



# Better Deal

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presented to  
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# Contents

Project overview

Product

Design Architecture

Server Side

Client Side

Quality Assurance

Lessons Learned

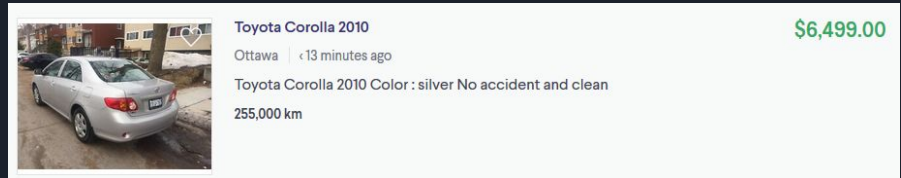


# Scrapy




# Project overview

- Main goal: Automate a system to scrape and store online data, find deals and notify the client of new postings in real time.



The screenshot shows a car listing for a 2010 Toyota Corolla. It includes a photo of the car, the title 'Toyota Corolla 2010', the location 'Ottawa', the time '13 minutes ago', the price '\$6,499.00', and the description 'Toyota Corolla 2010 Color : silver No accident and clean 255,000 km'.

Image	Title	Location	Time	Description	Price
	Toyota Corolla 2010	Ottawa	13 minutes ago	Toyota Corolla 2010 Color : silver No accident and clean 255,000 km	\$6,499.00

# Product: Server side

AutoSave | data - | bin Topo UT | better\_deal\_notifier@better-dealer - BetterDeal - Google Chrome

File Home Insert Draw Page Layout Formulas Data Review View Help | Share

Clipboard Font Alignment Number Conditional Formatting | Cells Editing Ideas Sensitivity

Car Model

Car Model	Price			
2012 Honda Civic Sdn LX(AUTO)/BTTOOTH/CRUISE/12 M WRT	\$6,300.00			
2017 Honda Civic Sedan Touring - Leather - Navigation - Lane	\$21,500.00			
2012 Honda Civic 4dr Auto EX	\$7,477.00			
2017 Honda Civic Sedan EX Lease take-over.	Please Contact			
2007 HONDA CIVIC READY TO GO	\$3,100.00			
2014 Honda Civic Sedan EX	\$4,800.00			
2014 Honda Civic Sedan EX	\$4,200.00			
2018 Honda Civic 6 SPEED REAR CAMERA POWER GRP BLUET	\$15,776.00			
2007 Honda Civic Sdn EX	\$1,900.00			
2018 Honda Civic SEDAN TOURING CVT	\$23,502.00			
2009 Honda CR-V EX	Please Contact			
2015 Honda Civic	\$9,000.00			
2012 Honda Civic Sdn LX AUTO BLUETOOTH CRUISE	\$8,488.00			
2015 Honda Civic Sedan EX	\$12,990.00			
2016 Honda Civic Sedan LX	Please Contact			
2017 Honda Civic Sedan LX	\$16,364.00			
2012 Honda Civic Sdn	\$5,495.00			
2013 Honda Civic Sdn	\$8,595.00			
2002 HONDA CIVIC FORSALE	\$400.00			
2017 Honda Civic Type R	\$34,895.00			
2010 Honda Civic Sdn DX-G	\$5,994.00			
2012 Honda Civic	\$8,500.00			
2005 Honda Civic SE (Special Edition) Sedan - Reduced Price	\$3,889.00			
For sale	\$2,200.00			
95 Honda civic coupe DX	\$12,345.00			
2016 Honda CR-V SE	\$20,444.00			
2015 Honda Civic Sedan LX	\$13,555.00			
2016 Honda CR-V EX	\$20,344.00			

