APPLIED INTELLIGENCE:
Using information that isn't there

Michael Schrenk
Las Vegas, Nevada

@mgschrenk

DEF CON XXIII

APPLIED INTELLIGENCE:
Using information that isn't there

Defcon 21 - How my Botnet Purchased Millions of Dollars in Cars and Defeated the Russian Hackers

APPLIED INTELLIGENCE:
Using information that isn't there

IN ADDITION TO OTHER EXAMPLES

Retail business
my girlfriend & I own

How we CREATE and APPLY intelligence

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You'll hear how we use competitive intelligence to:

1.) Conduct intelligence campaigns on
   a. Our competitors
   b. Our sales channels
2.) Know exactly what inventory to buy
3.) Manipulate markets

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Protect Our Investment

APPLIED INTELLIGENCE:

Using information that isn't there

INTELLIGENCE

BUSINESS

COMPETITIVE

APPLIED INTELLIGENCE:
Using information that isn't there

INTELLIGENCE

BUSINESS

- What's happing within your business?
- Internal data
- Focus on efficiency
  a.) knowing operations
  b.) knowing resources

COMPETITIVE

- What's happening outside of your business?
- External data
- Focus on competitiveness
  a.) knowing competitors
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APPLIED INTELLIGENCE:
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Applied Intelligence = Actionable Intelligence

APPLIED INTELLIGENCE:
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MUCH INTELLIGENCE IS USELESS

1.) If it won't change what you're doing it isn't useful

2.) Organizations tend to over collect
   a.) Higher cost
   b.) Increased exposure

3.) Intel is collected for obligatory reasons

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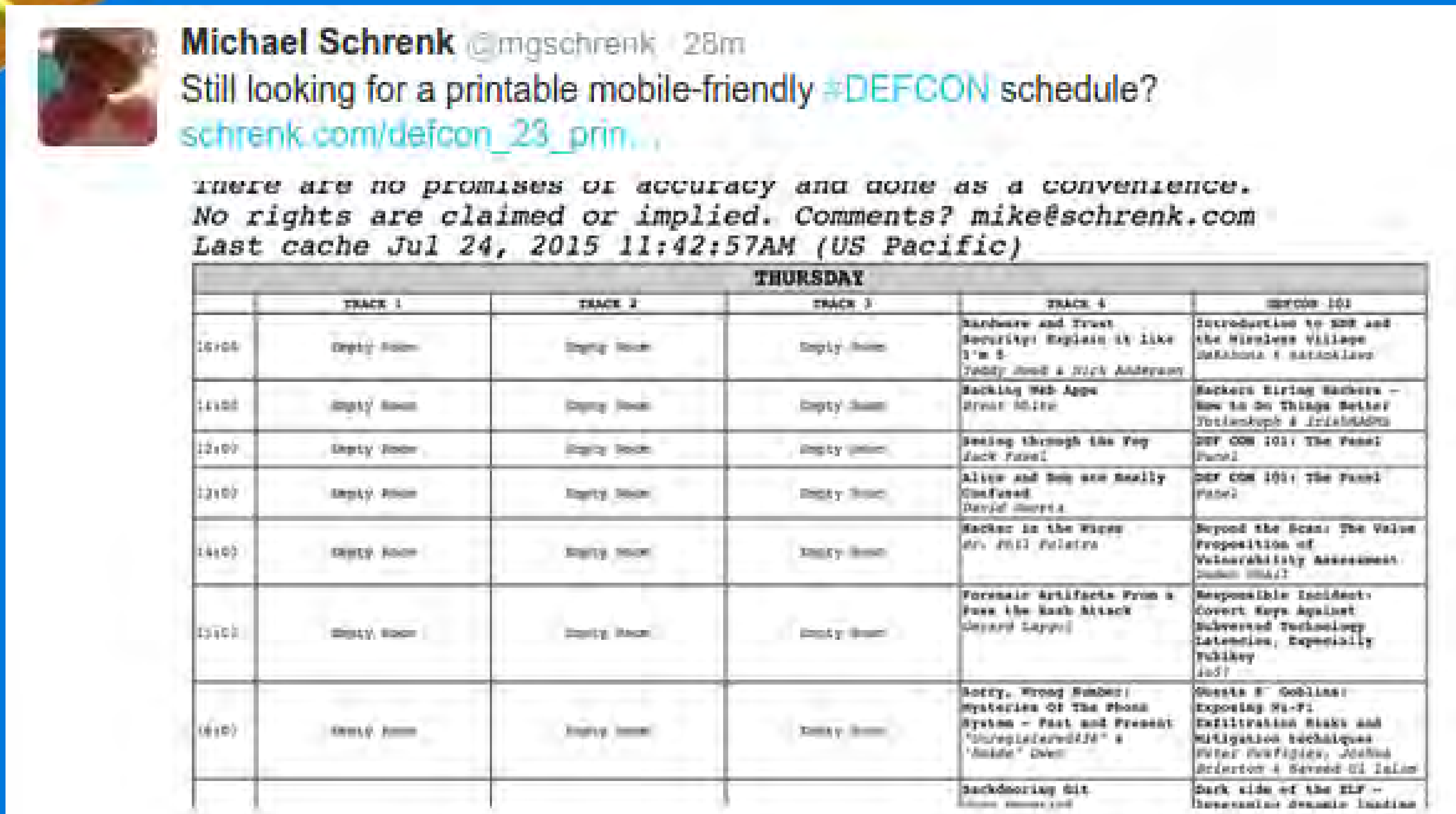
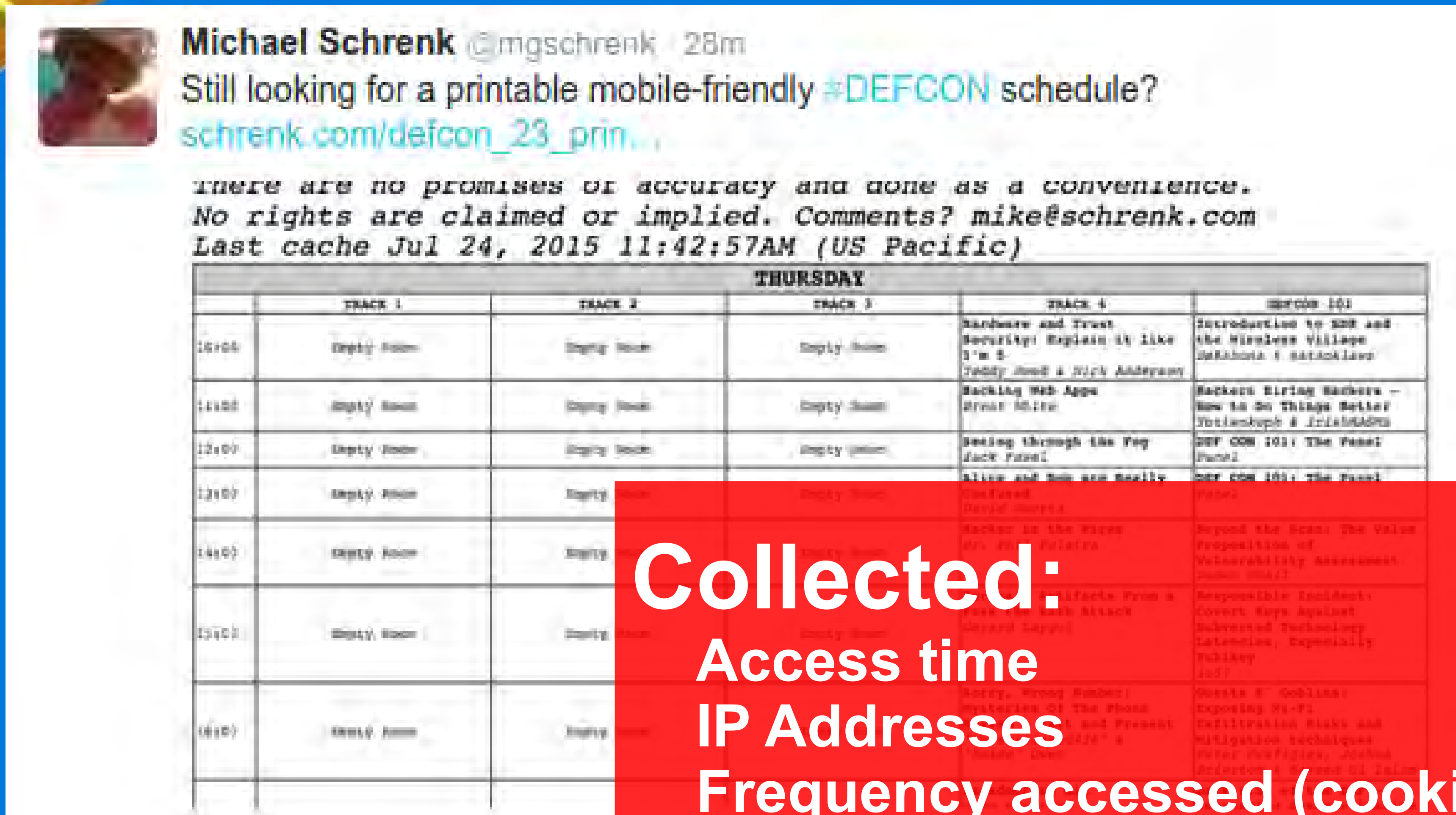


