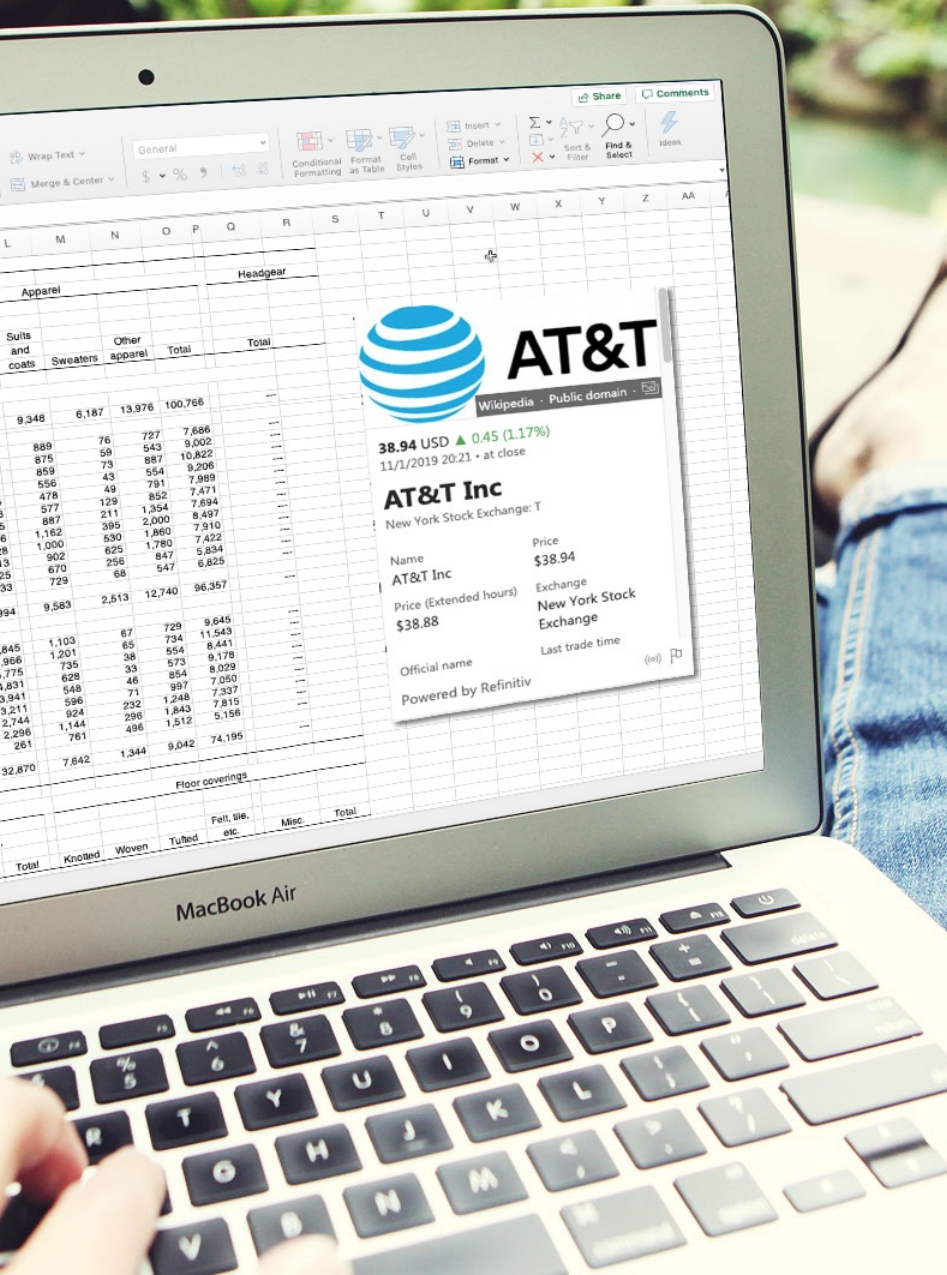


Alex Livingston

Product and Experience Design



New Data Types

A new way to get, view, and use data right from within Excel

Shipped on PC, Mac, and Web

My mission and role

The portrayal of a 'data type' in visual form



- Schema design
- Visual design
- Interaction
- Excel feature integration
- Disambiguation
- North stars
- Product specification work with close PM alignment

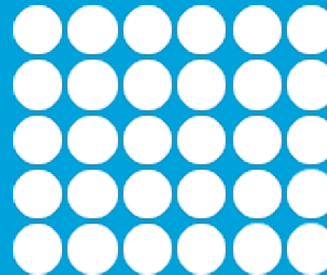
Teams

Design Manager ●
Product Designer ●
Visual Designer ●

8 PMS



30 ENG



Research
Bing
Marketing
Office SLT
Brand
Satya and Bill



Excel users worldwide

Most aren't data pros

Of all Excel users, most are not experts, and use only %10 percent of features

Most get data with cut & paste

A tried-and-true but antiquated way of getting information



An approach of both **push** & **pull**

Excel is hard...

Search and AI is here...

How can we make it easier to get data into Excel?

How can we use use Microsoft technology to do it?

The image shows a laptop screen displaying a Microsoft Excel spreadsheet. The spreadsheet contains a large table with multiple columns and rows of data. The columns are labeled with letters A through N. The data includes facility names, locations, and various identifiers. The table is organized into a grid, with some cells containing hyperlinks and dates. The Excel interface is visible, showing the ribbon at the top and the spreadsheet grid below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
49	47	NASA 2	Ames Research Center	Public	N237 - HYPERVELOCITY FREE FLIGHT GUN DEVELOPE	1964	Inactive	http://thermo-physics	3/1/1996	7/19/2013	Code RC	Moffett Field	CA	94035
50	48	NASA 2	Ames Research Center	Public	N238 - ARC JET LABORATORY: INTERACTION HEATING	1975	Active	http://thermo-physics	3/1/1996	6/13/2014	Code RC	Moffett Field	CA	94035
51	49	NASA 2	Ames Research Center	Public	N238 - ARC JET LABORATORY: PANEL TEST FACILITY (P	1972	Active	http://thermo-physics	3/1/1996	6/13/2014	Code RC	Moffett Field	CA	94035
52	50	NASA 2	Ames Research Center	Public	N240 - CENTER FOR ENGINEERING INNOVATION: FLIGH	1982	Active		3/1/1996	1/30/2012	Code RC	Moffett Field	CA	94035
53	51	NASA 2	Ames Research Center	Public	N240 & N244 - MULTI-MISSION OPERATIONS CENTER		Active		12/27/2012	1/30/2012	Code RC	Moffett Field	CA	94035
54	52	NASA 2	Armstrong Flight Research Center	Public	Bldg. 0703 - Dryden Aircraft Operations Facility		Active	www.nasa.gov/centers/armstrong	4/13/2010	12/17/2014	P.O.Box 273	Edwards	CA	93523-01
55	53	NASA 2	Armstrong Flight Research Center	Public	Bldg. 4800 - Research Development & Test Facility	1994	Active	www.nasa.gov/centers/armstrong	4/13/2010	12/19/2014	P.O.Box 273	Edwards	CA	93523-01
56	54	NASA 2	Armstrong Flight Research Center	Public	Bldg. 4820 - Flight Loads Laboratory	1966	Active	www.nasa.gov/centers/armstrong	3/1/1996	12/19/2014	P.O.Box 273	Edwards	CA	93523-01
57	55	NASA 2	Armstrong Flight Research Center	Public	Bldg. 4840 - Communications Building		Active		4/13/2010	12/19/2014	P.O.Box 273	Edwards	CA	93523-01
58	56	NASA 2	Armstrong Flight Research Center	Public	Bldg. 4824 - Communications Building		Active	www.nasa.gov/centers/armstrong	3/1/1996	12/17/2014	P.O.Box 273	Edwards	CA	93523-01
59	57	NASA 2	Armstrong Flight Research Center	Public	Bldg. 4882 - Aeronautical Tracking Facility	1992	Active		4/13/2010	12/19/2014	P.O.Box 273	Edwards	CA	93523-01
60	58	NASA 2	Armstrong Flight Research Center	Public	Bldg. 703 Mirror Coating Facility		Active		6/25/2013	7/10/2013	P.O.Box 273	Edwards	CA	93523-01
61	59	NASA 2	Glenn Research Center	Public	2.2 Second Drop Tower, Bldg. 45	1958	Active	http://microgravity	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
62	60	NASA 2	Glenn Research Center	Public	8 x 15 Supersonic Wind Tunnel, Bldgs. 39, 53 & 54	1948	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
63	61	NASA 2	Glenn Research Center	Public	9 x 15 Low Speed Wind Tunnel, Bldg. 39	1969	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
64	62	NASA 2	Glenn Research Center	Public	Aero Acoustic Propulsion Lab. (AAPL) Bldg. 145	1990	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
65	63	NASA 2	Glenn Research Center	Public	Aerodynamic Flow Physics Facilities (ERB Complex)	1942	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
66	64	NASA 2	Glenn Research Center	Public	Aeropropulsion Heat Transfer Technology Facilities	1942	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
67	65	NASA 2	Glenn Research Center	Public	Combustion and Aerochemistry Technology Facilities	1942	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
68	66	NASA 2	Glenn Research Center	Public	Complex of Thirteen Space Test Chambers (Bldg.16)	1942	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
69	67	NASA 2	Glenn Research Center	Public	Cryogenic Propellant Tank Fac. (K-site), #2811	1965	Active	http://www.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
70	68	NASA 2	Glenn Research Center	Public	DeNavilland DHC-6 Aircraft (N607NA)	1942	Active	http://www.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
71	69	NASA 2	Glenn Research Center	Public	Electric Power Lab - Vacuum Facility 5 (VF-5)	1961	Active	http://www.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
72	70	NASA 2	Glenn Research Center	Public	Electric Power Lab - Vacuum Facility 8 (VF-8)	1961	Active	http://www.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
73	71	NASA 2	Glenn Research Center	Public	Electro-Magnetic Interference (EMI) Lab	1942	Active	http://facilities.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135
74	71	NASA 2	Glenn Research Center	Public	Electro-Magnetic Interference (EMI) Lab #1	1943	Active	http://www.grc.nasa.gov	3/1/1996	6/13/2013	21000 Brookpark	Cleveland	OH	44135

What is a new data type?

Mental model of a 'thing' in Excel

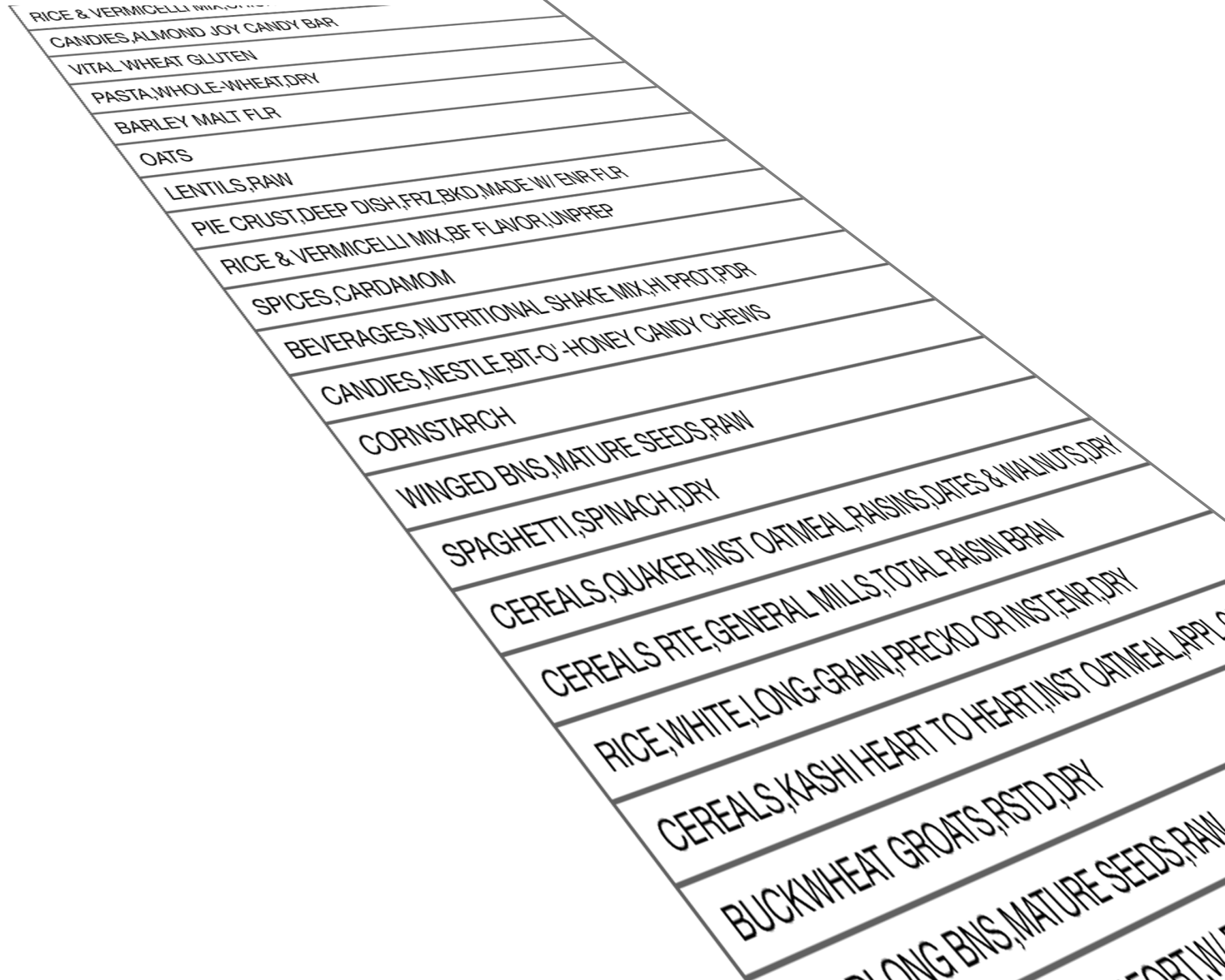
Just about anything

An identifier with a set of data in labels and values



Property name	Status	Owner	Mortgage value	Rent	Rent (2 RR's)	Rent (3 RR's)	Rent (4 RR's)	Category	Similar Properties
B & O Railroad	On market	Kevin	\$ 100	\$ 25	\$ 50	\$ 100	\$ 200	Transportation	Pennsylvania Railroad

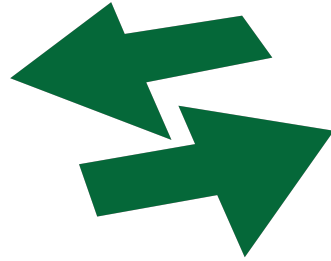
Z axis in Excel



The image shows a tilted Excel spreadsheet with a single column of text. The text is rotated 45 degrees counter-clockwise. The items listed are:

RICE & VERMICELLI MIX, DRY
CANDIES, ALMOND JOY CANDY BAR
VITAL WHEAT GLUTEN
PASTA, WHOLE-WHEAT, DRY
BARLEY MALT FLR
OATS
LENTILS, RAW
PIE CRUST, DEEP DISH, FRZ, BKD, MADE W/ ENR FLR
RICE & VERMICELLI MIX, BF FLAVOR, UNPREP
SPICES, CARDAMOM
BEVERAGES, NUTRITIONAL SHAKE MIX, HI PROT, PDR
CANDIES, NESTLE, BIT-O'-HONEY CANDY CHEWS
CORNSTARCH
WINGED BNS, MATURE SEEDS, RAW
SPAGHETTI, SPINACH, DRY
CEREALS, QUAKER, INST OATMEAL, RAISINS, DATES & WALNUTS, DRY
CEREALS RTE, GENERAL MILLS, TOTAL RAISIN BRAN
RICE, WHITE, LONG-GRAIN, PRECKD OR INST, ENR, DRY
CEREALS, KASHI HEART TO HEART, INST OATMEAL, APPL C
BUCKWHEAT GROATS, RSTD, DRY
LONG BNS, MATURE SEEDS, RAW
FORT W...