data

```
root 395 2 0 Mar26 ? 00:00:01 [worker/0:18]
root 397 2 0 Mar26 ? 00:00:03 [jodj/daal-8]
root 398 2 0 Mar26 ? 00:00:00 [ext4-rw-conver]
root 415 1 0 Mar26 ? 00:00:05 /lib/systemd/system-journald
root 423 2 0 Mar26 ? 00:00:00 [ksuid]
root 436 1 0 Mar26 ? 00:00:00 /lib/systemd/system-udev
root 439 1 0 Mar26 ? 00:00:00 /usr/sbin/acpid
root 463 1 0 Mar26 ? 00:00:00 /usr/sbin/cron -f
root 469 2 0 Mar26 ? 00:00:00 [bwns]
root 484 2 0 Mar26 ? 00:00:00 [edac-pollar]
root 584 1 0 Mar26 ? 00:00:00 /sbin/dmcclient -4 -v -pf /run/dmcclient.eth0.pid -
root 626 1 0 Mar26 ? 00:00:53 /usr/bin/google_accountd_agent
root 632 1 0 Mar26 tty1 00:00:00 /sbin/agetty --noclear tty1 linux
root 633 1 0 Mar26 tty4 00:00:00 /sbin/agetty --noclear tty4 linux
root 634 1 0 Mar26 tty0 00:00:00 /sbin/agetty --keep-baud 115200,38400,9600 tty0
root 635 1 0 Mar26 tty2 00:00:00 /sbin/agetty --noclear tty2 linux
root 636 1 0 Mar26 tty5 00:00:00 /sbin/agetty --noclear tty5 linux
root 637 1 0 Mar26 tty3 00:00:00 /sbin/agetty --noclear tty3 linux
root 640 1 0 Mar26 tty6 00:00:00 /sbin/agetty --noclear tty6 linux
nsp 649 1 0 Mar26 ? 00:00:20 /usr/sbin/ntp -p /var/run/ntp.pid -v -c /run/nt
root 688 1 0 Mar26 ? 00:00:13 /usr/bin/python3 /usr/bin/google_network_daemon
root 689 1 0 Mar26 ? 00:00:33 /usr/bin/python3 /usr/bin/google_accounts_daemon
root 692 1 0 Mar26 ? 00:00:11 /usr/bin/python3 /usr/bin/google_clock_skew_daemon
root 694 1 0 Mar26 ? 00:00:01 /usr/sbin/sshd -D
www-data 3933 9826 0 06:25 ? 00:00:11 /usr/sbin/apache2 -k start
www-data 3934 9826 0 06:25 ? 00:00:11 /usr/sbin/apache2 -k start
message 9527 1 0 Mar26 ? 00:00:00 [worker/u2:2]
root 9826 1 0 Mar26 ? 00:00:00 /usr/sbin/sshd -k start
root 12359 2 0 18:01 ? 00:00:00 [worker/0:2]
root 12490 1 0 18:30 ? 00:00:00 /usr/sbin/ryzlogd -n
root 12493 2 0 18:30 ? 00:00:00 [worker/0:1]
root 12966 694 0 18:53 ? 00:00:00 sshd: better_deal_notifier [priv]
better_+ 12972 12966 0 18:53 ? 00:00:00 sshd: better_deal_notifier@pts/0
better_+ 12971 12972 0 18:53 pts/0 00:00:00 -bash
better_+ 12974 12972 0 18:53 ? 00:00:00 /usr/lib/openssh/ssh-server
better_+ 12995 12973 0 18:53 pts/0 00:00:00 ps -ef
better_+ 18915 2 0 Mar26 ? 00:00:02 [worker/u2:1]
better_+ 25561 1 0 Mar30 ? 00:00:50 python main.py
better_deal_notifier@better-dealer:~$ cd /betterdeal/
better_deal_notifier@better-dealer:~/betterdeal$ less data.csv
better_deal_notifier@better-dealer:~/betterdeal$ less data.csv
better_deal_notifier@better-dealer:~/betterdeal$ less data.csv
better_deal_notifier@better-dealer:~/betterdeal$
```

Type here to search

4:11 PM  
2020-03-31

Try notifications for only your high priority emails  
You can change your preference in Settings at any time.  
TURN ON NO THANKS

Promotions  
PRNCA, Target, Xfinity TV, Maker F...  
Fwd: Students interested in spatial int...  
Forwarded message

Michael Lin  
[Design] Toy Industry Royalties  
Hi PDers, I'm curious if anyone has o...  
Design

Michael Bernstein  
Fwd: Students interested in spatial int...  
Forwarded message

Amazon.com  
Your AmazonSmile order of 'Men's Hip...  
Amazon Order Confirmation-Hello Anvika...