Michael Schrenk @mgschrenk 28m
Still looking for a printable mobile-friendly #DEFCON schedule?
schrenk.com/defcon_23_prin…

There are no promises of accuracy and done as a convenience.
No rights are claimed or implied. Comments? mike@schrenk.com
Last cache Jul 24, 2015 11:42:57AM (US Pacific)

THURSDAY					
	TRACK 1	TRACK 2	TRACK 3	TRACK 4	DEFCON 101
10:00	Empty Room	Empty Room	Empty Room	**Hardware and Trust Security: Explain it like I'm 5** *Teddy Reed & Nick Anderson*	**Introduction to SDR and the Wireless Village** *DaKahuna & satanklawz*
11:00	Empty Room	Empty Room	Empty Room	**Hacking Web Apps** *Brent White*	**Hackers Hiring Hackers - How to Do Things Better** *Tottenkoph & IrishMASMS*
12:00	Empty Room	Empty Room	Empty Room	**Seeing through the Fog** *Zack Fasel*	**DEF CON 101: The Panel** *Panel*
13:00	Empty Room	Empty Room	Empty Room	**Alice and Bob are Really Confused** *David Huerta*	**DEF CON 101: The Panel** *Panel*
14:00	Empty Room	Empty Room	Empty Room	**Hacker in the Wires** *Dr. Phil Polstra*	**Beyond the Scan: The Value Proposition of Vulnerability Assessment** *Damon Small*
15:00	Empty Room	Empty Room	Empty Room	**Forensic Artifacts From a Pass the Hash Attack** *Gerard Laygui*	**Responsible Incident: Covert Keys Against Subverted Technology Latencies, Especially Yubikey** *Jaff*
16:00	Empty Room	Empty Room	Empty Room	**Sorry, Wrong Number: Mysteries Of The Phone System - Past and Present** *"Unregistered436" & "Snide" Owen*	**Ghosts N' Goblins: Exposing Wi-Fi Exfiltration Risks and Mitigation techniques** *Peter Desfigies, Joshua Brierton & Naveed Ul Islam*
				Backdooring Git [illegible]	**Dark side of the ELF - Leveraging dynamic loading**

APPLIED INTELLIGENCE:
Using information that isn't there



Collected:

- Access time
- IP Addresses
- Frequency accessed (cookie)
- User Agent
- Referrer

APPLIED INTELLIGENCE:
Using information that isn't there

APPLIED INTELLIGENCE:
Using information that isn't there

Applied Intelligence: Using Information That's Not There
Michael Schrenk

TIME	TRACK 01	TRACK 02	TRACK 03	TRACK 04	DEFCON 101
01:00 PM					☑
02:00 PM		☑			
03:00 PM	☑				
04:00 PM				☑	
05:00 PM			☑		

APPLIED INTELLIGENCE:
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Applied Intelligence: Using Information That's Not There
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TIME	TRACK 01	TRACK 02	TRACK 03	TRACK 04	DEFCON 101
01:00 PM					☑
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04:00 PM				☑	
05:00 PM			☑		

Information (in aggregate) could predict talk popularity and affect planning

APPLIED INTELLIGENCE:

Using information that isn't there

Information that isn't there = Meta data

APPLIED INTELLIGENCE:
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Meta data

The public did not know much about **meta data** before the **Snowden** disclosures

Edward Snowden

APPLIED INTELLIGENCE:
Using information that isn't there

"As you know, this is just meta data. There is no content involved."

Dianne Feinstein
June 6, 2013 Intelligence Comm. Briefing

APPLIED INTELLIGENCE:
Using information that isn't there

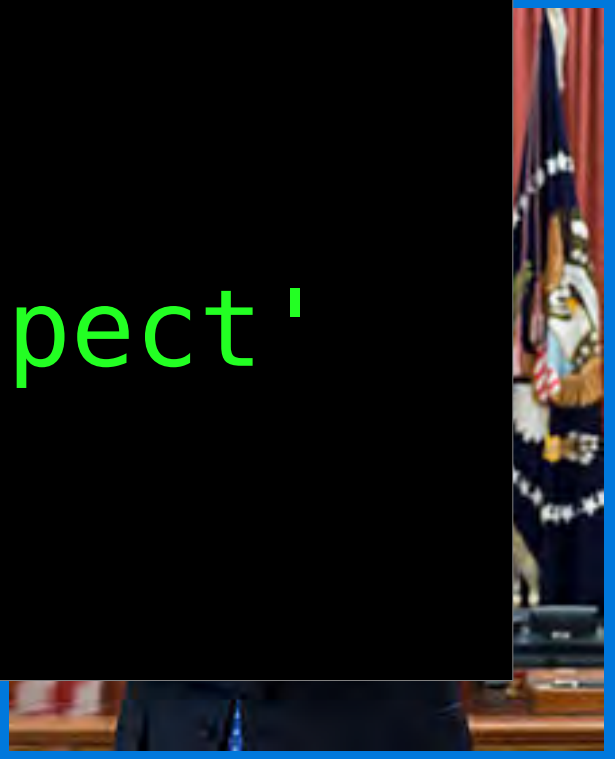
"Nobody is listening to your telephone calls. That's not what this program is about..."