Z axis in Excel



RICE & VERMICELLI MIX, DRY
CANDIES, ALMOND JOY CANDY BAR
VITAL WHEAT GLUTEN
PASTA, WHOLE-WHEAT, DRY
BARLEY MALT FLR
OATS
LENTILS, RAW
PIE CRUST, DEEP DISH, FRZ, BKD, MADE W/ ENR FLR
RICE & VERMICELLI MIX, BF FLAVOR, UNPREP
SPICES, CARDAMOM
BEVERAGES, NUTRITIONAL SHAKE MIX, HI PROT, PDR
CANDIES, NESTLE, BIT-O'-HONEY CANDY CHEWS
CORNSTARCH
WINGED BNS, MATURE SEEDS, RAW
SPAGHETTI, SPINACH, DRY
CEREALS, QUAKER, INST OATMEAL, RAISINS, DATES & WALNUTS, DRY
CEREALS RTE, GENERAL MILLS, TOTAL RAISIN BRAN
RICE, WHITE, LONG-GRAIN, PRECKD OR INST, ENR, DRY
CEREALS, KASHI HEART TO HEART, INST OATMEAL, APPL
BUCKWHEAT GROATS, RSTD, DRY
LONG BNS, MATURE SEEDS, RAW
SPORT W

Z axis in Excel

RICE & VERMICELLI MIX, DRY
CANDIES, ALMOND JOY CANDY BAR
VITAL WHEAT GLUTEN
PASTA, WHOLE-WHEAT, DRY
BARLEY MALT FLR
OATS
LENTILS, RAW
PIE CRUST, DEEP DISH, FRZ, BKD, MADE W/ ENR FLR
RICE & VERMICELLI MIX, BF FLAVOR, UNPREP
SPICES, CARDAMOM
BEVERAGES, NUTRITIONAL SHAKE MIX, HI PROT, PDR
CANDIES, NESTLE, BIT-O'-HONEY CANDY CHEWS
CORNSTARCH
WINGED BNS, MATURE SEEDS, RAW
SPAGHETTI, SPINACH, DRY
CEREALS, QUAKER, INST OATMEAL, RAISINS, DATES & WALNUTS, DRY
CEREALS RTE, GENERAL MILLS, TOTAL RAISIN BRAN
RICE, WHITE, LONG-GRAIN, PRECKD OR INST, ENR, DRY
CEREALS, KASHI HEART TO HEART, INST OATMEAL, APPL
BUCKWHEAT GROATS, RSTD, DRY
LONG BNS, MATURE SEEDS, RAW
PORT W

Nutrition Facts	
Serving size	1/4 tsp (0.55 g)
Amount per serving	
Calories	0
% Daily Value*	
Total Fat	0 g 0%
Cholesterol	0 mg 0%
Sodium	0.550 mg 0%
Total Carbohydrates	0 g 0%
Total Sugars	0 g
Protein	0 g 0%
Vitamin D	0 mcg 0%
Calcium	36 mg 2%
Iron	1.5 mg 8%
Vitamin A	0 mcg 0%
Vitamin E	0.25 mg 0%
Vitamin B12	0 mcg 0%
Magnesium	41 mg 10%

* The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

WOLFRAM

cardamom

Amount Consumed

consumed description
1/4 tsp (0.55 g)

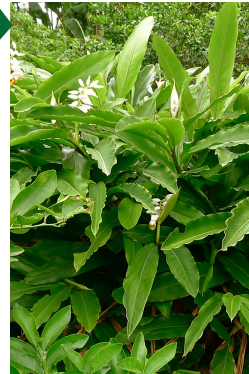
mass consumed • grams
0.55

volume consumed • milliliters
1.2

servings count • serving
1

Common Serving

common serving description
1/4 tsp (0.55 g)



Z axis in Excel

RICE & VERMICELLI MIX, DRY	79.77	17.17	18.9	8	11	0.71	88	152	280
CANDIES, ALMOND JOY CANDY BAR	67.41	62.88	1.9	21	54	2.44	108	28	188
VITAL WHEAT GLUTEN	51.92	3	132	54	2.44	33.28	90	148	188
PASTA, WHOLE-WHEAT, DRY	85.08	8	2	370	33.28	14.5	92	184	130
BARLEY MALT FLR	76.19	27.1	5.5	323	14.5	3.38	120	84	130
OATS	75.52	1.22	10.9	80	0	4.20	93	41	240
LENTILS, RAW	56	56	0	0	0	285	64	89	10
PIE CRUST, DEEP DISH, FRZ, BKD, MADE W/ ENR FLR	61.58	0	80.3	15.2	10.1	74	33.3	48	48
RICE & VERMICELLI MIX, BF FLAVOR, UNPREP	80.3	75.6	33.3	4.7	245	15	288	15	48
SPICES, CARDAMOM	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
BEVERAGES, NUTRITIONAL SHAKE MIX, HI PROT, PDR	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
CANDIES, NESTLE, BIT-O'-HONEY CANDY CHEWS	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
CORNSTARCH	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
WINGED BNS, MATURE SEEDS, RAW	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
SPAGHETTI, SPINACH, DRY	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
CEREALS, QUAKER, INST OATMEAL, RAISINS, DATES & WALNUTS, DRY	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
CEREALS RTE, GENERAL MILLS, TOTAL RAISIN BRAN	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
RICE, WHITE, LONG-GRAIN, PRECKD OR INST, ENR, DRY	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
CEREALS, KASHI HEART TO HEART, INST OATMEAL, APPLE	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
BUCKWHEAT GROATS, RSTD, DRY	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
LONG BNS, MATURE SEEDS, RAW	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65
FORT W...	80.7	27.9	96.7	66.08	92.9	92.9	65.1	65	65

Nutrition Facts	
Serving size	1/4 tsp (0.55 g)
Amount per serving	
Calories	0
	% Daily Value*
Total Fat 0 g	0%
Cholesterol 0 mg	0%
Sodium 0.55 mg	0%
Total Carbohydrates 0 g	0%
Total Sugars 0 g	0%
Protein 0 g	0%
Vitamin D 0 mcg	0%
Calcium 36 mg	2%
Iron 1.5 mg	8%
Vitamin A 0 mcg	0%
Vitamin E 0.25 mg	0%
Vitamin B12 0 mcg	0%
Magnesium 41 mg	10%

* The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

cardamom

Amount Consumed

consumed description
1/4 tsp (0.55 g)

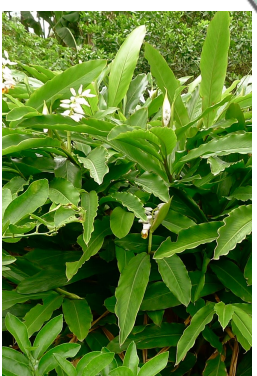
mass consumed • grams
0.55

volume consumed • milliliters
1.2

servings count • serving
1

Common Serving

common serving description
1/4 tsp (0.55 g)



Roadmap

**Build infrastructure,
design, and data
connections**

**Showcase 2 New Data
Types to public**

Next 2-10 Data
Types

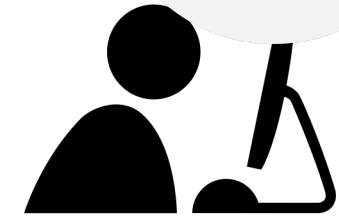
Partnered, paid
serviced-back
Data Types

Custom Data
Types

Queries about... anything (?)

Data Types throughout Office

X-Device scenarios: MOBILE



My design challenge – a four-pronged approach

**MVP
& V1**

Search Bing
and get **data**
inside Excel



Cool Thing

Description

At vero eos et accusamus et iusto odio
dignissimos ducimus qui blanditiis praesentium
voluptatum deleniti atque cor-

Yyyyyy

Xxxxxx

Yyyyyy

Zzzzzz



V3

Envision
customized,
north-star
data types

Lay groundwork
for **user-made** **V2**
data types

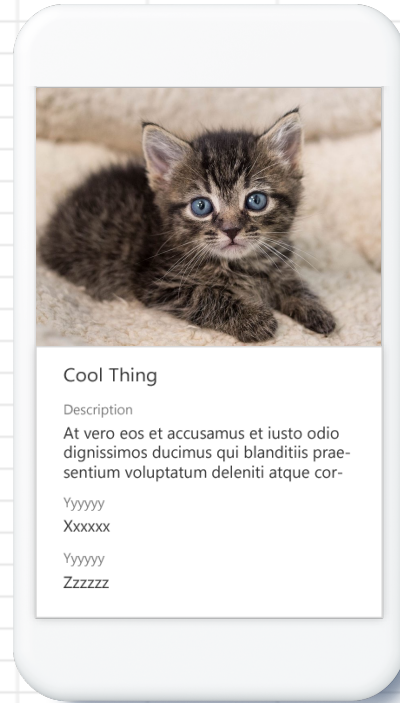


Envision a
better Excel
on **mobile**

My design challenge – a four-pronged approach

**MVP
& V1**

Search Bing
and get **data**
inside Excel



Lay groundwork
for **user-made** **V2**
data types



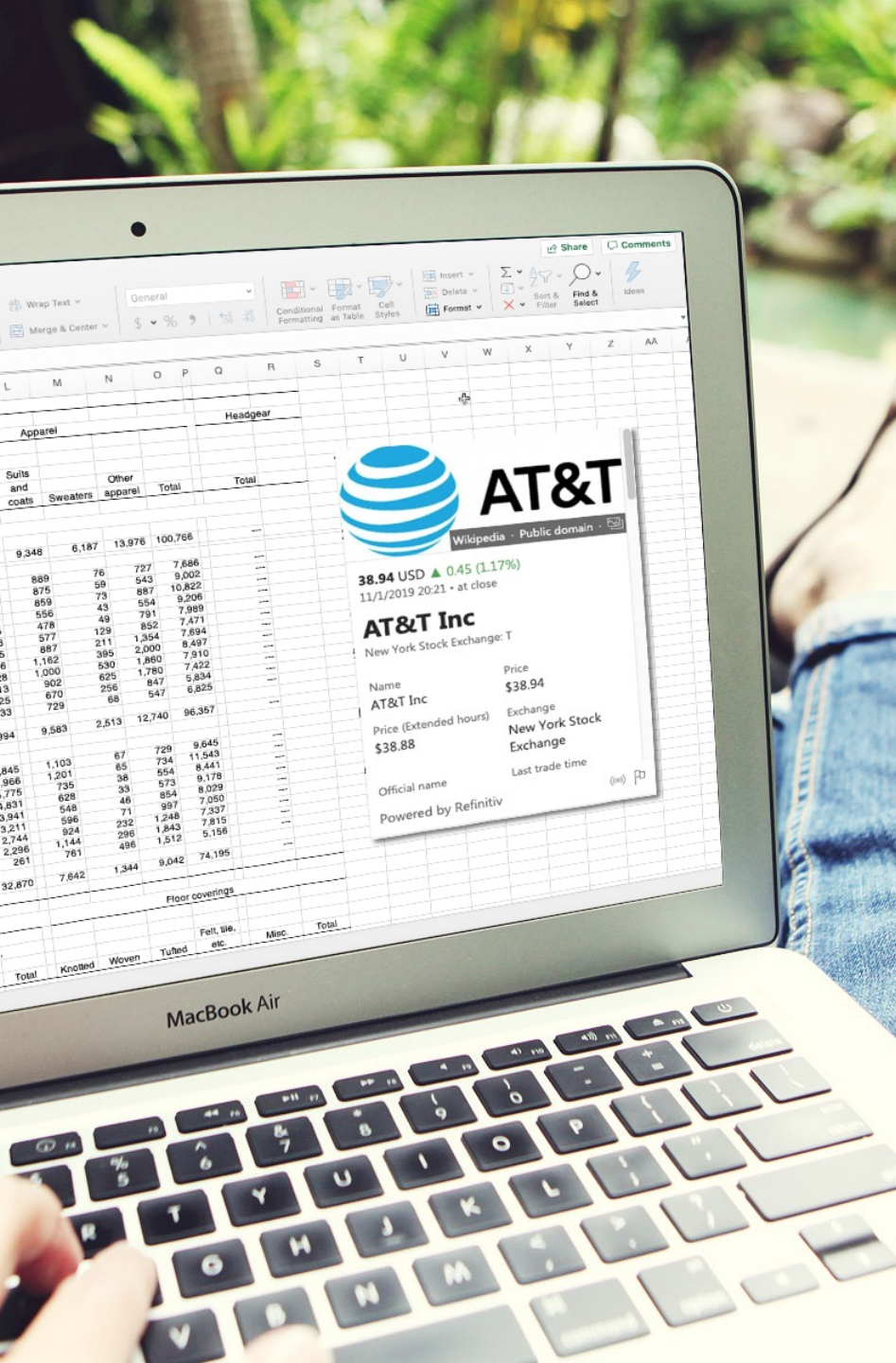
V3

Envision
customized,
north-star
data types



Envision a
better Excel
on **mobile** **V...6**





New Data Types Using Bing's Satori API

User flow



Opens workbook

Pastes company list

Poses question

Converts to Data Type

Disambiguates & cleans

Regards results

Investigates

Opens card

The screenshot shows a Microsoft Excel spreadsheet with a list of companies in column B. A data card for Microsoft Corp (MSFT) is displayed over the spreadsheet. The data card shows the stock price at \$143.35 USD, a change of -0.02%, and other financial details.

Name	Price
Microsoft Corp	\$143.35
Exchange	Official name
Nasdaq Stock Market	Microsoft Corp
Last trade time	Ticker symbol
11/1/2019 19:51	MSFT
Exchange abbreviation	Change
XNAS	\$(0.03)
Change (%)	Currency
-0.02%	USD
Previous close	Open
\$143.37	\$144.31

Opens workbook

Pastes company list

Poses question

Converts to Data Type

Disambiguates & cleans

Regards results

Investigates

Opens card

Spills

The screenshot shows a Microsoft Excel spreadsheet titled "Stock workbook 2019.xlsx" open in a web browser. The spreadsheet contains a list of companies in column B and their stock prices in column E. The formula bar shows the formula "=B2.Price" in cell E2. A tooltip for the "Price" property is visible over the cell. The ribbon includes tabs for File, Home, Insert, Data, Review, View, and Help. The Home tab is active, showing options for Paste, Font, Alignment, Number, and Tables. The spreadsheet data is as follows:

	A	B	C	D	E	F	G	H	I	J
1										
2		Microsoft Corp (XNAS:MSFT)			=B2.Price					
3		Alphabet Inc (XNAS:GOOG)								
4		Snap Inc (XNYS:SNAP)								
5		Intel Corp (XNAS:INTC)								
6		Alibaba Group Holding Ltd (XNYS:BABA)								
7		Facebook Inc (XNAS:FB)								
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										

The bottom of the screen shows a navigation bar with "My stocks" and "Top 30 stocks US" tabs, and a "Help Improve Office" link.