Michael Bernstein

# Product: Client side

Better Deal

Searches Cars

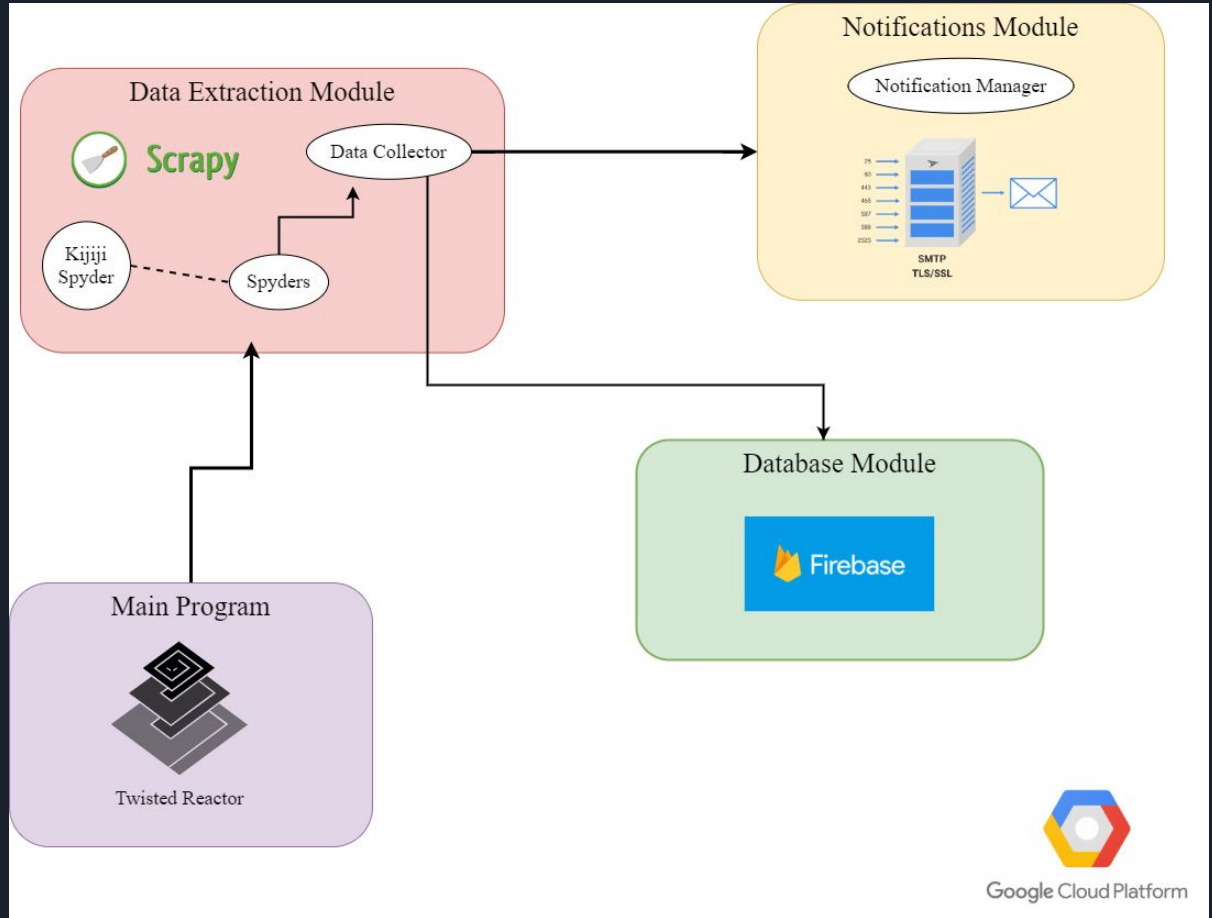
Keyword:  Price from:  to:  [Filter Search](#)

Model	Price	
Mini cooper 2010	\$3,600.00	/v-cars-trucks/ottawa/
2010 Mini Cooper S - 50 Camden Edition	\$5,000.00	/v-cars-trucks/ottawa/
2016 Mini Cooper Hardtop John Cooper Works	\$19,898.00	/v-cars-trucks/gatineau/
2016 Mini Cooper Hardtop	\$16,995.00	/v-cars-trucks/ottawa/
2017 mini cooper low mileage tech package navi	\$21,000.00	/v-cars-trucks/ottawa/
Mini cooper	\$4,000.00	/v-cars-trucks/gatineau/
2020 Mini Countryman Cooper	\$30,495.00	/v-cars-trucks/ottawa/
Mini Cooper automatique 2006	\$4,500.00	/v-cars-trucks/gatineau/
2010 MINI Cooper Convertible S	\$10,995.00	/v-cars-trucks/ottawa/
2014 Mini Cooper Hardtop Auto A/C Toit	\$12,995.00	/v-cars-trucks/ottawa/
2011 MINI COOPER S	\$9,000.00	/v-cars-trucks/ottawa/
2013 MINI Cooper Countryman S ALL4	\$10,995.00	/v-cars-trucks/ottawa/
2011 Mini Cooper Countryman S	\$12,995.00	/v-cars-trucks/ottawa/
2015 Honda CR-V Touring   NAVI   LEATHER   SUNROOF	\$21,122.00	/v-cars-trucks/ottawa/