*They're not looking at names and they're not looking at content, but **sifting through this so-called meta data**..."*

Barack Obama, on NSA Surveillance
June 7, 2014

APPLIED INTELLIGENCE:
Using information that isn't there

```
$sql = “
        sift(*)
          from
        phone_records
          where
        person = 'suspect'
      ”;
```



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Using information that isn't there

"We kill people based on meta data."

Former NSA Boss, Michael Hayden
May 11, 2014 Johns Hopkins University

APPLIED INTELLIGENCE:
Using information that isn't there

Meta data:

1.) Describes other data

2.) Provides context for information

3.) It often *doesn't exist* & it needs to be created.

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Using information that isn't there

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Meta data:

1.) Describes other data
2.) Provides context for information
3.) **It often *doesn't exist* & it needs to be created.**

APPLIED INTELLIGENCE:
Using information that isn't there

Meta data types

1.) Parametric *must be collected / created*

2.) Embedded *user created*

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APPLIED INTELLIGENCE:
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Meta Data: Embedded

XIF Geo-Codes **leaked** that Russian soldiers were in Ukraine

APPLIED INTELLIGENCE:
Using information that isn't there

Meta Data: Embedded

The Tony Blair memo
Justification for invading Iraq

APPLIED INTELLIGENCE:
Using information that isn't there

Meta Data: Embedded

```
1 : cic22 : C:\DOCUME~1\phamill\LOCALS~1\Temp\AutoRecovery save of Iraq - security.asd
2 : cic22 : C:\DOCUME~1\phamill\LOCALS~1\Temp\AutoRecovery save of Iraq - security.asd
3 : cic22 : C:\DOCUME~1\phamill\LOCALS~1\Temp\AutoRecovery save of Iraq - security.asd
4 : JPratt : C:\TEMP\Iraq - security.doc
5 : JPratt : A:\Iraq - security.doc
6 : ablackshaw : C:\ABlackshaw\Iraq - security.doc
7 : ablackshaw : C:\ABlackshaw\A;Iraq - security.doc
8 : ablackshaw : A:\Iraq - security.doc
9 : MKhan : C:\TEMP\Iraq - security.doc
10 : MKhan : C:\WINNT\Profiles\mkhan\Desktop\Iraq.doc
```

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Meta Data: Embedded

Google CEO, Eric Schmidt, leaked the existence of new project "**Google Drive**"

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How the NSA uses Parametric Meta Data

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Phone meta data collected by the NSA*:

1.) Phone numbers of parties
2.) The time the call was placed
3.) The duration of the call
4.) Who initiated the call

*https://www.nsa.gov/public_info/_files/speeches_testimonies/2013_08_09_the_nsa_story.pdf

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The NSA does what any Android app is capable of doing

*https://www.nsa.gov/public_info/_files/speeches_testimonies/2013_08_09_the_nsa_story.pdf

APPLIED INTELLIGENCE:
Using information that isn't there

With this meta data:

1.) Caller relationships are established
2.) These relationships can be profiled
3.) Anomalies and outliers are identified
4.) “Burner phones” are identified
5.) Phone patterns can be tied to other events

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The phone meta data is richer than the actual phone conversations

But the meta data needs to be created.

APPLIED INTELLIGENCE:
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Practical competitive intelligence

APPLIED INTELLIGENCE:
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A reviewal of day-to-day operations, to see what intelligence an advisory can collect.

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COMPETITIVE INTELLIGENCE

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Sequential numbers are a major privacy threat

APPLIED INTELLIGENCE:
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Sequential Numbers

Sequential Numbers are everywhere
- **Vehicle Identification Numbers**
- **Social Security Numbers**
- **Ticket Numbers**

In most cases, what's needed are **unique** numbers, not **sequential** numbers.

Often caused by **exposing DB table indexes**

APPLIED INTELLIGENCE:

Using information that isn't there

To show the power of sequential numbers...

I'm going to tell you how the Social Security Administration nearly exposed an entire generation to identity fraud.

APPLIED INTELLIGENCE:
Using information that isn't there

SSN coding 1935 through 1972

XXX – XX – XXXX

AREA **GROUP** **SERIAL**

Area	State, Territory or US possession *(range)*
Group	Used for administration purposes
Serial	**Sequential** *(with a few exceptions)*

http://www.ssa.gov/policy/docs/ssb/v45n11/v45n11p29.pdf

APPLIED INTELLIGENCE:

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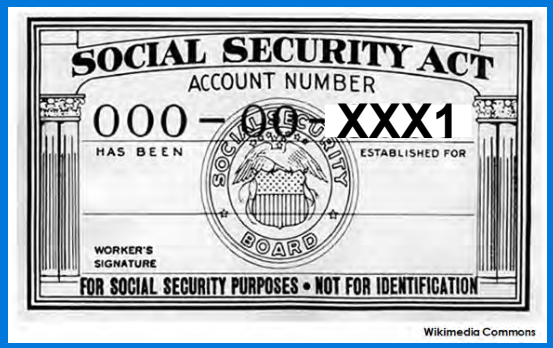
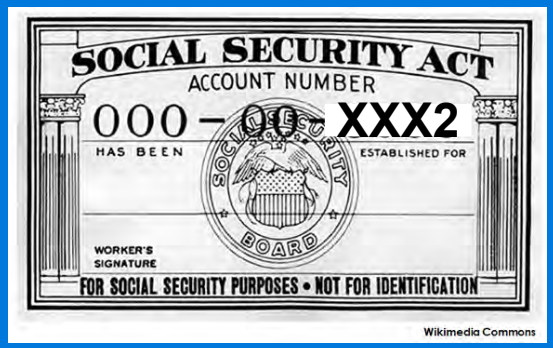
Applying for cards, 1932 - 1972

Age 14

Age 15

SSA





These people have **sequential** SSNs

APPLIED INTELLIGENCE:

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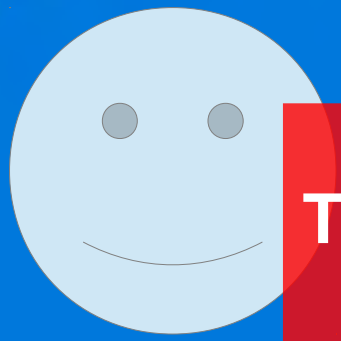
Applying for cards, 1932 - 1972

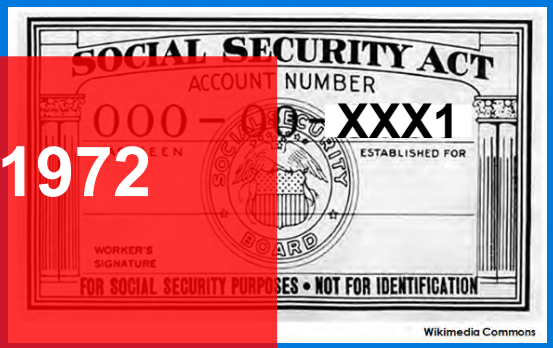


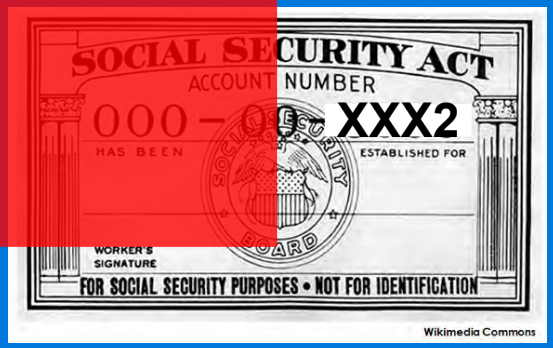
Age 14

Age 15

This process changed In 1972

The last for digits were no longer sequential





These people have **sequential** SSNs

APPLIED INTELLIGENCE:

Using information that isn't there

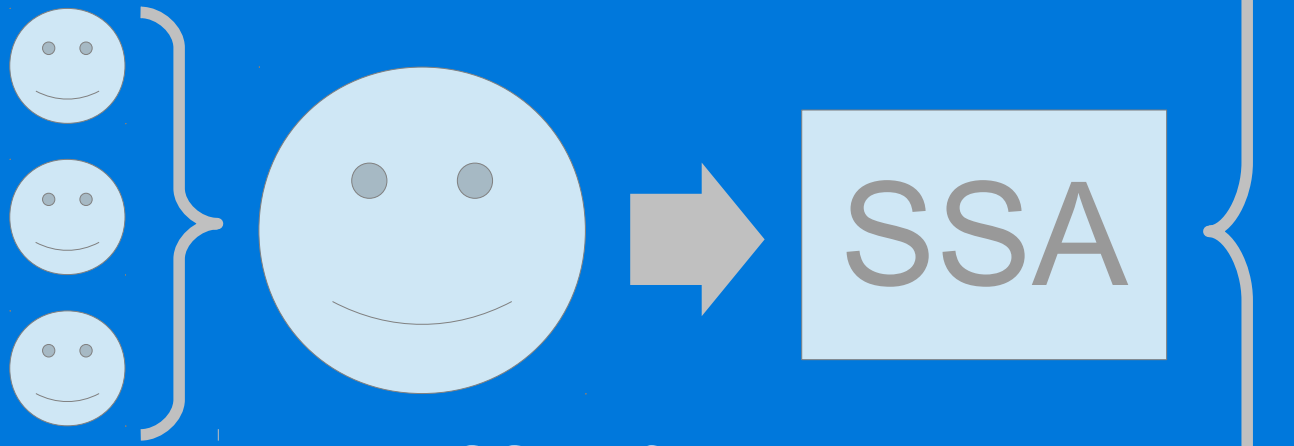
Tax Reform Act of 1986

Parents needed SSNs for all dependents

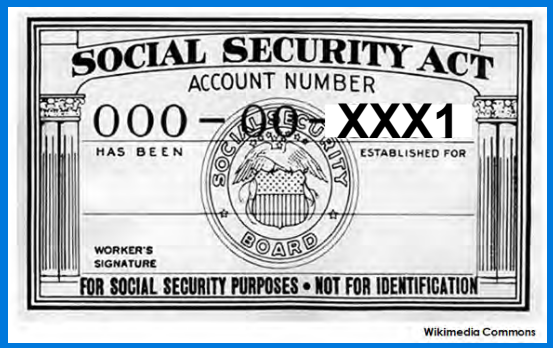
APPLIED INTELLIGENCE:

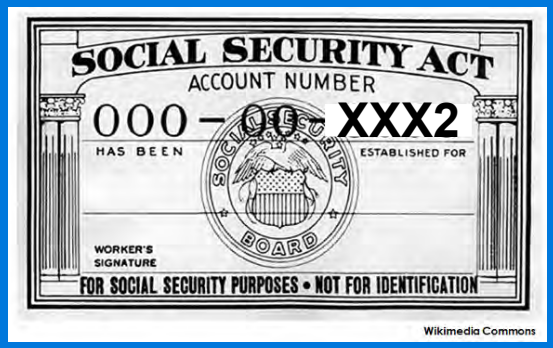
Using information that isn't there

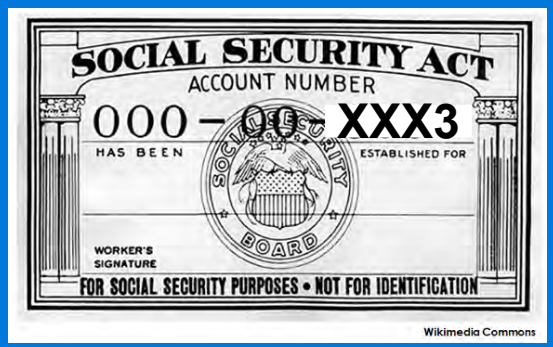
If sequential numbers were still used in the '80s



Needs SSNs for children to declare as dependents







These children would have **sequential** Social Security Numbers

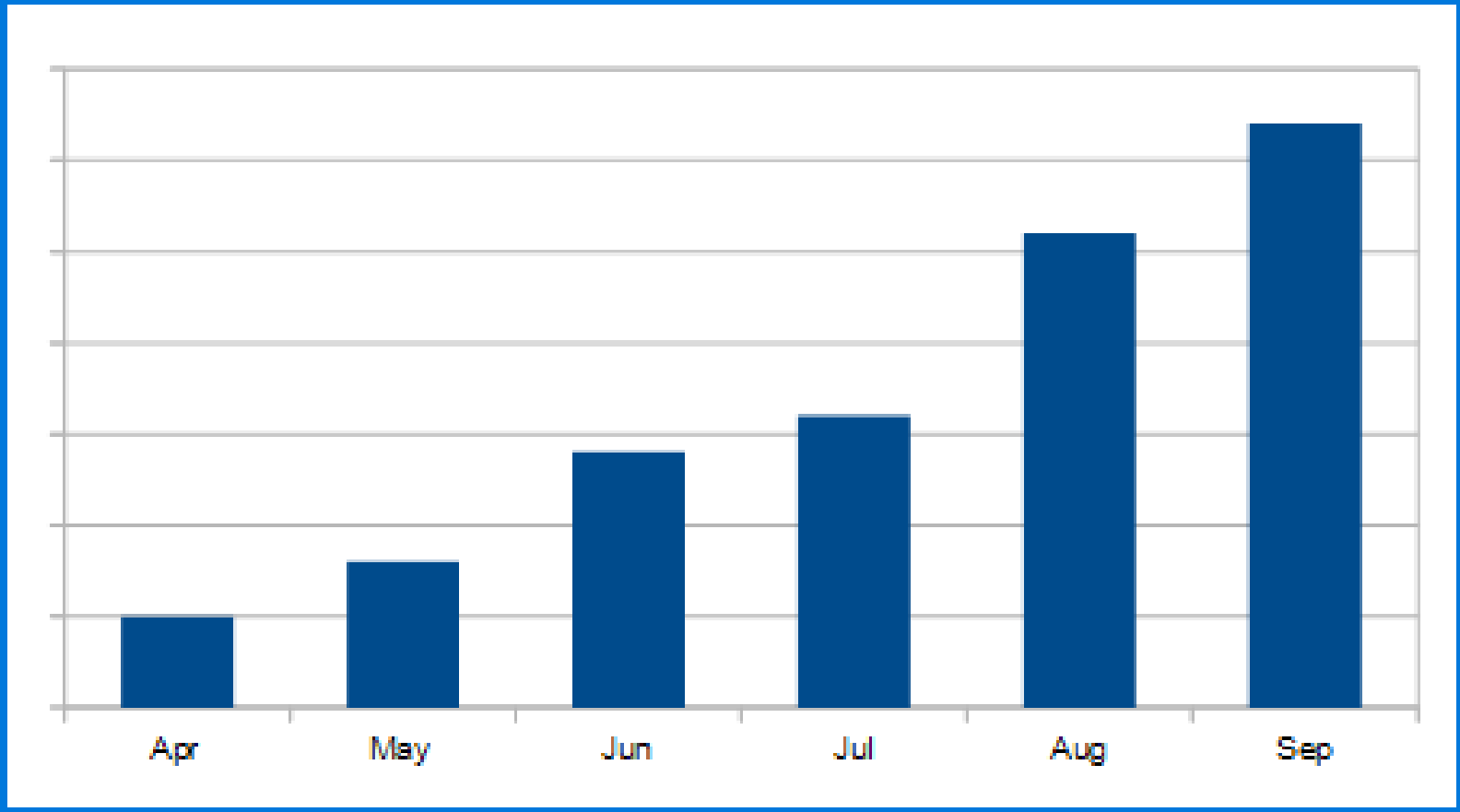
APPLIED INTELLIGENCE:
Using information that isn't there