Opens workbook

Pastes company list

Poses question

Converts to Data Type

Disambiguates & cleans

Regards results

Investigates

Opens card

Spills

Runs calc



Stock workbook 2019.xlsx - Microsoft Excel

onedrive.live.com/Edit.aspx?r...

Excel | OneDrive | Stock workb... - Saved | Alexander Livingston | Sign out

File | Home | Insert | Data | Review | View | Help | Tell me what you want to do

Clipboard | Font | Alignment | Number | Tables

H2 | $= (F2 - G2) / G2$

	A	B	C	D	E	F	G	H	I	J
1		com			prc	yr high	yr low			
2		Microsoft Corp (XNAS:MSFT)			\$ 143.35	\$ 145.67	\$ 93.96	$= (F2 - G2) / G2$		
3		Alphabet Inc (XNAS:GOOG)			\$1,268.17	\$1,299.31	\$ 970.11			
4		Snap Inc (XNYS:SNAP)			\$ 15.16	\$ 18.36	\$ 4.82			
5		Intel Corp (XNAS:INTC)			\$ 56.36	\$ 59.59	\$ 42.86			
6		Alibaba Group Holding Ltd (XN)			\$ 176.30	\$ 195.72	\$ 129.77			
7		Facebook Inc (XNAS:FB)			\$ 192.82	\$ 208.66	\$ 123.02			
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										

My stocks | Top 30 stocks US

Saved to OneDrive | Help Improve Office

Opens workbook

Pastes company list

Poses question

Converts to Data Type

Disambiguates & cleans

Regards results

Investigates

Opens card

Spills

Runs calc

Visualizes

The screenshot shows a Microsoft Excel spreadsheet titled "Stock workbook 2019.xlsx" open in a OneDrive browser window. The spreadsheet contains a table with the following data:

	com	prc	yr high	yr low	delta
1					
2	Microsoft Corp (XNAS:MSFT)	\$ 143.35	\$ 145.67	\$ 93.96	55.03%
3	Alphabet Inc (XNAS:GOOG)	\$1,268.17	\$1,299.31	\$ 970.11	33.93%
4	Snap Inc (XNYS:SNAP)	\$ 15.16	\$ 18.36	\$ 4.82	280.91%
5	Intel Corp (XNAS:INTC)	\$ 56.36	\$ 59.59	\$ 42.86	39.03%
6	Alibaba Group Holding Ltd (XNYS:BABA)	\$ 176.30	\$ 195.72	\$ 129.77	50.82%
7	Facebook Inc (XNAS:FB)	\$ 192.82	\$ 208.66	\$ 123.02	69.61%

Below the table is a bar chart titled "delta" showing the percentage change for each stock. The y-axis ranges from 0 to 3. The x-axis lists the companies. The bars represent the following values:

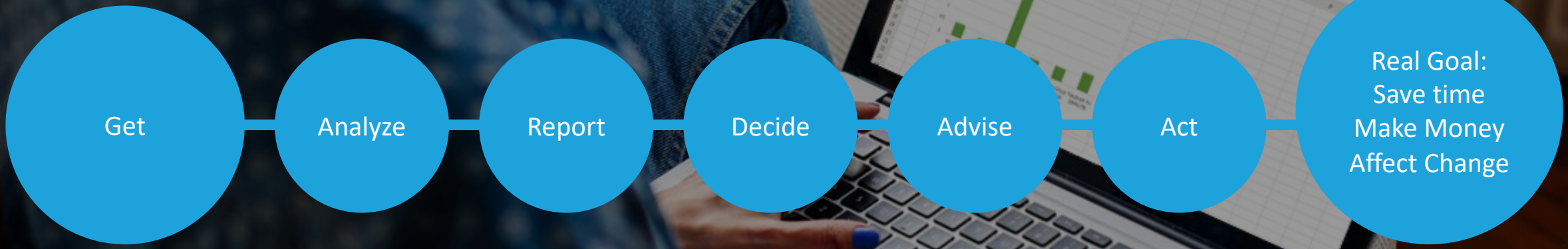
- Microsoft Corp (XNAS:MSFT): 0.5503
- Alphabet Inc (XNAS:GOOG): 0.3393
- Snap Inc (XNYS:SNAP): 2.8091
- Intel Corp (XNAS:INTC): 0.3903
- Alibaba Group Holding Ltd (XNYS:BABA): 0.5082
- Facebook Inc (XNAS:FB): 0.6961

The chart legend indicates that the bars represent "delta". The bottom of the screen shows a navigation bar with "My stocks" and "Top 30 stocks US" tabs, and a status bar at the bottom indicating "Saved to OneDrive" and "Help Improve Office".



New Data Types

Data Types provide a faster way for instant access to information, which shortens the process of making data driven decisions





Process

Generic type datas

Concurrent designing for flexibility



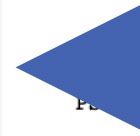
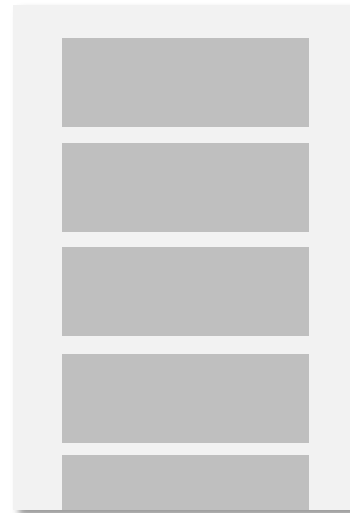
Student ID	Score 1	Score 2	Score 3
Student 19	10019	14	14
Student 20	10020	14	14
Student 2	10002	11	10
Student 22	10022	11	11
Student 4	10004	12	12
Student 14	10014	7	12
Student 21	10021	12	11
Student 15	10015	11	14
Student 7	10007	13	13
Student 1	10001	15	7
Student 13	10013	9	11
Student 3	10003	14	6
Student 12	10012	11	8
Student 18	10018	11	7
Student 5	10005	10	11
Student 9	10009	9	0
Student 8	10008	6	8

Name	Position	Starting price
Drew Brees	QB	\$16,700.00
Aaron Rodgers	QB	\$18,000.00
Tom Brady	QB	\$21,700.00
Matthew Stafford	QB	\$21,900.00
Tony Romo	QB	\$22,700.00
Cam Newton	QB	\$23,500.00
Peyton Manning	QB	\$24,000.00
Matt Ryan	QB	\$24,100.00
Eli Manning	QB	\$24,900.00
Philip Rivers	QB	\$25,300.00
Matt Schaub	QB	\$25,400.00
Michael Vick	QB	\$25,600.00
Robert Griffin	QB	\$26,600.00
Andrew Luck	QB	\$28,900.00
Ben Roethlisberger	QB	\$29,000.00
Josh Freeman	QB	\$30,300.00
AVERAGE		\$30,500.00

creative strategies and plans. To participate in this study, we require that you agree to view confidential information, we require that you agree to neither use nor disclose to any other person or entity any of the information provided to you in this study. This includes, but is not limited to, any verbal, written, posted online/in social media or printed communication of the information contained in this study. By selecting "I agree" below, you signify that you have read, understand, and agree with these terms.

I agree

User generated data



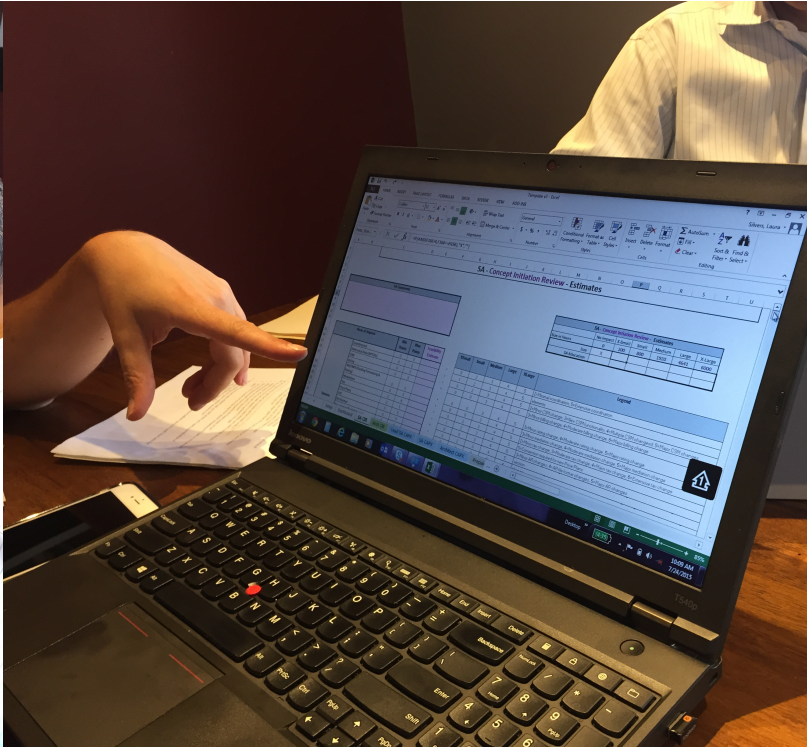
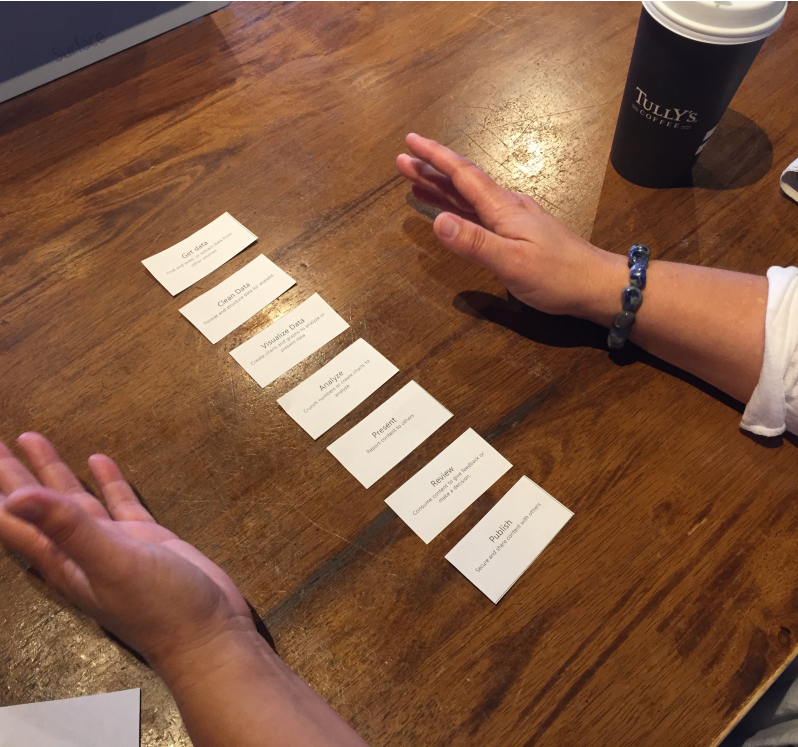
```
with a population of around 3.2 million. Approximately 60% of Oregon's population resides within the Portland metropolitan area.",
  "bingId": "5658ef8a-9267-4851-b335-72bc82329a4e",
  "webSearchUrl": "https://www.bing.com/entityexplore?&filters=sid:%225658ef8a-9267-4851-82329a4e%22&elv=AXXfrEiqqD9r3GuelwApulp4JqFurZuch7ThuhON8*FVPCd0cES7WGcz1FBjJNHqEnaopAOhzTEye4PNJucBh!WSqCxr0!fCufLAMD1",
  "name": "Portland",
  "url": "http://www.PortlandOregon.gov/",
  "entityPresentationInfo": {
    "entityScenario": "DominantEntity",
    "entityTypeHints": [
      "City"
    ],
    "entityTypeDisplayHint": "City in Oregon"
  }
}
```

Bing data

Requirements: generic data type

- Container is card
- Launched from the cell
- Not resizable (V1)
- Disambiguation
- Photo, title, value pairs
- Prep for any number of fields
- Prep for any length of values
- Cannot truncate numbers
- Explore method(s) to extract data to grid

Research=(users + goals + sheets*1000)

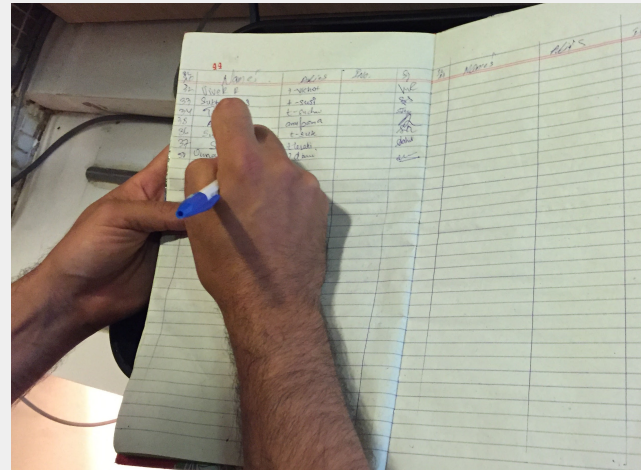


Testing and ideating in India

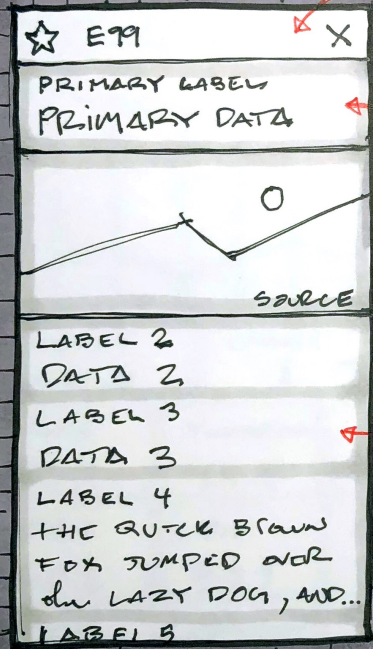
I conducted UX research on a trip to India with a team from the US and Bengaluru

We validated and got feedback on concepts crucial to near-term work on Data Types

By listening to users needs, wants, limitations, I was able to iterate and draft proposals for inspiring future designs scenarios on sharing and mobile usage



Best practices – low fidelity first



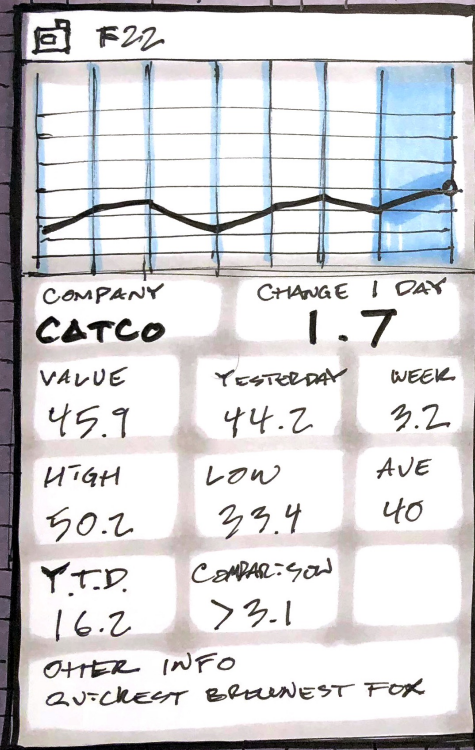
CONTAINER, HEADER,
TYPE ICON
CELL REFERENCE
ACTIONS

PRIMARY VALUE PAIR
ACTS AS TITLE / IDENTIFIER
LARGE / READABLE

VISUAL FRAME
PHOTO, LOGO... OTHER?
ACTS AS DATA, OR ONLY HELPER

CONTINUING VALUE PAIRS
SHORT, LONG, MIXED

DATE & FRESHNESS & REFRESH?
SOURCE & EXPLANATION OF?
STRONG TYPES, VERSUS UNIVERSAL?
EXPOSURE OF METADATA?
SELECTION MODEL & IxD TO GRID?