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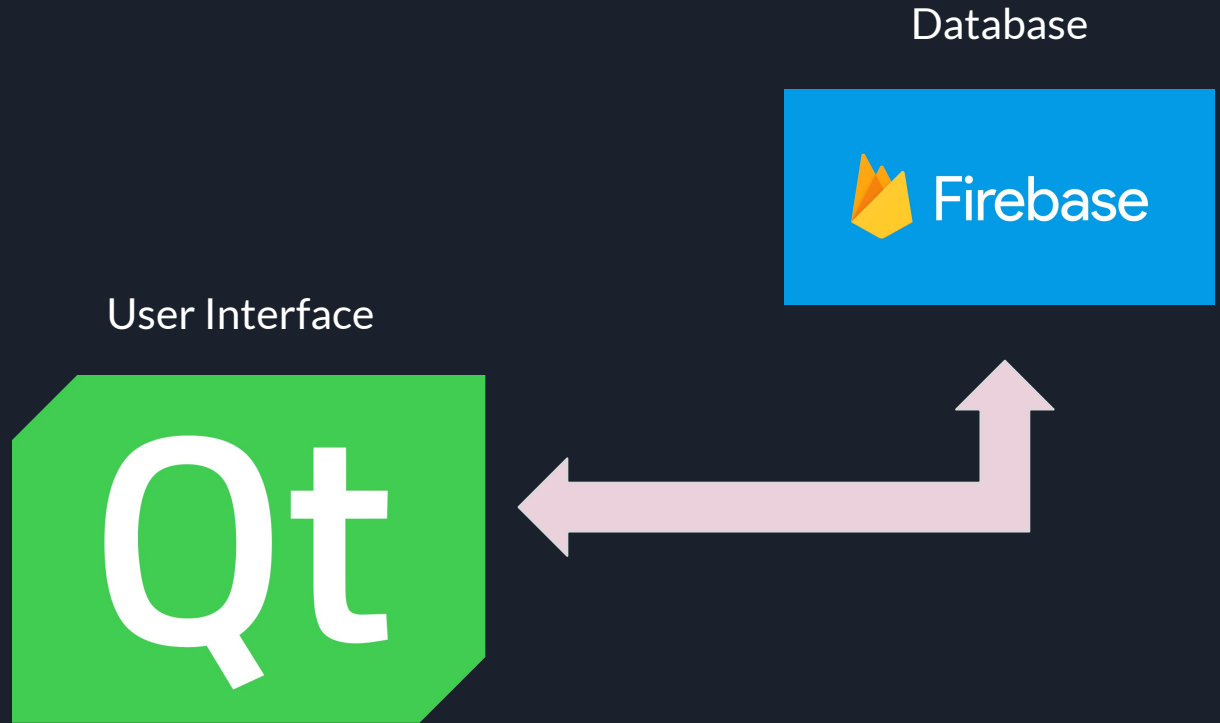
[Download cars to csv](#)

# Design Architecture: Server Side





# Design Architecture: Client Side





# Quality Assurance



- Series of manual functional test cases (general and specific), for instance:
  - Comparing website observed data with collected data.
  - Bringing network down to ensure service persistence.
  - Monitor task over 1 month + (summer) running.
  - Creating a posting and verifying that the notification email is successfully sent.





# Quality Assurance

- Pair Programming to improve code quality and mutual agreement.
- Unit tests to cover:
  - Database Module
  - Notifications Module
  - Data Collector
- Acceptance Testing:
  - Sole customer

# Lessons Learned



- Do research on the frameworks you'll use (something that will be scalable, and on which you can find good examples/ documentation).
- Read through the terms of usage and the legal status of everything surrounding your project.
- Testing: create well defined test cases for each module before integrating them. Isolating a problem later on becomes a lot harder.
- Keep a record of all the installations necessary for the software to run. It is easy to lose track.



Questions?