. It’s funny how they can “find” an extra point or two when you wag that piece of paper in their face.

Also, one thing to consider is bringing some sort of financial calculator or other tool. After I got home with my stupid extended warranty, I set up a rather complicated Excel spreadsheet to calculate exactly how much I was getting ripped off. It then occurred to me that I could have easily put that spreadsheet on my Treo using Documents To Go and saved myself some hassle. Use technology to your advantage - the dealerships hate it, which means it’s a good thing.

CONCLUSION (FINALLY)

I feel pretty satisfied with my car buying experience, and I hope you will too. Doing it this way seemed to calm my nerves a lot. By doing as much decision making as possible beforehand, you remove the chances of doing something stupid on the spot, which is how these dealerships stay in business. Leave the stupid buying decisions to Joe and Jane Six-Pack who wander in off the street and pay $1000 over MSRP - you can save more money that way.

BUT HINDSIGHT IS 20/20, MY FRIEND

There are a few things I would have liked to have done differently. First of all, I feel like I got a little reamed with dealer fees. Unfortunately, these things can vary widely from dealership to dealership. If I had it to do all over again, I would have taken the “target price” I got from edmunds.com, added 9% for TTL&F (tax, title license and fees), and done all of the bargaining with that number as an out-the-door price. Then, you can constantly remind the salesman and finance guy that if at any time you see a number bigger than your target number on any piece of paper anywhere, you will walk out of the dealership without saying another word. This can be a powerful thing if you let them waste 2 1/2 hours on you before threatening to leave.

Also, I would have been more prepared for the financing part. I didn’t do enough advance work to have a good loan already in hand when I went to buy the car. As a result, I got into a higher-interest loan than I had to. I was able to take care of it a few days later at my bank, but it would have saved me a trip across town if I had gotten the loan before buying the car. Also, I would have really liked to have that Excel spreadsheet with me. You’d be amazed at how those finance guys can make up numbers that are factually untrue.

THIS TIME IT REALLY IS THE CONCLUSION

To sum up this longest-ever MeFi post, I’ll say this again: “When you walk into a dealership, just remember that every single person you talk to is going to do everything they can to take every last penny they can get out of you. They might pay lip service to ‘customer loyalty,’ but EVERYTHING is motivated by profit.”

Feel free to email any questions to chadbailey at google’s fancy email service (dot com.)
Ryan, that seems to work fine. Here's me enabling it on my own premium

```bash
$ d5onim6mnldivc=> show constraint_exclusion;
constraint_exclusion

-------------
  partition
(1 row)

Time: 77.666 ms
$ d5onim6mnldivc=> ALTER DATABASE d5onim6mnldivc SET constraint_exclusion = true;
ALTER DATABASE
Time: 68.401 ms
$ d5onim6mnldivc=> \
```

[campusbellhops] ~/Code/cb-rails3 (master *) $ heroku pg:psql YELLOW
----> Connecting to HEROKU_POSTGRESQL_YELLOW_URL
psql (9.4.1, server 9.3.6)
SSL connection (protocol: TLSv1.2, cipher: DHE-RSA-AES256-GCM-SHA384, bits: 256, compression: 0
Type "help" for help.

$ d5onim6mnldivc=> show constraint_exclusion;
constraint_exclusion

-------------
  on
(1 row)
```
When All You Have Is a Hammer...

You Should Learn About Other Tools

LIKE SCREWDRIVERS, OR PLIERS OR WHATEVER
In the beginning*, there was CRUD.

*2005
Title
Better fill it in, then!

Created at
2005 June 2

Body
Aye, "aye!" sir
Play along at home (or right now!)

https://github.com/chadbailey59/rails-kafka-demo
$ rails new demo-app --database=postgres
$ (other magic, because it’s not really that easy)
$ rails g scaffold Post title:string body:string
$ foreman start
Looking at the world through CRUD-colored glasses
Looking at the world through CRUD-colored glasses

HOW WOULD I ADD COMMENTS TO MY BLOG?
$ rails g scaffold Comment post_id:integer body:string

HOW WOULD I ADD MULTIPLE AUTHORS?
$ rails g scaffold Author name:string email:string

Class Author < ActiveRecord::Base

Has_many :posts

Source: google image search for “terrible brown sunglasses”
"I don't think most developers realise just how important CRUD apps are for humanity." - @alinajaf --- Cannot underline importance enough.
Looking at the world through CRUD-colored glasses

HOW WOULD I TRACK PAGE VIEWS?
$ rails g scaffold PageView path:string

HOW WOULD I TRACK DELAYED JOBS?
https://github.com/collectiveidea/delayed_job.git
FALSE.
delayed_job

REST IN PEACE

PLEASE, REST IN PEACE
A pageview isn’t a model. It’s an event. It’s dynamic. It’s a message.
so?
Introducing Kafka
1: wtf is kafka
“Apache Kafka is publish-subscribe messaging rethought as a distributed commit log.”
THE “PUBLISH-SUBSCRIBE MESSAGING” PART

Producers push messages into a Kafka cluster. Consumers read those messages.
“Neat. You know you can do that with Redis, right?”

-ME
THE "DISTRIBUTED COMMIT LOG" PART

**Producer(s)**

**Partitions/Messages**

- **Partition 0**
  - Messages: 5, 4, 3, 2, 1, 0
- **Partition 1**
  - Messages: 3, 2, 1, 0
- **Partition 2**
  - Messages: 4, 3, 2, 1, 0

**Consumer Groups**

- **Consumer 0**
- **Consumer 1**
- **Consumer 2**
Looking at the world through CRUD-colored glasses

HOW WOULD I TRACK PAGE VIEWS?
$ demo time!

-bash: demo: command not found
1: wtf is kafka

2: oh so now i have to run java myself in prod
And now a word from our sponsor...

I LOVE PURPLE BUT THIS IS A HEROKU TEMPLATE
DESTINATION: ALPHA ZONE
Looking at the world through CRUD-colored glasses: “Enterprise Edition”

HOW WOULD I FLUSH CACHES EFFICIENTLY?

HOW WOULD I STORE EVERY CHANGE MADE TO A POST?

HOW WOULD I UPDATE MY ELASTICSEARCH INDEX?
# POST /posts
def create
    @post = Post.new(post_params)

    if @post.save
        redirect_to @post, notice: 'Post was successfully created.'
    else
        render :new
    end
end

# PATCH/PUT /posts/1
def update
    if @post.update(post_params)
        redirect_to @post, notice: 'Post was successfully updated.'
    else
        render :edit
    end
end
Is this static or dynamic data?
Bottled Water

Real-time integration of PostgreSQL and Kafka
STOP DOING THIS.
Using Change Capture

- Submit data to Web app
- Write to DB
- Extract changes
- Kafka (with log compaction)
- Append to log
- Index
- Cache
- HDFS
- Monitoring
- Samza
$ demo time!

-bash: demo: command not found
THIS CHANGES EVERYTHING
Static and Dynamic Data

Postgres, Kafka, and Bottled Water

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