VISUAL FRAME

MOST IMPORTANT INFO
LARGE, AT A GLANCE

KNOWN DATA FORMATS
SHORT, STRUCTURED

Stress testing a fixed size card

(Ex. US postal field max is 46 characters)

The screenshot shows a Microsoft Excel spreadsheet titled "real estate - Excel" with a user named "Alex Livingston". The spreadsheet contains a table with columns for Property, Agent, Status, Community, Schools, Seller, Listing Price, Square feet, Type, Days on m, Bed, Bath, Interior Features, Similar nearby, Notes, and Property History. The data is organized into rows, with some cells containing property addresses and agent names. The spreadsheet is displaying multiple overlapping dropdown menus, which are used to stress test a fixed-size field. The dropdown menus are showing a list of options, including "C6", "Property", "545 East Ridgeway Circle Portland, OR...", "Size", "6049 sq ft", "Lot size", "1.9 acres", "Front facing", "South", "Garage", "3 car with turn loop entrance", "Lot condition", "Wooded, evergreens, maples", "Other", "Shed with electricity on northwest corner...", "54505 East Ridgeview Circle Portland, ...", "Templeton Foxworthy Snodgrass, III", "Contoso Trucking Division, Unlimited", "Call Jim at Contoso to finalize report on...", and "123456789112345678911234567891". The dropdown menus are overlapping each other, demonstrating how a fixed-size field can be overwhelmed by a large number of options. The status bar at the bottom indicates "Ready AutoSave: Off" and "Calibri 42 Regular Overlake".

A hold anything container

company_name
B & O Railroad

mortgage_value
\$100.00 MPL

status
On market

short_description
Monopoly property

long_description
Leverage agile frameworks to provide a robust synopsis for high level overviews. Iterative approaches to corporate strategy foster collaborative thinking to further the overall value proposition. Organically grow the holistic world view of disruptive innovation via workplace diversity and empowerment. Bring to the table win-win survival strategies to ensure proactive domination. At the end of the day, going forward, a new normal that has evolved from generation X is on the runway heading towards a streamlined cloud solution. User generated content in real-time will have multiple touchpoints for offshoring.

category_group
transportation

rent
\$25.00

rent_two_owned
\$50.00

rent_three_owned
\$100.00


rent_four_owned
\$200.00

current_owner
My mean brother

similar_properties
Pennsylvania Railroad, Short Line

Cell C5

player
Early Wynn



about
Early "Gus" Wynn, pitched for the Washington Senators, Cleveland Indians, and Chicago White Sox and was identified as one of the most intimidating pitchers in the game.

position
Pitcher

batted
Switch

MLB debut
September 13, 1939

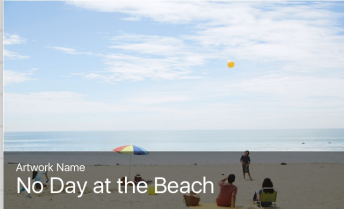
team
Washington Senators

batting_ave
300-244

hits
893

home_runs
17

RBI's
201



Artwork Name
No Day at the Beach

List Price
\$77,000

Discount
20%

Buyer
Sally Grantley


Email
sally.grantley@contoso.com

Phone
128.848.3982

Location
MOMA San Francisco

Gallery
The San Francisco Gallery

Notes
Please include all mounting equipments



Aluminum

Price
\$1.34

Yesterday
\$1.23

Change
%8.94

About
Lorem ipsum dolor sit amet, consectetur...

Top suppliers
Aluminum Partners Inc., United Metals...

Contact
John Doe

company_name
B & O Railroad

mortgage_value
\$100.00 MPL

status
Acquired

short_description
Monopoly propert...

category_list
Leverage agile frame-

category_group
transportation

rent
\$25.00

rent_two_owned
\$50.00

rent_three_owned
\$100.00

rent_four_owned
\$200.00

current_owner
My mean brother

similar_properties
Pennsylvania Rail ...



V1 Generic data type card

Action bar


Visual container

Primary ID

Collapsed description

Label
Data

C46 🔗 📌



Portland

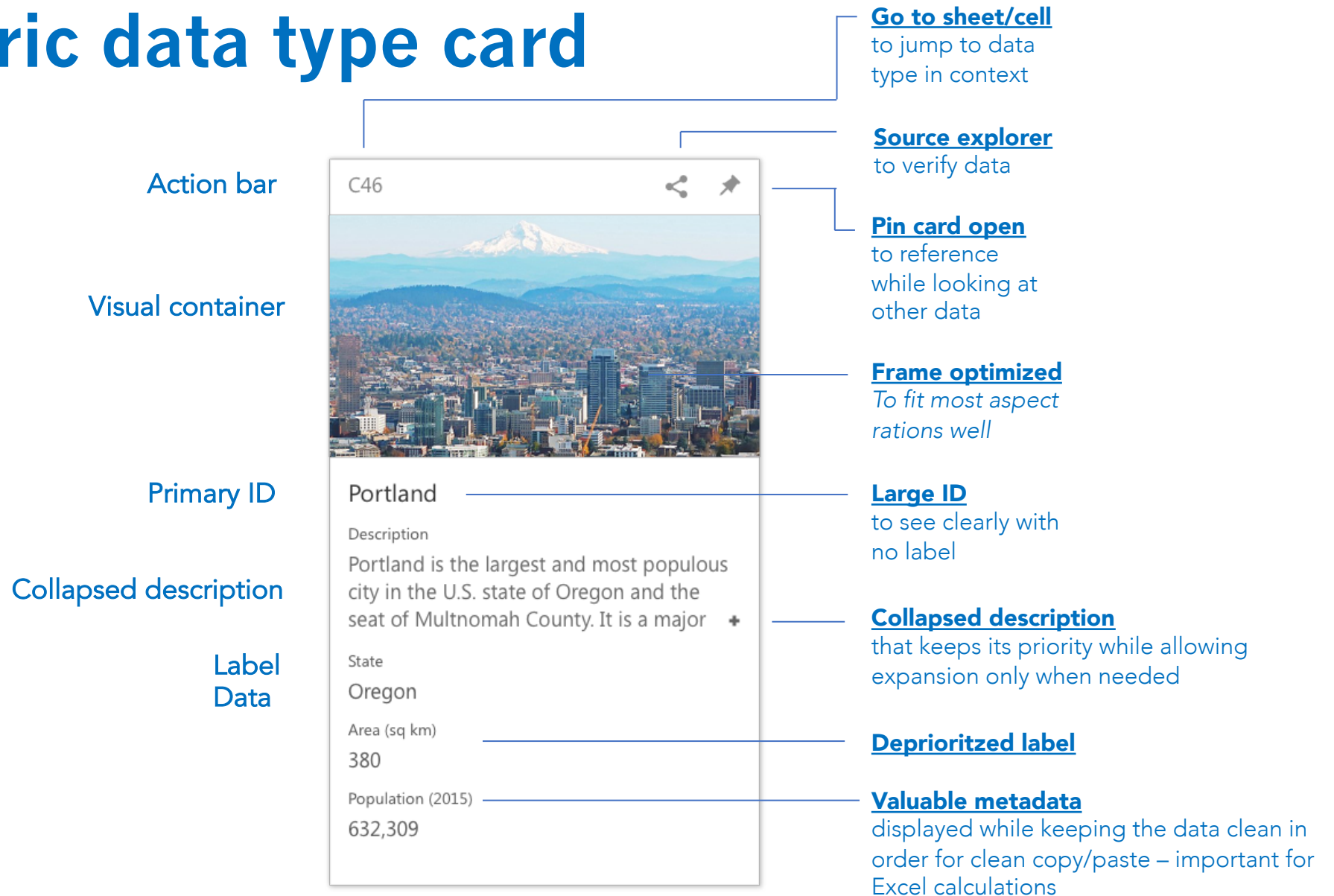
Description
Portland is the largest and most populous city in the U.S. state of Oregon and the seat of Multnomah County. It is a major +

State
Oregon

Area (sq km)
380


Population (2015)
632,309

V1 Generic data type card



V1 Generic data type card

C46



Portland

Description

Portland is the largest and most populous city in the U.S. state of Oregon and the seat of Multnomah County. It is a major

State

Oregon

Area (sq km)


380

Population (2015)

632,309

Scroll is hover reveal

C46



Portland


Description

Portland is the largest and most populous city in the U.S. state of Oregon and the seat of Multnomah County. It is a major port in the Willamette Valley region of the Pacific Northwest, at the confluence of the Willamette and Columbia rivers. As of 2018, Portland had an estimated population of 653,115, making it the 25th most populated city in the United States, and the second-most populous in the Pacific Northwest after Seattle. Approx-

Description text is truncated until needed

Shipped: Generic data type MVP

C46



Portland

Description
Portland is the largest and most populous city in the U.S. state of Oregon and the seat of Multnomah County. It is a major

State
Oregon

Area (sq km)
380

Population (2015)
632,309

V1 Design



Wikipedia · CC BY-SA 4.0


Portland

Admin Division 2 (County/district/other)
Multnomah County

Admin Division 1 (State/province/other)
Oregon

Powered by Bing

Windows and XL Web



Wikipedia · CC BY-SA 4.0

Portland

Admin Division 2 (County/district/other)
Multnomah County

Admin Division 1 (State/province/other)
Oregon

Powered by Bing

Mac

Grid interactions

Card formula IxD: 2

Service backed Data Type (Redfin)

Card pinned

Begin formula

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. A table of property data is displayed in columns B and C. A property card is overlaid on the table, showing details for a property at 1233 Phinney Ave N, Seattle, WA 98103. The card includes a photo, status, asking price, days on market, and contact information. A formula bar is visible in the background, indicating the start of a formula entry.

Property	Status
2232 Tahoe Street	On Market
12 Baker Street	On Market
1233 Phinney Ave	On Market
44534 Ainsley Rd.	On Market
44 Westlin Road	Sold
7700 Far Acres Lane	On Market
900 First Ave S.	Sold
3 Homewood Lane	Removed
5520 Woodlawn St.	On Market

Property card details:

- Property: 1233 Phinney Ave N, Seattle, WA 98103
- Status: On Market
- Asking Price: \$270,300
- Days on Market: 61
- Average in Area: \$435,000
- Contact: Janice Wu (Remax)

Card formula IxD: 2

Card pinned

Begin formula

User clicks directly on data in card, thus filling formula

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. A data card is pinned to the spreadsheet, displaying details for a property. The card is titled 'B7' and includes a location pin icon. The property details are as follows:

Property	Status
2232 Tahoe Street	On Market
12 Baker Street	On Market
1233 Phinney Ave	On Market
44534 Ainsley Rd.	On Market
44 Westlin Road	Sold
7700 Far Acres Lane	On Market
900 First Ave S.	Sold
3 Homewood Lane	Removed
5520 Woodlawn St.	On Market

The data card for '1233 Phinney Ave' shows the following details:

- Property: 1233 Phinney Ave N, Seattle, WA 98103
- Status: On Market
- Asking Price: \$270,300
- Days on Market: 61
- Average in Area: \$435,000
- Contact: Janice Wu (Remax)

The formula bar shows the formula: `=B7.asking_price`

Card formula IxD: 2

Card pinned

Begin formula

User clicks directly on data in card, thus filling formula

Resolves value



The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. A table of property data is displayed in columns B and C. A card overlay is shown for the property at 1233 Phinney Ave N, Seattle, WA 98103. The card displays the following information:

- Property: 1233 Phinney Ave N, Seattle, WA 98103
- Status: On Market
- Asking Price: \$270,300
- Days on Market: 61
- Average in Area: \$435,000
- Contact: Janice Wu (Remax)

The card is pinned to the spreadsheet. A green box highlights the asking price '\$270,300' in the card, and another green box highlights the corresponding cell in the spreadsheet. A green checkmark is visible to the left of the spreadsheet.