How we use sequential numbers in our business

Did we start our business at the height of a bubble?

APPLIED INTELLIGENCE:
Using information that isn't there

Channel Sales



APPLIED INTELLIGENCE:
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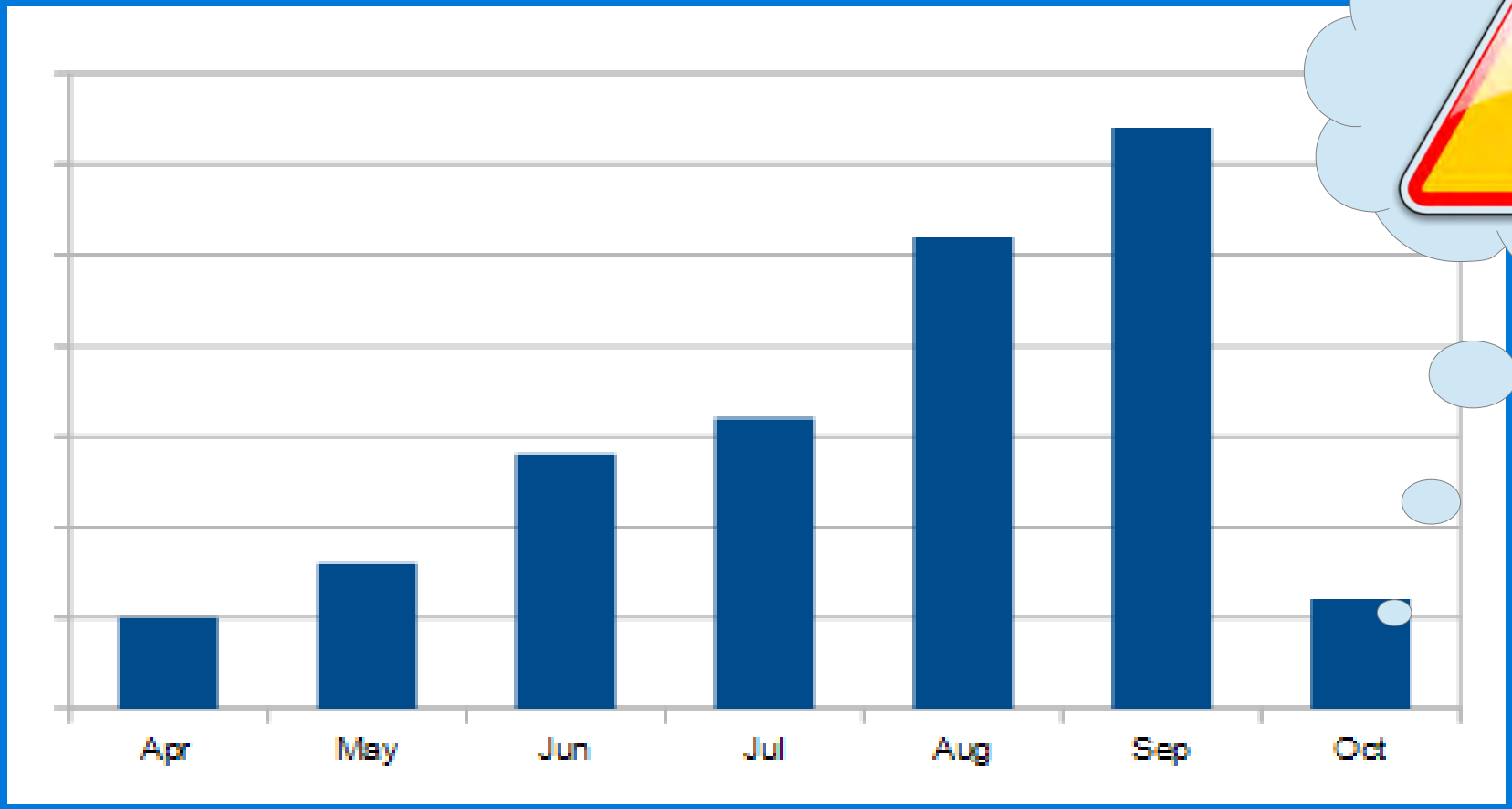
Bubble or just a bad month?



APPLIED INTELLIGENCE:
Using information that isn't there

Bubble or just a bad month?

1.) We noticed that order numbers were incremental

2.) We found two orders, placed closely together, had SEQUETIAL order numbers

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Using information that isn't there

Last Order# Oct:	763736
Last Order# Sep:	-757225
Qty Oct orders (est)	**6511**

1.) Our average order was $12.48
2.) Determined our orders were typical

Average Sale:	$12.48
Estimated July orders	x 6511
Gross Channel Sales	**$81,257.28**

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APPLIED INTELLIGENCE:

Using information that isn't there

Total Channel Sales

MONTH	LAST ORDER #	QTY ORDERS	GROSS $
April	725434	-	-
May	731757	6323	$78,911.04
June	738154	6397	$79,834.56
July	744573	6419	$80,109.12
August	750822	6249	$77,987.52
September	757225	6403	$79,909.44
October	763736	6511	$81,257.28

APPLIED INTELLIGENCE:

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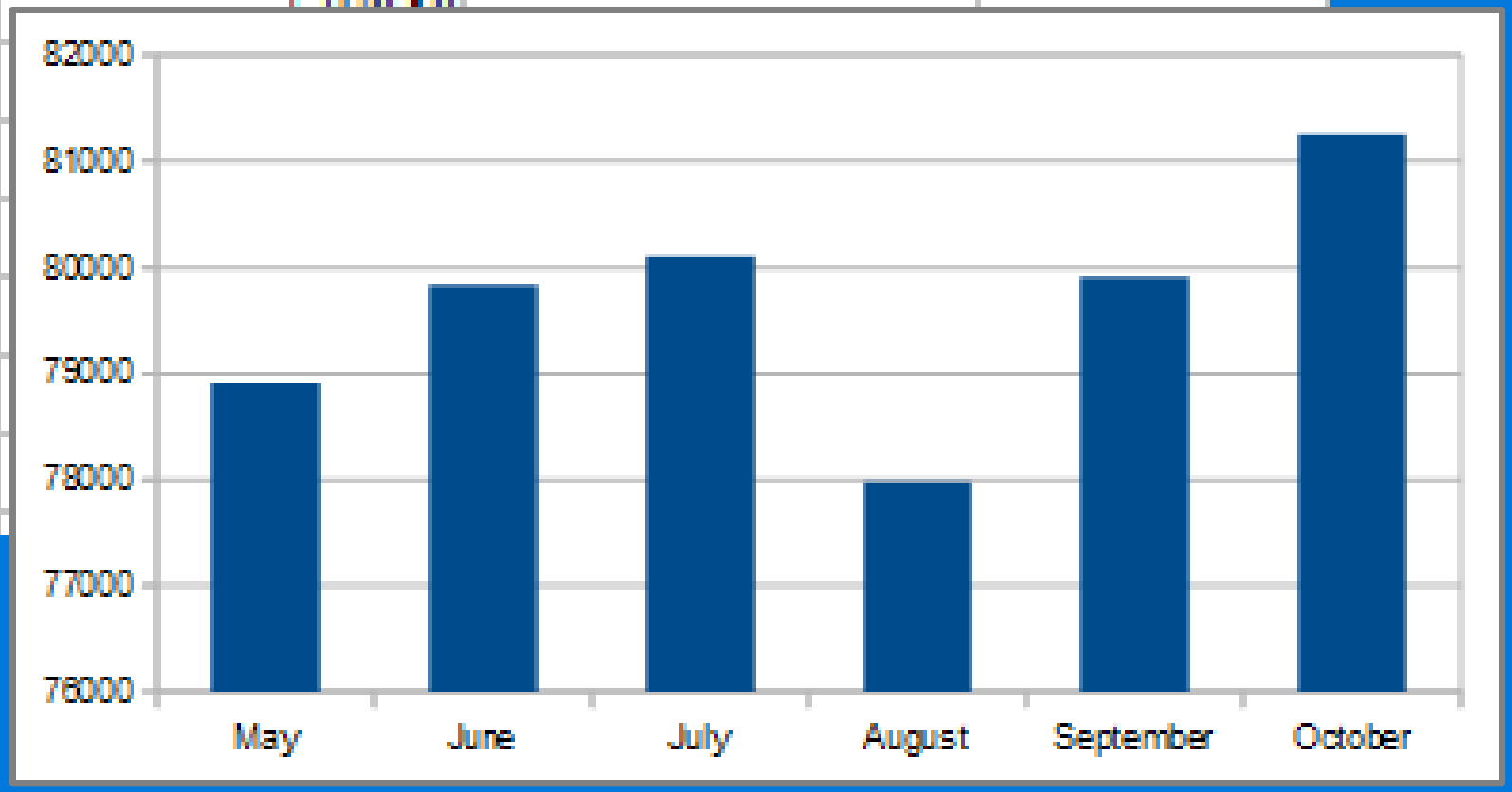
Total Channel Sales

MONTH	LAST ORDER #	QTY ORDERS	GROSS $
April			
May			
June			
July			
August			
September			
October			



APPLIED INTELLIGENCE:
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What else can we learn?

1.) What else do we know?
2.) Channel commission is ~ 20%
3.) They keep $1.25 of the postage they collect.

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Here is how much the website earns in commissions each month

MONTH	LAST ORDER #	QTY ORDERS	GROSS $	COMMISION
April	725434	-	-	-
May	731757	6323	$78,911.04	$15,782.21
June	738154	6397	$79,834.56	$15,966.91
July	744573	6419	$80,109.12	$16,021.82
August	750822	6249	$77,987.52	$15,597.50
September	757225	6403	$79,909.44	$15,981.89
October	763736	6511	$81,257.28	$16,251.46

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What else can we learn?

MONTH	LAST ORDER #	QTY ORDERS	GROSS $	COMMISION	POSTAGE	PROFIT
April	725434	-	-	-	-	-
May	731757	6323	$78,911.04	$15,782.21	$7,903.75	$23,685.96
June	738154	6397	$79,834.56	$15,966.91	$7,996.25	$23,963.16
July	744573	6419	$80,109.12	$16,021.82	$8,023.75	$24,045.57
August	750822	6249	$77,987.52	$15,597.50	$7,811.25	$23,408.75
September	757225	6403	$79,909.44	$15,981.89	$8,003.75	$23,985.64
October	763736	6511	$81,257.28	$16,251.46	$8,138.75	$24,390.21

Avg Monthly profit: $23913.22
Est Annual profit: $286958.58

APPLIED INTELLIGENCE:

Using information that isn't there

What else can we learn?

MONTH	LAST ORDER #	QTY ORDERS	GROSS $	COMMISION	POSTAGE	PROFIT
April	725104					
May	73					
June	738154	6397	$79,834.56	$15,966.91	$7,996.25	$23,963.16
July	744573	6419	$80,106.32	$16,021.26	$8,003.75	$24,045.57
August	75	249	$	$	$	$23,408.75
September	757225	6403	$79,909.44	$15,981.89	$8,003.75	$23,985.64
October	763736	6511	$81,257.28	$16,251.46	$8,138.75	$24,390.21

This is probably information
They'd prefer not to share

Avg Monthly profit: $23913.22
Est Annual profit: $286958.58

APPLIED INTELLIGENCE:
Using information that isn't there

How do we buy inventory

There are websites
where we buy

APPLIED INTELLIGENCE:
Using information that isn't there

How do we buy inventory

There are websites where we buy

We sell on multiple websites, but only one is “a true market”

APPLIED INTELLIGENCE:
Using information that isn't there

How do we buy inventory

We look for items
And prices here

APPLIED INTELLIGENCE:
Using information that isn't there

How do we buy inventory

We look for items
And prices here

And compare those prices to the market value

APPLIED INTELLIGENCE:
Using information that isn't there

How do we buy inventory

#	AVAILABLE ITEM			MARKET		ACTION
	Item	Location	Price	Price	Margin	
1.	Source_8	*Some item description*	6.74	3.14	46.59%	ignore
2.	Source_1	*Some item description*	3.22	19.48	604.97%	BUY
3.	Source_8	*Some item description*	2.76	5.85	211.96%	ignore
4.	Source_1	*Some item description*	3.23	5.38	166.56%	ignore
5.	Source_8	*Some item description*	8.81	1.34	15.21%	ignore
6.	Source_2	*Some item description*	1.39	12.24	880.58%	BUY
7.	Source_8	*Some item description*	2.25	3.38	150.22%	ignore
8.	Source_5	*Some item description*	2.50	5.43	217.20%	ignore
9.	Source_2	*Some item description*	1.36	1.59	116.91%	ignore
10.	Source_7	*Some item description*	1.33	3.56	267.67%	ignore