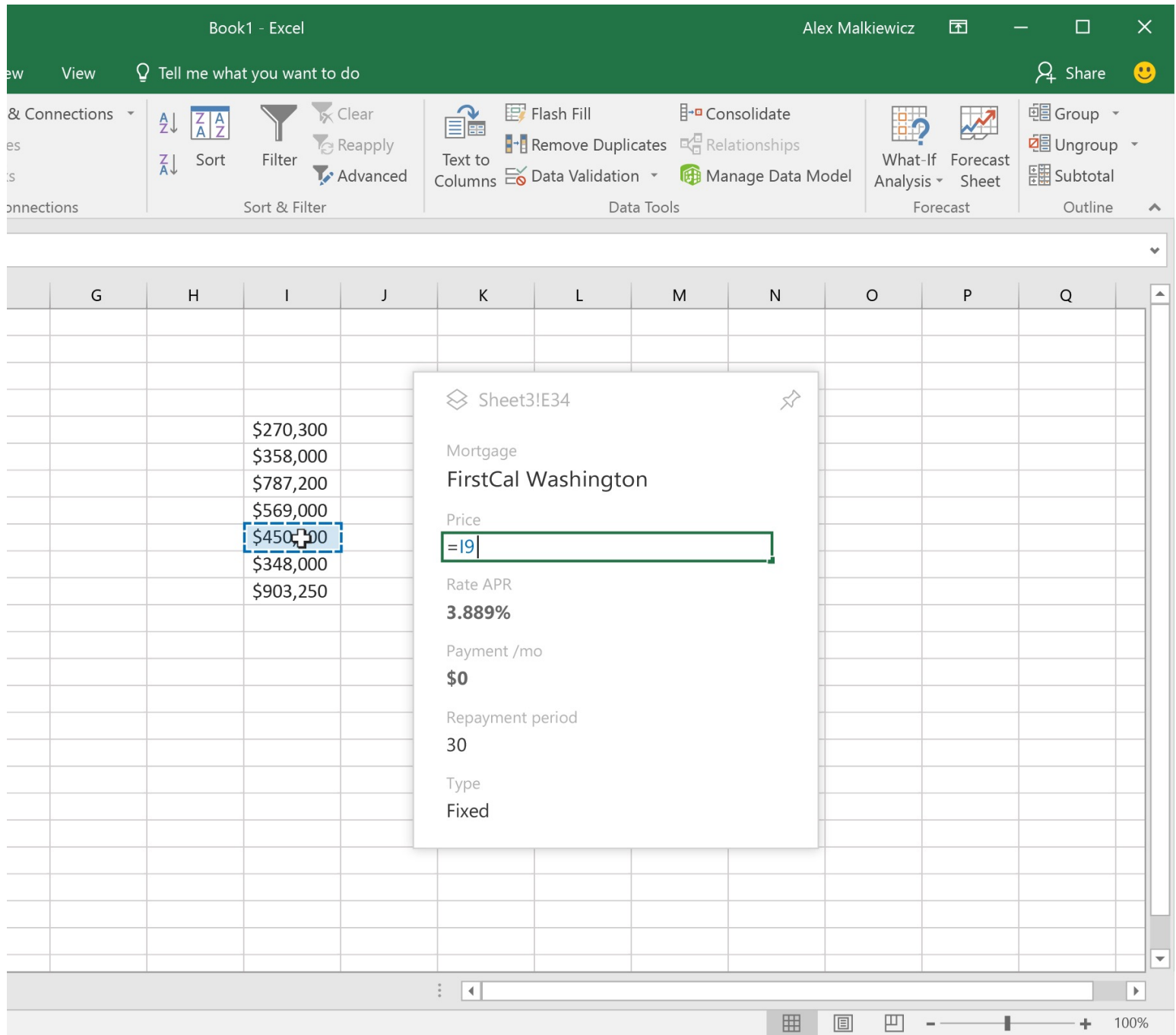
Property	Status
2232 Tahoe Street	On Market
12 Baker Street	On Market
1233 Phinney Ave	On Market
44534 Ainsley Rd.	On Market
44 Westlin Road	Sold
7700 Far Acres Lane	On Market
900 First Ave S.	Sold
3 Homewood Lane	Removed
5520 Woodlawn St.	On Market

Card formula IxD: 3

Card pinned open from a different sheet in workbook

Begin formula edit directly on card

Fills formula by selecting field in grid



Strong data types

Shipped: finance data type MVP

Generic



Specific

Johnson & Johnson
Wikipedia · Public domain ·

131.21 USD ▼ 0.92 (0.69%)
11/1/2019 20:22 · at close

Johnson & Johnson
New York Stock Exchange: JNJ

Name	Price
Johnson & Johnson	\$131.21
Price (Extended hours)	Exchange
\$131.21	New York Stock Exchange
Official name	Last trade time
Johnson & Johnson	11/1/2019 20:22
Ticker symbol	Exchange abbreviation
JNJ	XNYS
Change	Change (Extended hours)
\$(0.92)	\$0.01
Change (%)	Change % (Extended hours)
-0.69%	0.00%
Summary	Previous close

Powered by Refinitiv (cc)

Stock card

\$20.30

Precision bearing

Install these bearings directly onto round shafts. They have higher load capacity...

Prod ID	Material	Max Speed
S7921	Steel	21,000
Shaft dia. (mm)	Housing (mm)	Wd. (mm)
15.87	28.57	19.05
Temp L (°F)	Temp H (°F)	Smooth (Ra)
-30	250	16

Explorations - Strongly typed data get tailored layouts

Occupation Title
Human Resources Managers

1993	2003	Change	Rate
27	30	3	0.4%

Occupation Title
Human Resources Managers

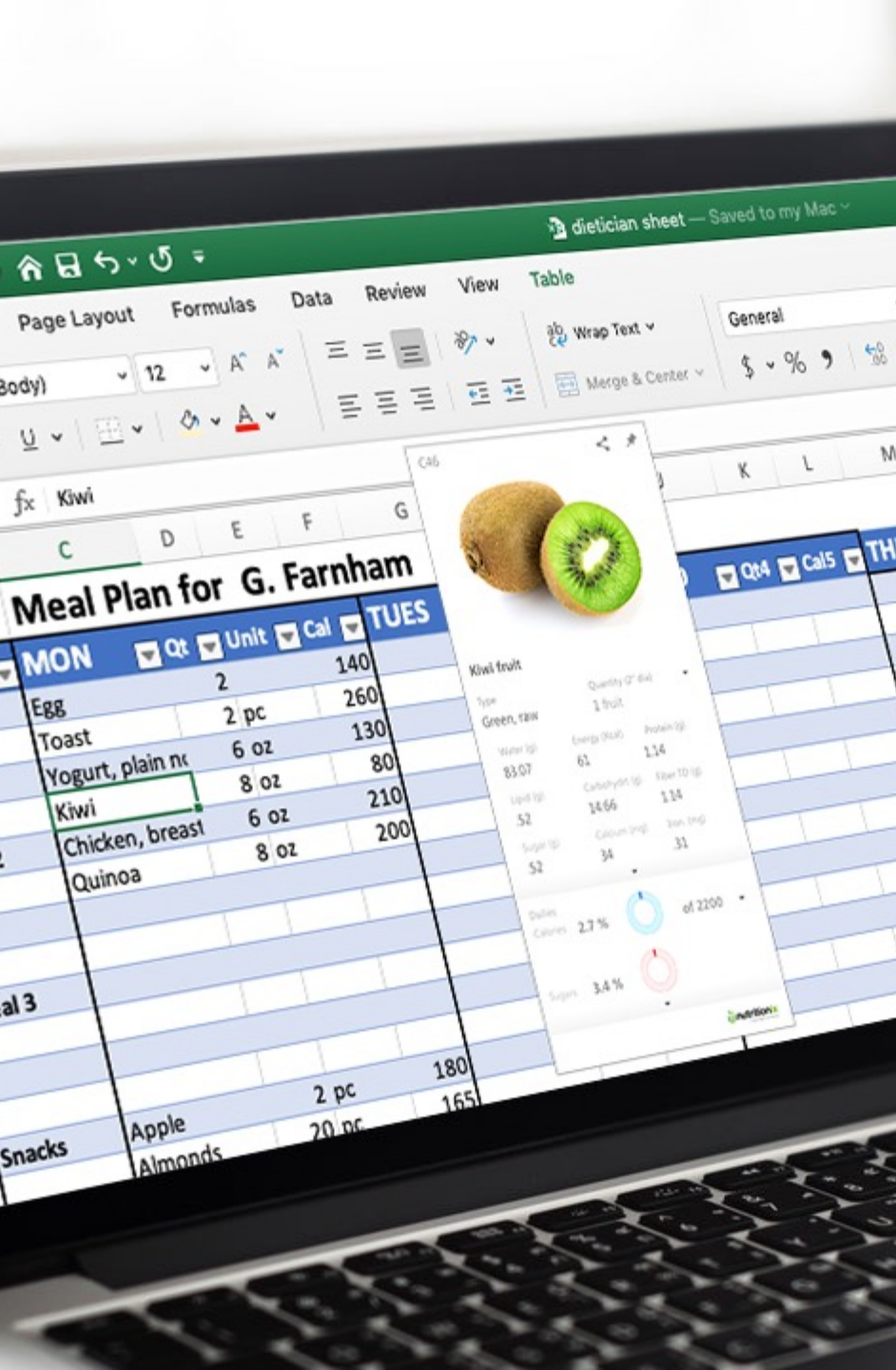
1993	2003	Change	Rate
27	30	3	0.4%
Goal	Average	Renewable	Cost/mo
.06%	4.56	No	\$22,032

stock
B & O Railroad (BORR)

yesterday	today
\$27,000	\$34,000
change	change
\$7,000	25.92%

company_name
Schmamazon

city	status	cat	category_list
Seattle	10	SELL	temp
category	employ-	funding-rounds	funding_total
4675	11-50	4	88.2M
first_funding	last_funding	email	
1-Nov-15	25-Apr-16	TBD	



North-star scenarios

Strongly typed, scenario specific data unlocks potential

The Broker

Go to cell

C46

Pin open

Photos fill frame

Photo gallery

Scannable, data prioritized schema

Integrated native Excel features (conditional formatting, data validation)

Currency picker

Visual flags

Charting with drill down

Added formula functionality as form entry dashboard

Expandable secondary details

Services integrated for quick looks and deep linking

Source and links

400 Broome Sreet, New York, NY

Status: Active Neighborhood: Soho

Initial	Current	Delta	
2,400,000	1,950,000	-450,000	\$USD

List date: 12/4/2019 Days on market: 61 days

1/10 -\$200k
Lowered 2 times in 61 days, at -18.7%

Sq ft: 3024 sq ft Price / sq ft: \$ 364

Est mortgage: **\$ 7726 /mo**

Comments: Perfectly located in a doorman condominium loft building on a quiet cobblestone block of Broome Street in SoHo's historic cast-iron district, this superb-

Map Plans

Sources: Redfin, City-Data, Current workbook (local)

Est monthly payment	
\$ 7726	
Mortgate (yrs)	Rate
30	3.8 %
Down pmt %	Down pmt \$
30 %	\$ 585,000
Prnc & interest	Down payment \$
\$ 6,419	\$ 1,343

The Nutritionist


A professional nutritionist can now more easily get food data into a spreadsheet and tailor diet plans for clients

They can better cap calories, model scenarios, predict outcomes, hyper-target specific nutrients, and pivot plans based on results

More, one could imagine being able to choose between data sources, from USDA database API's to paid and service backed sources

	A	B	C	D	E
1	WEEK 6		Meal Plan for G.		
2	Meals	MON	Qt	Unit	
3	Meal 1	Egg	2		
4		Toast	2	pc	
5		Yogurt, plain no	6	oz	
6		Kiwi	8	oz	
7	Meal 2	Chicken, breast	6	oz	
8		Quinoa	8	oz	
9					
10					
11	Meal 3				
12					
13					
14					
15	Snacks	Apple	2	pc	
16		Almonds	20	pc	
17					
18	TOTALS		8		1365
19					

C46



Kiwi fruit

Type: Green, raw


Quantity (2" dia): 1 fruit

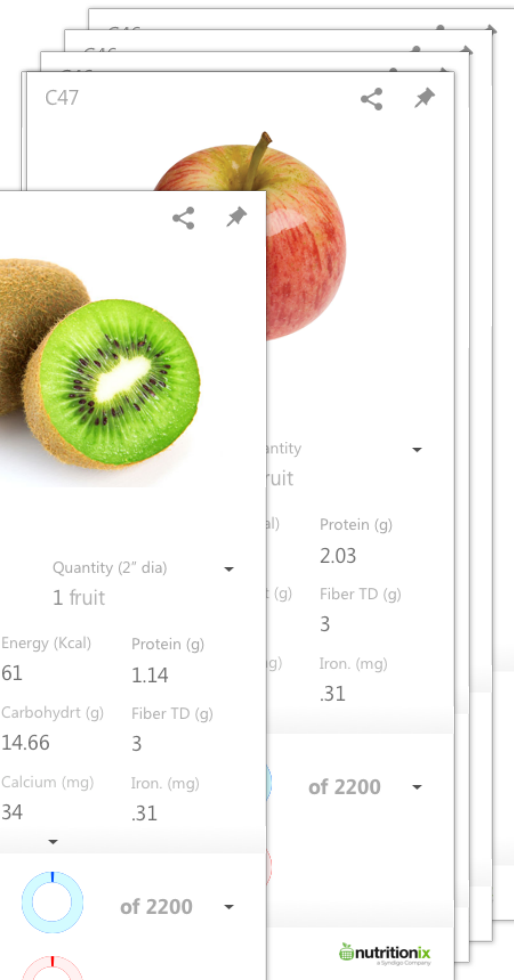
Water (g)	Energy (Kcal)	Protein (g)
83.07	61	1.14
Lipid (g)	Carbohydrate (g)	Fiber TD (g)
.52	14.66	3
Sugar (g)	Calcium (mg)	Iron (mg)
8.99	34	.31

Dailies

Calories 2.7% of 2200

Sugars 3.4%

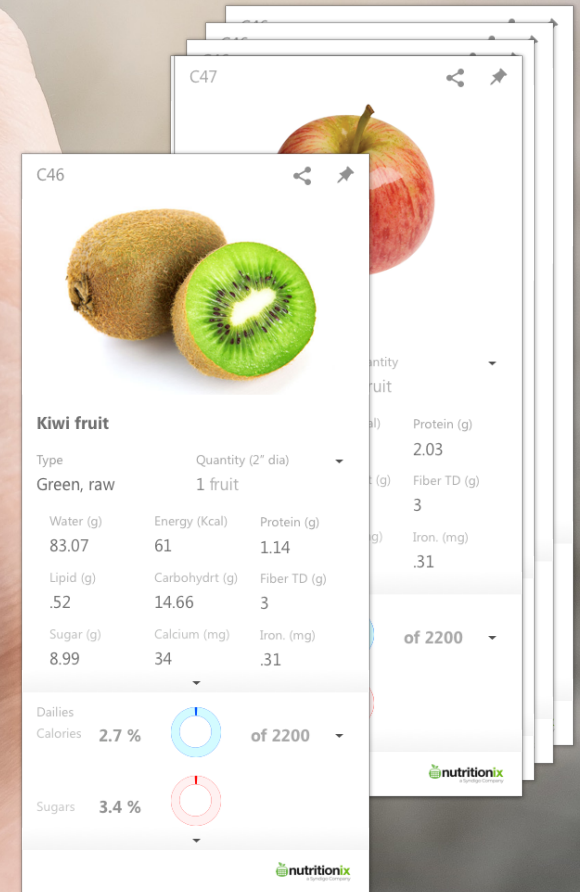
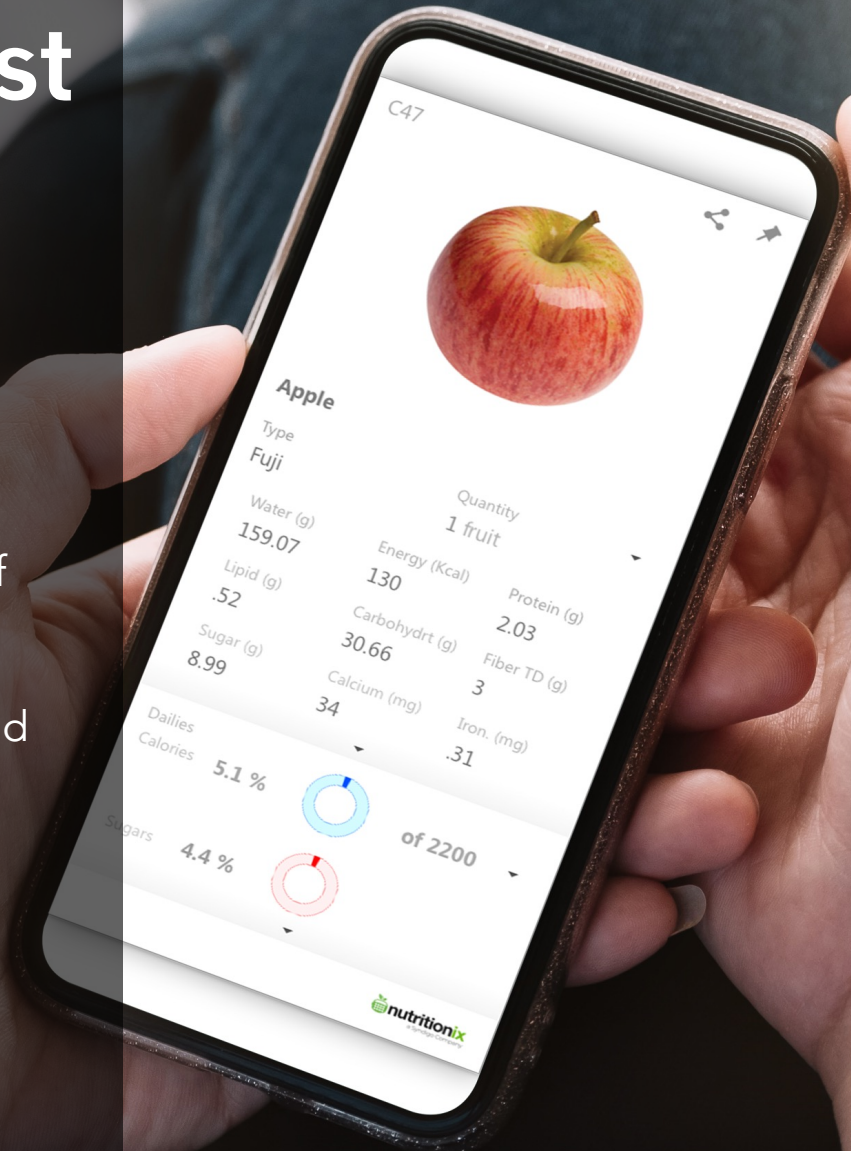




The Nutritionist

As visualized, Excel Data Types dovetail into mobile viewing and sharing experiences

From here, its easy to conceive of many more applications and integration in mobile, sharing, customization, data clustering, and service backed data scenarios





houses.xlsx - Excel

File Home Insert Page Layout Formulas Data Review View Developer Tell me what you want to do... Sani Radakovitz Share

Clipboard: Cut, Copy, Paste, Format Painter

Font: Segoe UI Symbol, 11, Bold, Italic, Underline, Text Color, Background Color

Alignment: Wrap Text, Merge & Center

Number: \$, %, #, 20

Conditional Formatting, Table, Cell Styles, Insert, Delete, Format, AutoSum, Fill, Sort & Filter, Find & Select, Clear, Editing

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															

Sheet2 (6) Sheet2 (5) Sheet2 (4) Sheet2 (3) Sheet2 (2) Sheet1 Sheet2

Search the web and Windows

Cell B5

4, Mandlik Rd, Colaba

Listing by Andrea Varkey

Residential

2 bed, 1 bath

1780 sq ft

View: Active

Microsoft

2:50 PM

AT&T

4, Mandlik Rd, Colaba, Mumbai

Listing	Current Fin	Status	On mark	Leads
	1.95 Cr	Active	8 days	4
	2.43 Cr	Sold	37 day	1
	1.85 Cr	Offered	20 day	5
	2.65 Cr	Sold	15 day	2



Today

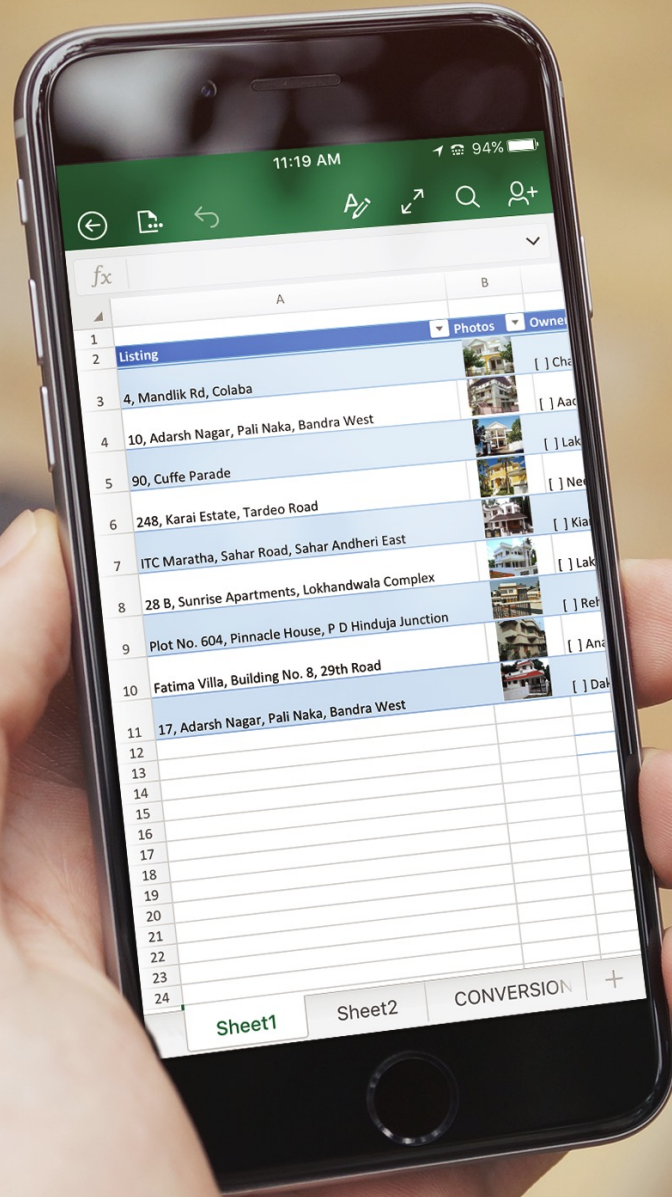
Hard to consume

Easy to make mistakes

Customers:

"I'll never be able to see and tap on the tiny squares".

[From consistent interviews, testing, and online feedback]



Tomorrow

Mobile first viewing and interactions

Scannable, data prioritized layout

Data connections



Mobile: grid

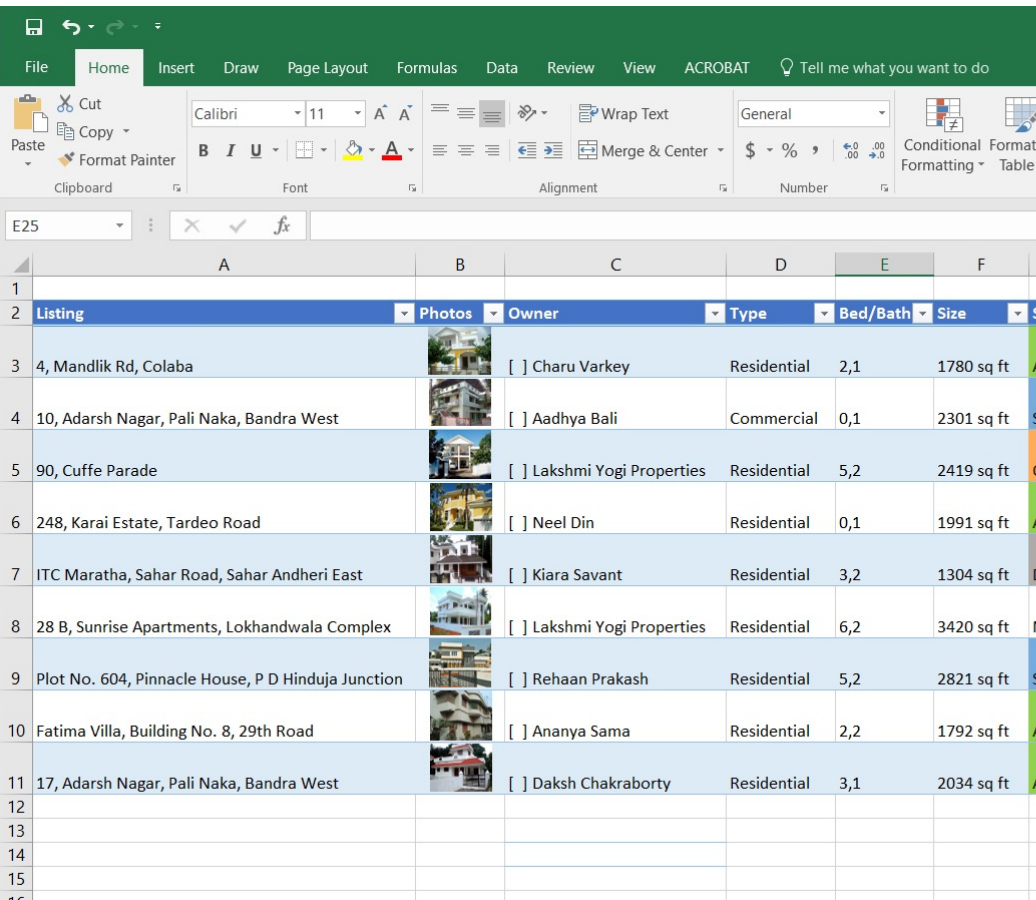
The screenshot shows the Microsoft Excel desktop interface. The ribbon includes File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, and ACROBAT. The Home tab is active, showing options for Cut, Copy, Paste, Format Painter, Clipboard, Font (Calibri, 11), Alignment, and Number. The table below is a real estate listings grid with columns for Listing, Photos, Owner, Type, Bed/Bath, and Size.

Listing	Photos	Owner	Type	Bed/Bath	Size	St
4, Mandlik Rd, Colaba		[] Charu Varkey	Residential	2,1	1780 sq ft	Ac
10, Adarsh Nagar, Pali Naka, Bandra West		[] Aadhya Bali	Commercial	0,1	2301 sq ft	So
90, Cuffe Parade		[] Lakshmi Yogi Properties	Residential	5,2	2419 sq ft	Of
248, Karai Estate, Tardeo Road		[] Neel Din	Residential	0,1	1991 sq ft	Ac
ITC Maratha, Sahar Road, Sahar Andheri East		[] Kiara Savant	Residential	3,2	1304 sq ft	De
28 B, Sunrise Apartments, Lokhandwala Complex		[] Lakshmi Yogi Properties	Residential	6,2	3420 sq ft	Ne
Plot No. 604, Pinnacle House, P D Hinduja Junction		[] Rehaan Prakash	Residential	5,2	2821 sq ft	So
Fatima Villa, Building No. 8, 29th Road		[] Ananya Sama	Residential	2,2	1792 sq ft	Ac
17, Adarsh Nagar, Pali Naka, Bandra West		[] Daksh Chakraborty	Residential	3,1	2034 sq ft	Ac

The screenshot shows a mobile application interface for "Real Estate Listings". The app has a green header with navigation icons (back, home, refresh, edit, expand, search, share) and a search bar with a function key (fx). The main content is a grid of listings with columns for Listing, Photos, and Owner. The grid is displayed in a mobile-optimized format with a grid overlay.

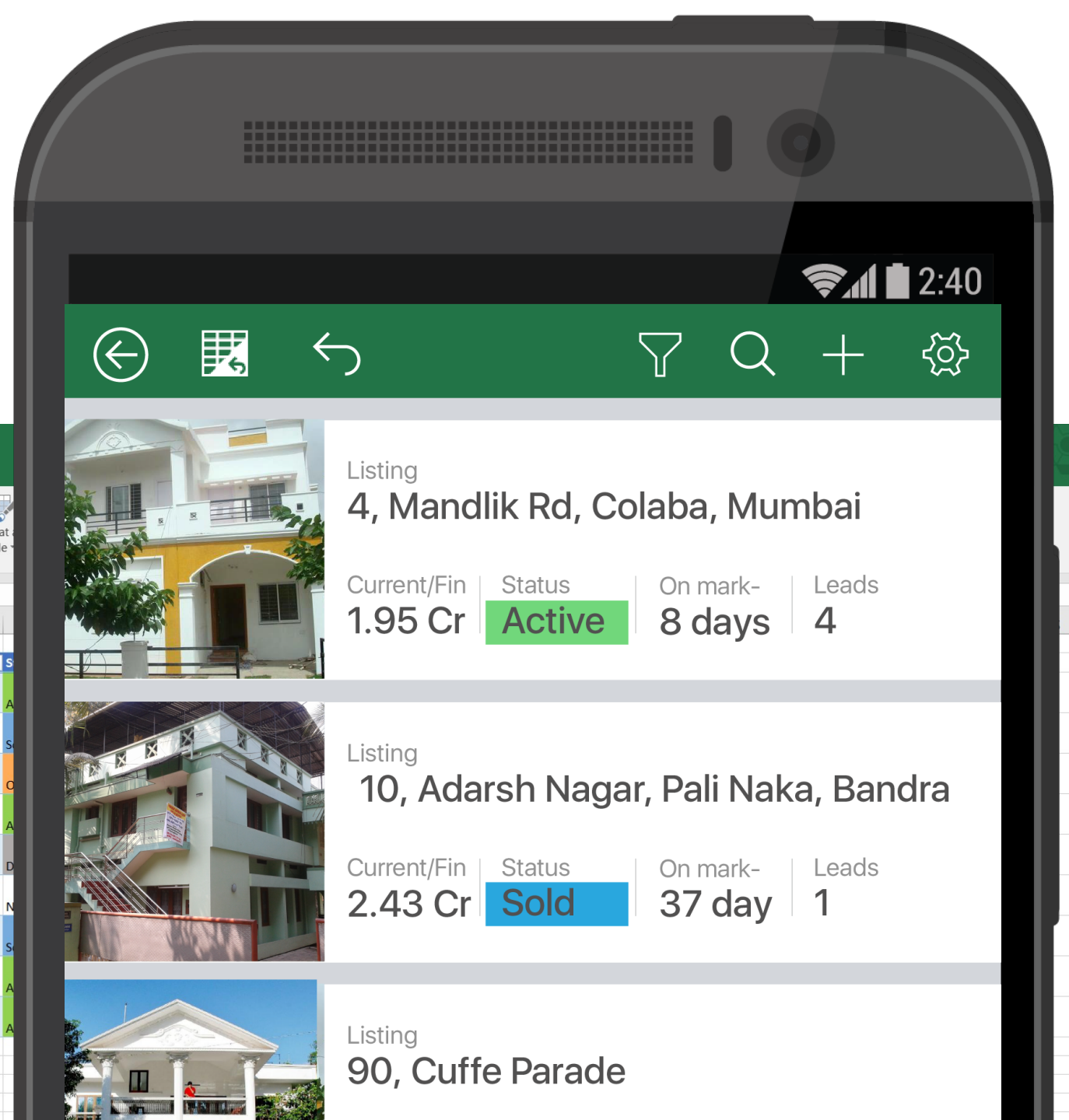
Listing	Photos	Owner
4, Mandlik Rd, Colaba		[] Charu
10, Adarsh Nagar, Pali Naka, Bandra West		[] Aadhy
90, Cuffe Parade		[] Laksh
248, Karai Estate, Tardeo Road		[] Neel
ITC Maratha, Sahar Road, Sahar Andheri East		[] Kiara