APPLIED INTELLIGENCE:
Using information that isn't there

There are major privacy issues for resellers that sell unique items

APPLIED INTELLIGENCE:
Using information that isn't there

There are major privacy issues for resellers that sell unique items

Truly unique items:
- Real estate
- Vehicles
- Original art

Likely unique items:
- First edition books
- Autographed items
- Most used items

APPLIED INTELLIGENCE:
Using information that isn't there

There are major privacy issues for resellers that sell unique items

Truly unique items:
- Real estate
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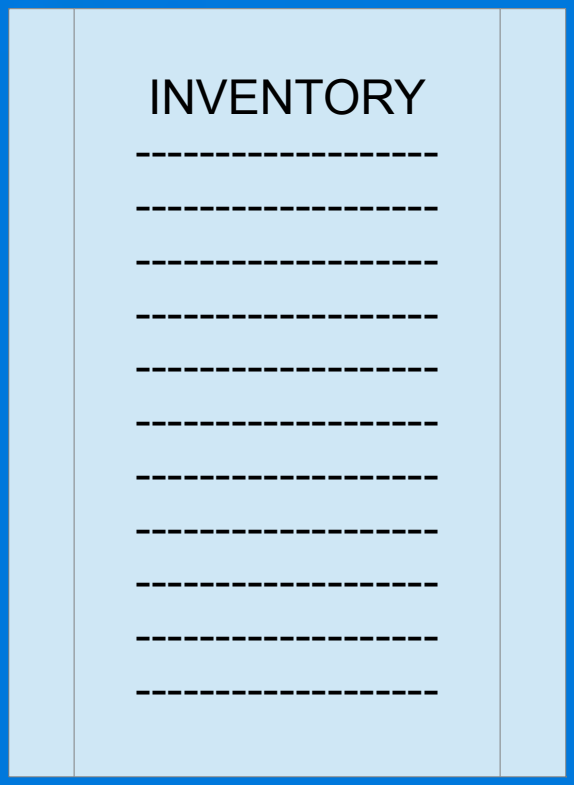
APPLIED INTELLIGENCE:
Using information that isn't there

What makes the best competitor the best?

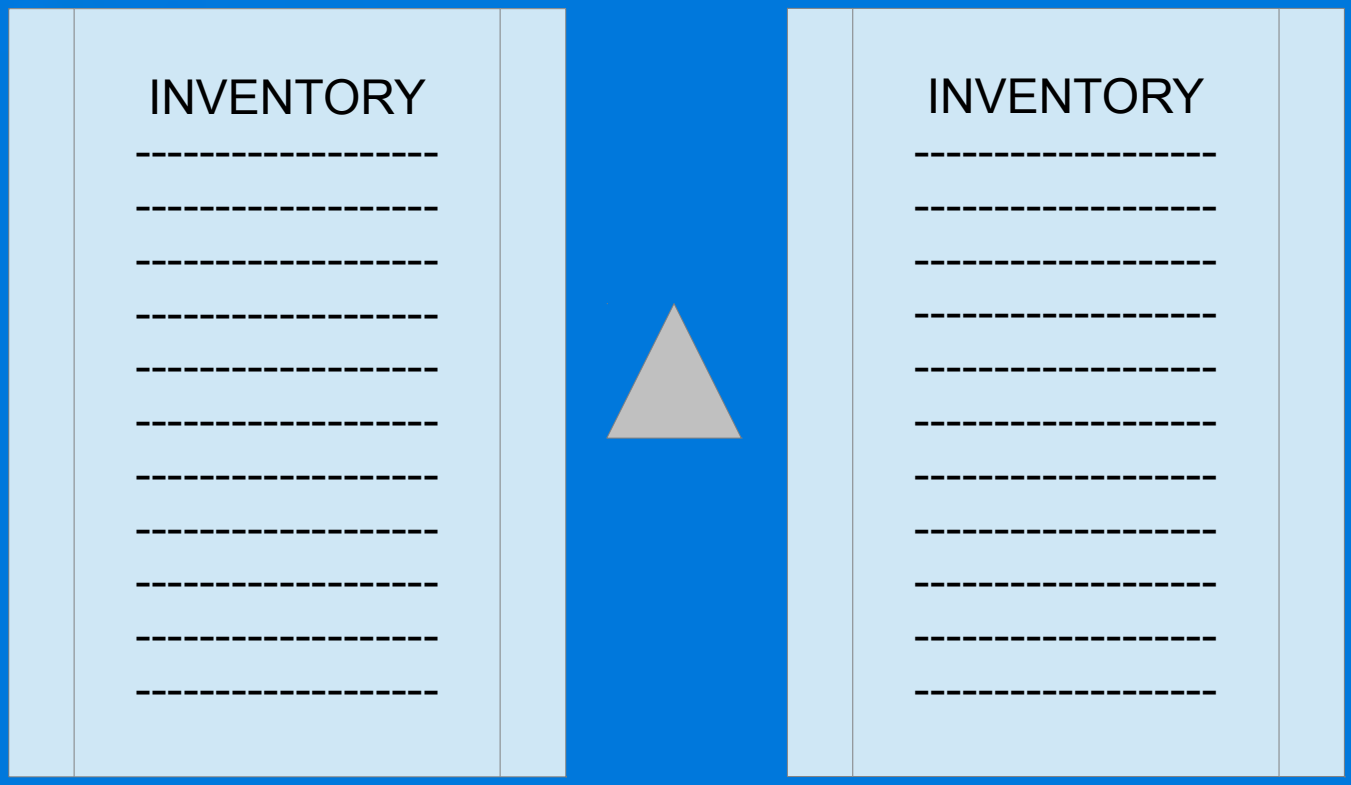


Automatically collect the inventory of our top competitor

APPLIED INTELLIGENCE:

Using information that isn't there

What makes the best competitor the best?



Capture #1 **Capture #2**

Meta data describing:

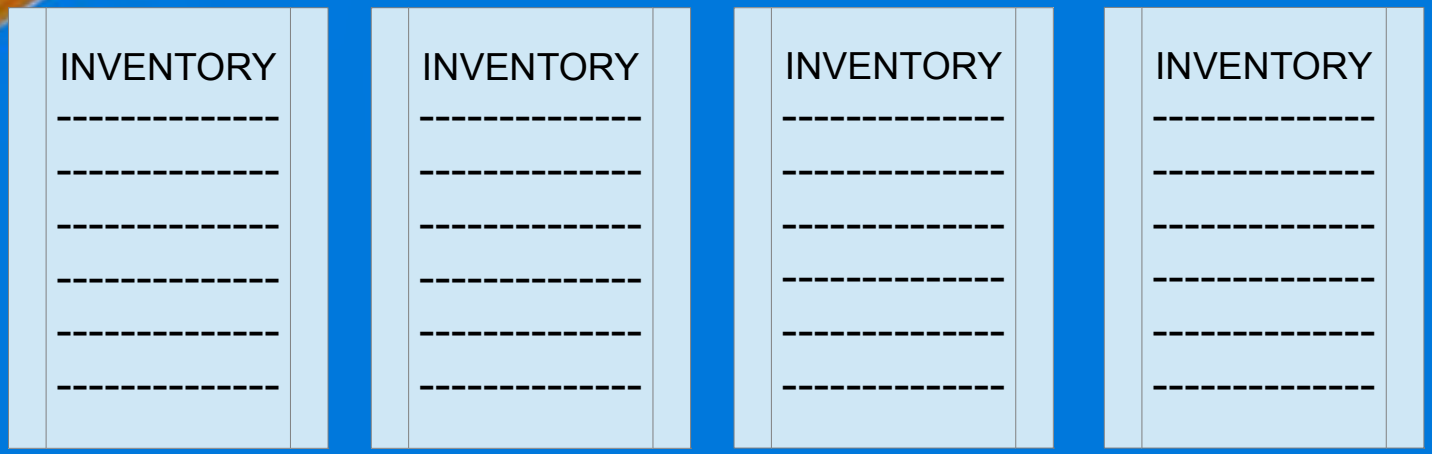
What sold? How much?