Mobile: deck



The screenshot shows the Microsoft Excel desktop interface with a spreadsheet of real estate listings. The ribbon includes File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, and ACROBAT. The Home tab is active, showing options for Cut, Copy, Paste, Format Painter, Clipboard, Font, Alignment, and Number. The spreadsheet has columns for Listing, Photos, Owner, Type, Bed/Bath, and Size. The data rows are as follows:

Listing	Photos	Owner	Type	Bed/Bath	Size
4, Mandlik Rd, Colaba		[] Charu Varkey	Residential	2,1	1780 sq ft
10, Adarsh Nagar, Pali Naka, Bandra West		[] Aadhya Bali	Commercial	0,1	2301 sq ft
90, Cuffe Parade		[] Lakshmi Yogi Properties	Residential	5,2	2419 sq ft
248, Karai Estate, Tardeo Road		[] Neel Din	Residential	0,1	1991 sq ft
ITC Maratha, Sahar Road, Sahar Andheri East		[] Kiara Savant	Residential	3,2	1304 sq ft
28 B, Sunrise Apartments, Lokhandwala Complex		[] Lakshmi Yogi Properties	Residential	6,2	3420 sq ft
Plot No. 604, Pinnacle House, P D Hinduja Junction		[] Rehaan Prakash	Residential	5,2	2821 sq ft
Fatima Villa, Building No. 8, 29th Road		[] Ananya Sama	Residential	2,2	1792 sq ft
17, Adarsh Nagar, Pali Naka, Bandra West		[] Daksh Chakraborty	Residential	3,1	2034 sq ft



Mobile: card

	A	B	C	D	E
1					
2	Listing	Photos	Owner	Type	Bed/Bath
3	4, Mandlik Rd, Colaba		[] Charu Varkey	Residential	2,1
4	10, Adarsh Nagar, Pali Naka, Bandra West		[] Aadhya Bali	Commercial	0,1
5	90, Cuffe Parade		[] Lakshmi Yogi Properties	Residential	5,2
6	248, Karai Estate, Tardeo Road		[] Neel Din	Residential	0,1
7	ITC Maratha, Sahar Road, Sahar Andheri East		[] Kiara Savant	Residential	3,2
8	28 B, Sunrise Apartments, Lokhandwala Complex		[] Lakshmi Yogi Properties	Residential	6,2
9	Plot No. 604, Pinnacle House, P D Hinduja Junction		[] Rehaan Prakash	Residential	5,2
10	Fatima Villa, Building No. 8, 29th Road		[] Ananya Sama	Residential	2,2
11	17, Adarsh Nagar, Pali Naka, Bandra West		[] Daksh Chakraborty	Residential	3,1

Listing
4, Mandlik Rd, Colaba

Owner
Charu Varkey

Type
Residential

Bed/Bath
2 bed, 1 bath

Size
1780 sq ft

Status
Active

Leads
4

Valuation
1.95 crore

Listed
1.95 crore

Price History
Firm

List date
22/3/16

Days on market
8 days

Area average on market
14 days

Inspected
15/2/16

Property details
Details

My net
585,000 INR

Notes

Listing
4, Mandlik Rd, Colaba

Owner
Charu Varkey

Type
Residential

Bed/Bath
2 bed, 1 bath

Size
1780 sq ft

Status
Active

Leads
4

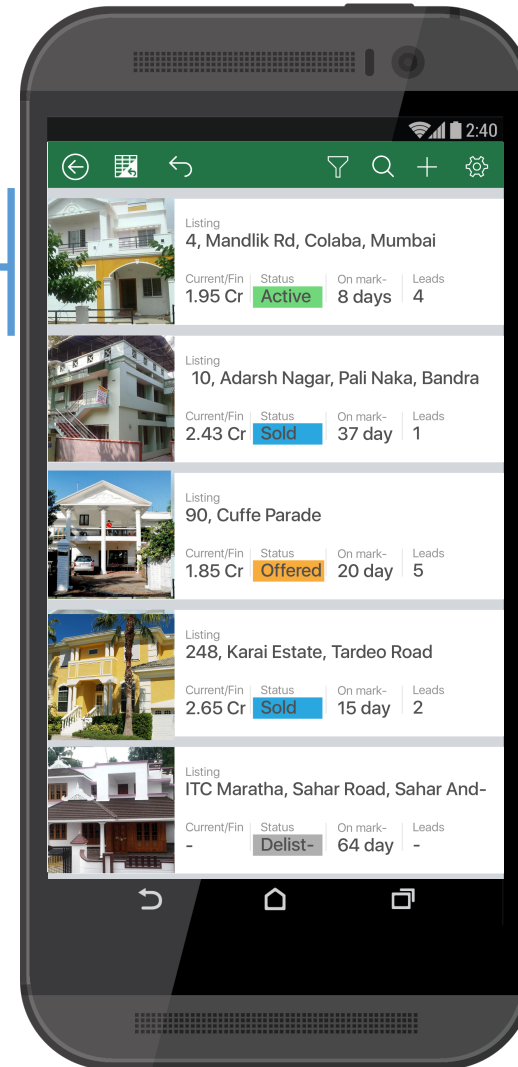
Mobile: grid

Two views of the same data

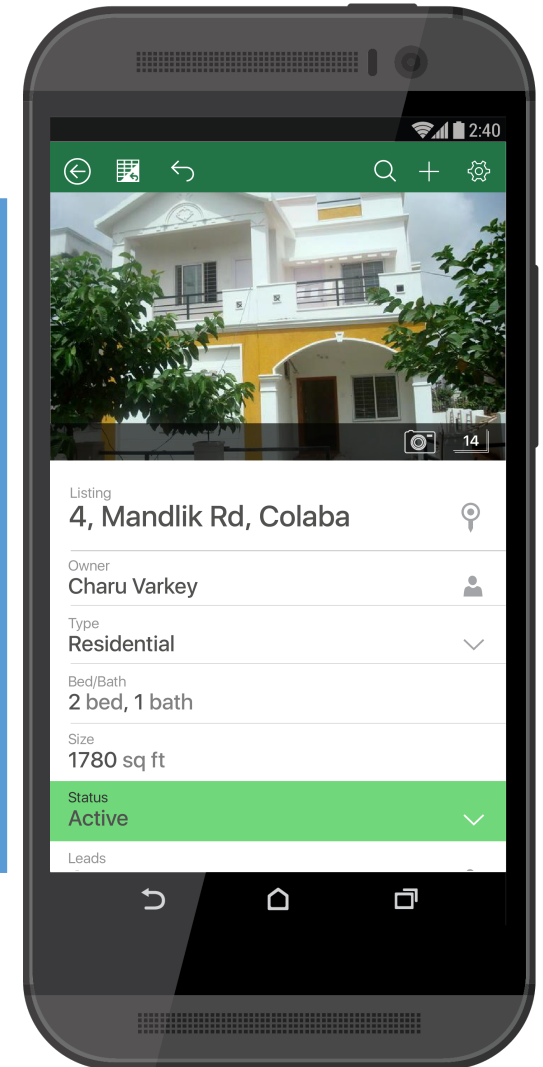
Grid



Deck



Card



A better view of data on the go

CityProjectionsV2 [Read-Only] [Compatibility Mode] - Excel

File Home Insert Page Layout Formulas Data Review View Tell me David Hu... Share

Clipboard Font Alignment Number Styles Cells Editing

L565

1993 - 2003 City Projections								
Employment ----- Annual -----								
Occupation Code	Occupational Title	1993	2003	10-year Change	Change Rate	Replacement Openings	Openings	
0	Total, All Occupations	37,328	48,886	11,558	1,156 2.3%	930	2,119	
5760	Executive and Managerial	1,792	2,211	420	42 1.3%	32	75	
2952	Financial managers	107	139	32	3 2.0%	2	5	
11283	Human resources managers	27	30	3	0 0.4%	1	1	
3253	Purchasing managers	17	14	-2	0 -0.4%	0	0	
7735	Advertising, marketing, promotions, public relations, and sales managers	77	103	25	3 1.3%	1	4	
10338	Administrative services managers	72	81	8	1 0.5%	1	2	
1659	Engineering, natural science, and computer and information systems managers	37	53	16	2 2.3%	1	2	
9640	Postmasters and mail superintendents	na	na	na	na na	na	na	
8729	Education administrators	15	16	1	0 0.0%	0	0	
3784	Medical and health services managers	28	54	26	3 3.7%	0	3	
9937	Property, real estate, and community association managers	na	na	na	na na	na	na	
7006	Industrial production managers	na	na	na	na na	na	na	
7527	Construction managers	5	6	1	0 0.1%	0	0	
9910	Mining and related managers	na	na	na	na na	na	na	
4893	Communication, transportation, and utilities operations managers	68	78	10	1 0.9%	1	2	
2399	Food service and lodging managers	295	322	27	3 0.7%	5	8	
	Government chief executives							

Sheet1

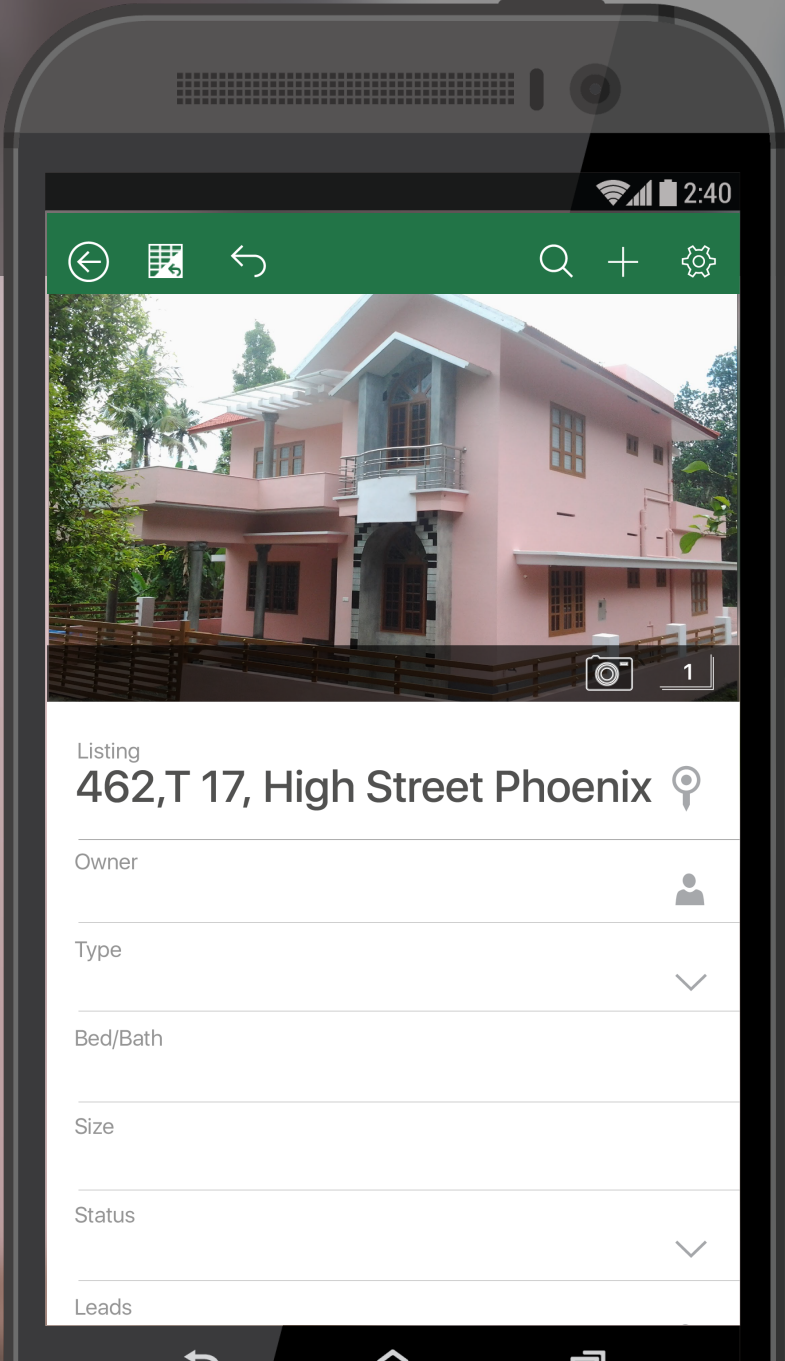
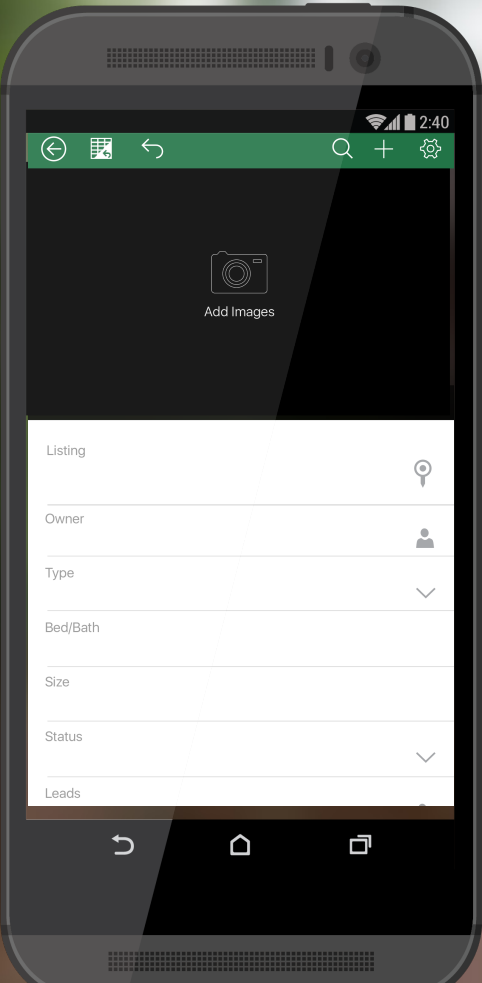
Ready 100%

AT&T 2:50 PM City Projections

Occupation Code 11283	Occupational Title Human Resources Managers	1993 27	2003 30	10 Year Change 3
Occupation Code 3253	Occupational Title Purchasing Managers	1993 17	2003 14	10 Year Change -2
Occupation Code 7735	Occupational Title Advertising, Marketing, Promot...	1993 77	2003 103	10 Year Change 25
Occupation Code 10338	Occupational Title Administrative Services Managers	1993 72	2003 81	10 Year Change 8
Occupation Code 1659	Occupational Title Engineering, Natural Science, a...	1993 37	2003 53	10 Year Change 16
Occupation Code	Occupational Title Postmasters and Mail Superinte...			

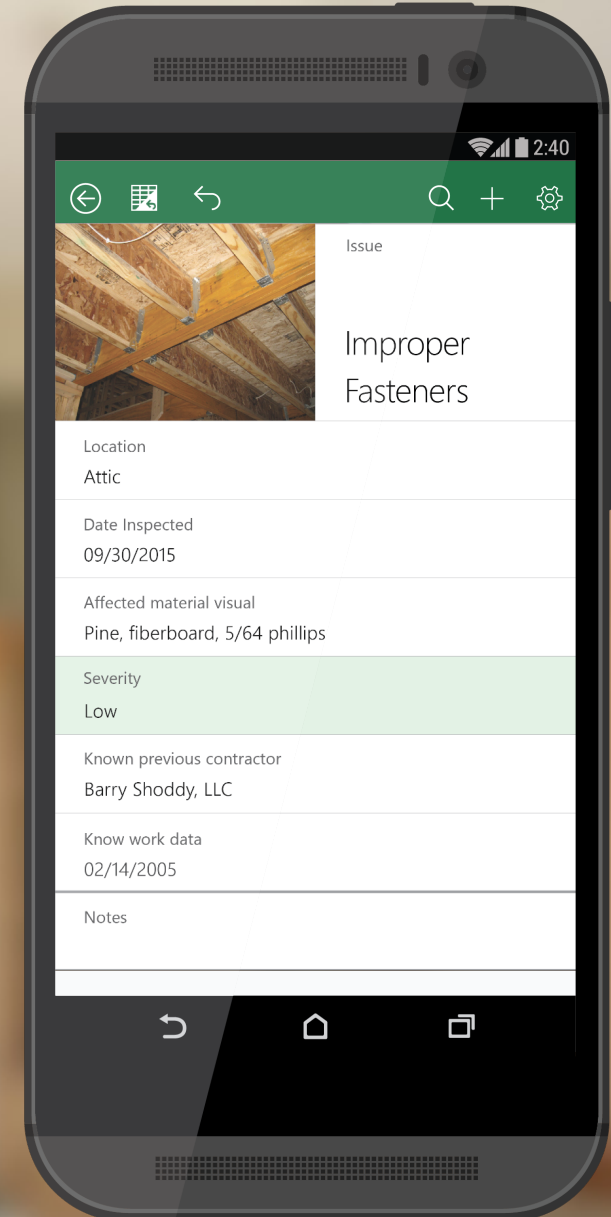
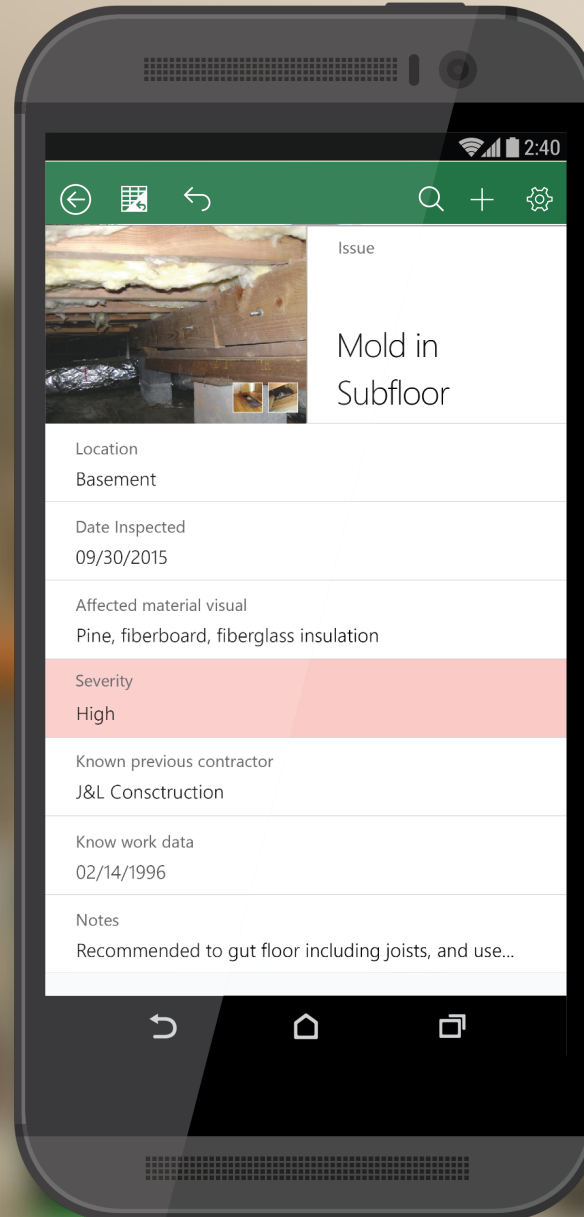
Advanced mobile

Photos directly into card



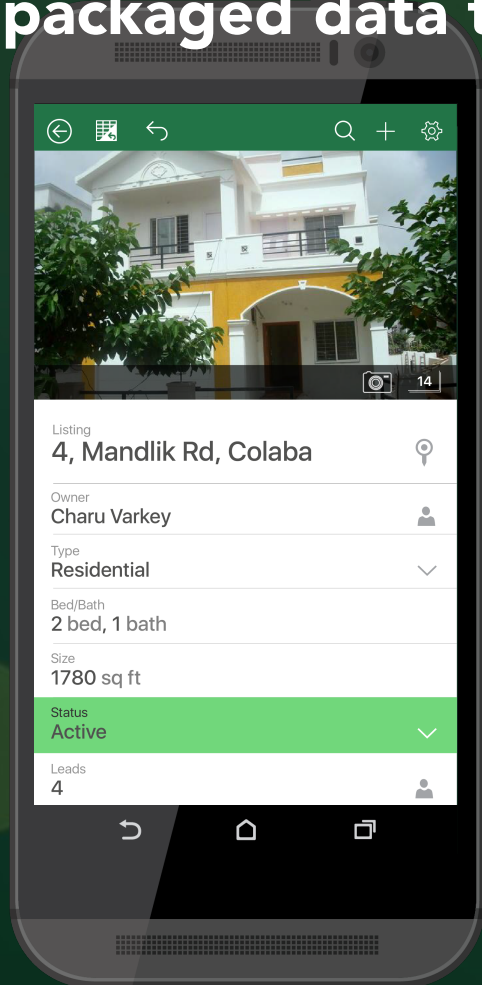
Scenario: Contractor

Utilizing Excel features
such as conditional
formatting

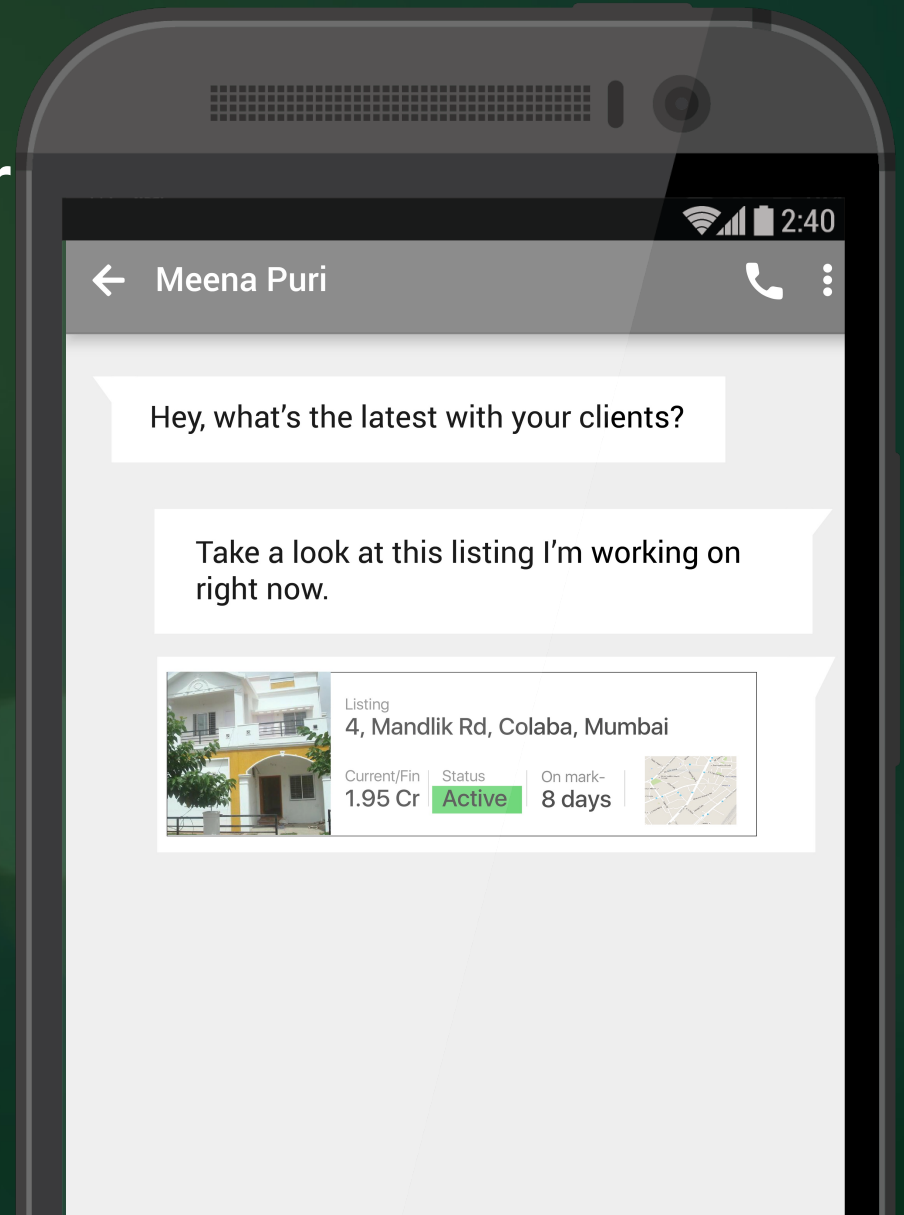


Scenario: Realtor

Sending a packaged data type to a customer



WhatsApp

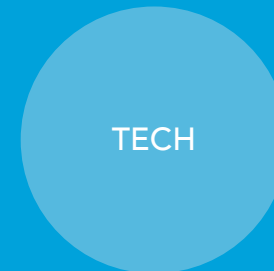
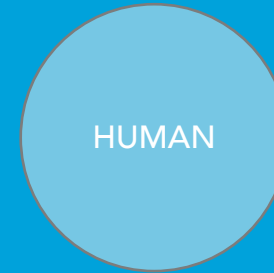


Metrics: new data types

Empowered users to access to data within Excel, enabling faster, better informed, data-based decisions

Part of the growing intelligent services for individual and enterprise customers as part of the Office ecosystem

Utilized Microsoft search and API technology and leveraged the connection of products to offer more than the sum of the parts



Metrics: my efforts

MPV & north-star designs laid the foundation for Excel's biggest innovation in a decade

Research here and abroad validated concepts and spurred innovative user-scenarios and business opportunities

Contributed to Microsoft securing numerous patents

Design efforts lauded by senior leadership at Microsoft

Metrics: press

“Microsoft wants to take Excel beyond numbers and text”

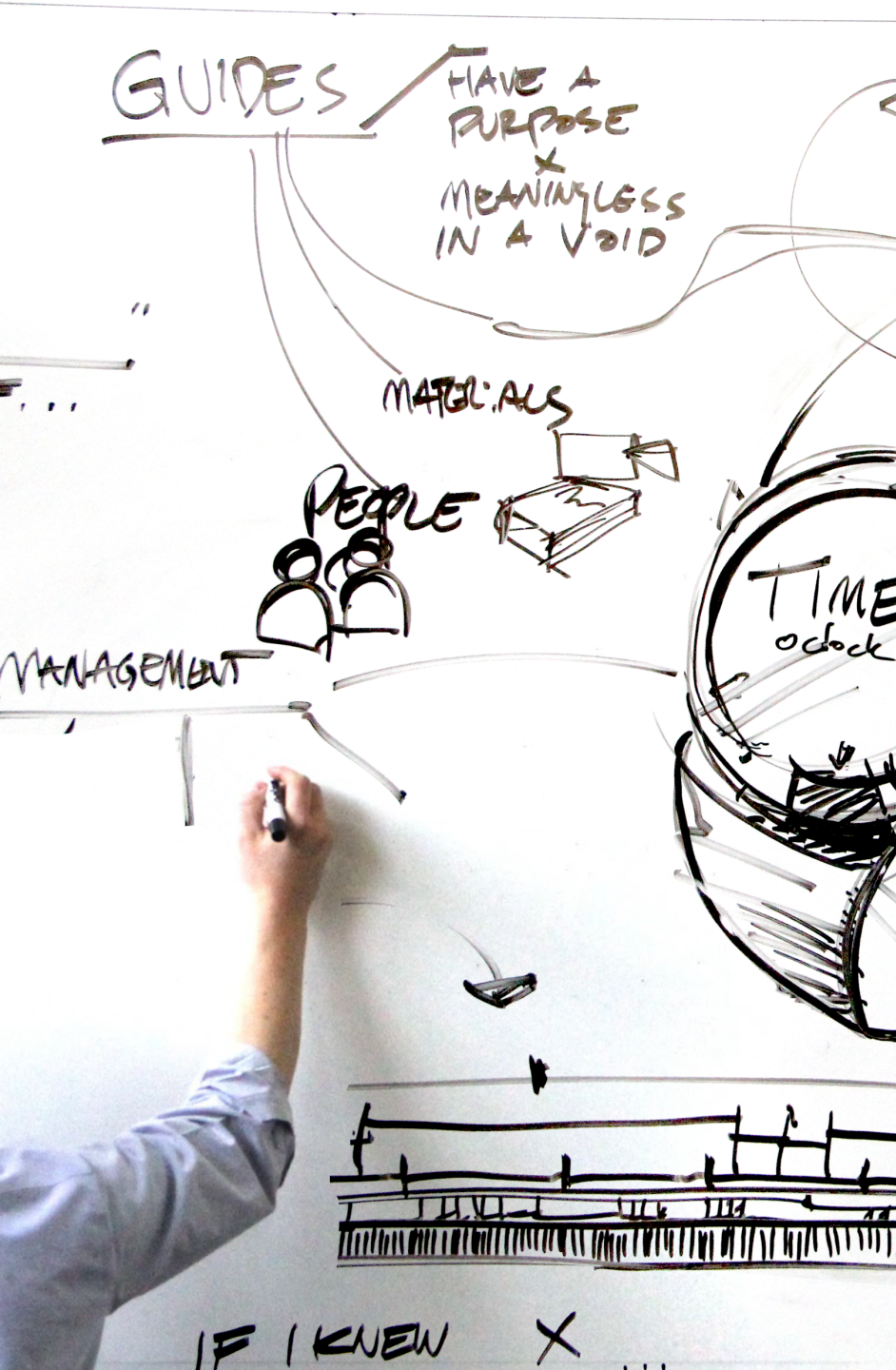
Microsoft Excel spreadsheets get some new data type options - ZDNet

“Microsoft Excel is getting a whole lot more customization”

Developers will soon be able to create custom data types in Excel. - TechRadar

“Microsoft opens up Excel to custom data types with images, arrays, and more”

Excel gets a new JavaScript API for developers. - The Verge



Alex Livingston

Product and Experience Design