What didn't sell?

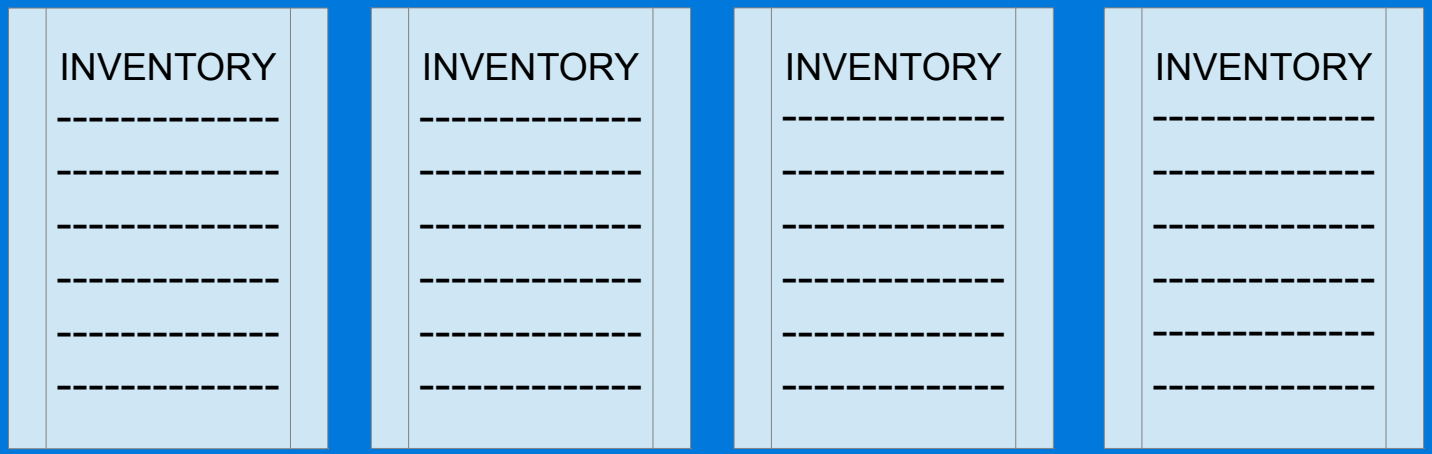
APPLIED INTELLIGENCE:

Using information that isn't there

What makes the best competitor the best?



Capture #1 Capture #2 Capture #3 Capture #4



Capture #5 Capture #6 Capture #7 Capture *N*

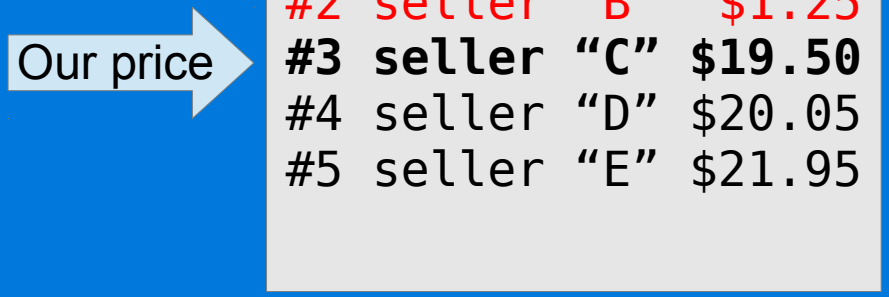
Meta data describing:

What sold?
How much?
How long?

What didn't sell?

APPLIED INTELLIGENCE:
Using information that isn't there

How do we protect our investments?



Search results for an item we sell

APPLIED INTELLIGENCE:
Using information that isn't there

How do we protect our investments?

ACME ITEM #1

#1 seller “A” $1.25
#2 seller “B” $1.25
#3 seller “C” $19.50
#4 seller “D” $20.05
#5 seller “E” $21.95

Our price

Search results for an item we sell

We immediately buy the under-priced items

APPLIED INTELLIGENCE:
Using information that isn't there

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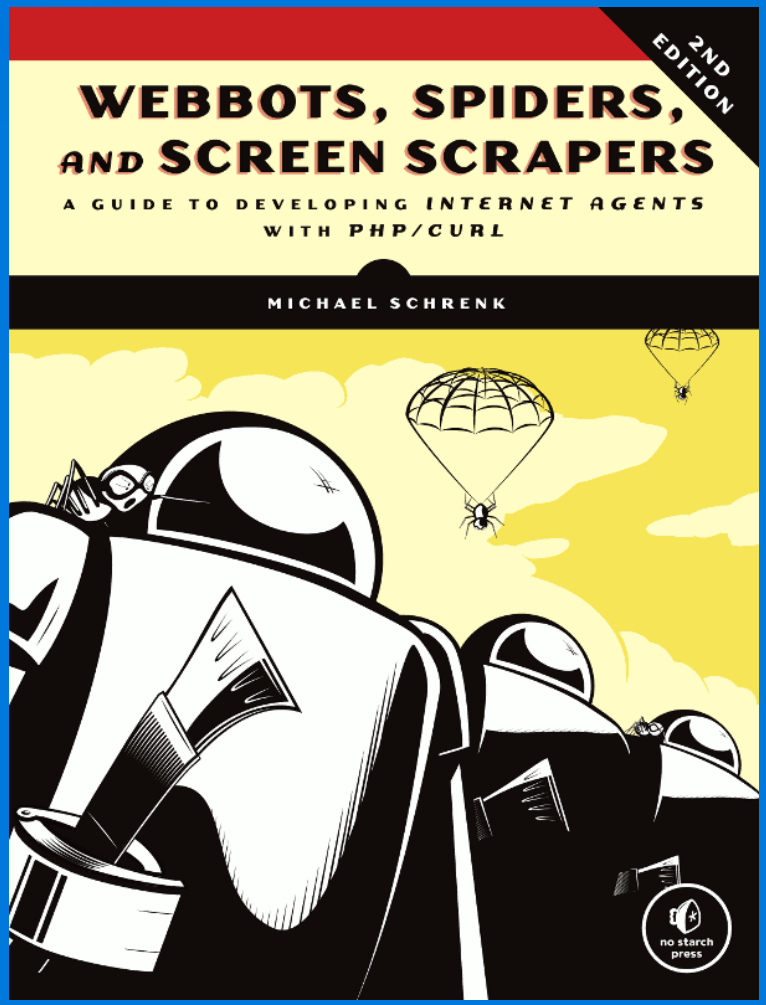
APPLIED INTELLIGENCE:

Using information that isn't there

If you find this subject interesting...



I'm doing a book signing @ **No Starch** booth **in vendor area**

@mgschrenk