

Design in the Real World

Principles of User Experience & User Interface Design

Erich Rainville | ESRI R&D Center, Washington DC | @TheBlueDog

esri

R&D Center
Washington DC





FARECARDS AND PASSES

CASH • CREDIT • DEBIT

IN SERVICE

FIND ONE-WAY FARECARD PRICES BELOW

FARE PERIOD	ONE-WAY FARECARD PRICE
1-2 WEEKS	\$1.50
3-4 WEEKS	\$2.00
5-6 WEEKS	\$2.50
7-8 WEEKS	\$3.00
9-10 WEEKS	\$3.50
11-12 WEEKS	\$4.00
13-14 WEEKS	\$4.50
15-16 WEEKS	\$5.00
17-18 WEEKS	\$5.50
19-20 WEEKS	\$6.00
21-22 WEEKS	\$6.50
23-24 WEEKS	\$7.00
25-26 WEEKS	\$7.50
27-28 WEEKS	\$8.00
29-30 WEEKS	\$8.50
31-32 WEEKS	\$9.00
33-34 WEEKS	\$9.50
35-36 WEEKS	\$10.00
37-38 WEEKS	\$10.50
39-40 WEEKS	\$11.00
41-42 WEEKS	\$11.50
43-44 WEEKS	\$12.00
45-46 WEEKS	\$12.50
47-48 WEEKS	\$13.00
49-50 WEEKS	\$13.50
51-52 WEEKS	\$14.00

1 SELECT PURCHASE

2 INSERT PAYMENT

3 TAKE PASS/FARECARDS

COIN RETURN

MAXIMUM CHANGE: \$5.00

CANCEL BILLS \$1.5, 10, 20

COINS 5, 10, 25c

AUDIO: PRESS+ TO ADD VALUE, PRESS- TO DEDUCT VALUE

TO PAY WITH BANK OR CREDIT CARD: ENTER PIN, TAKE RECEIPT

BILL RETURN

TO INCREASE VALUE: Touch \$5.00 to Target, Insert Payment, RE-TOUCH \$5.00 to Target

TRADE-IN FARECARD

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33-34 WEEKS	\$9.50
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COIN RETURN

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CANCEL BILLS \$1.5, 10, 20

COINS 5, 10, 25c

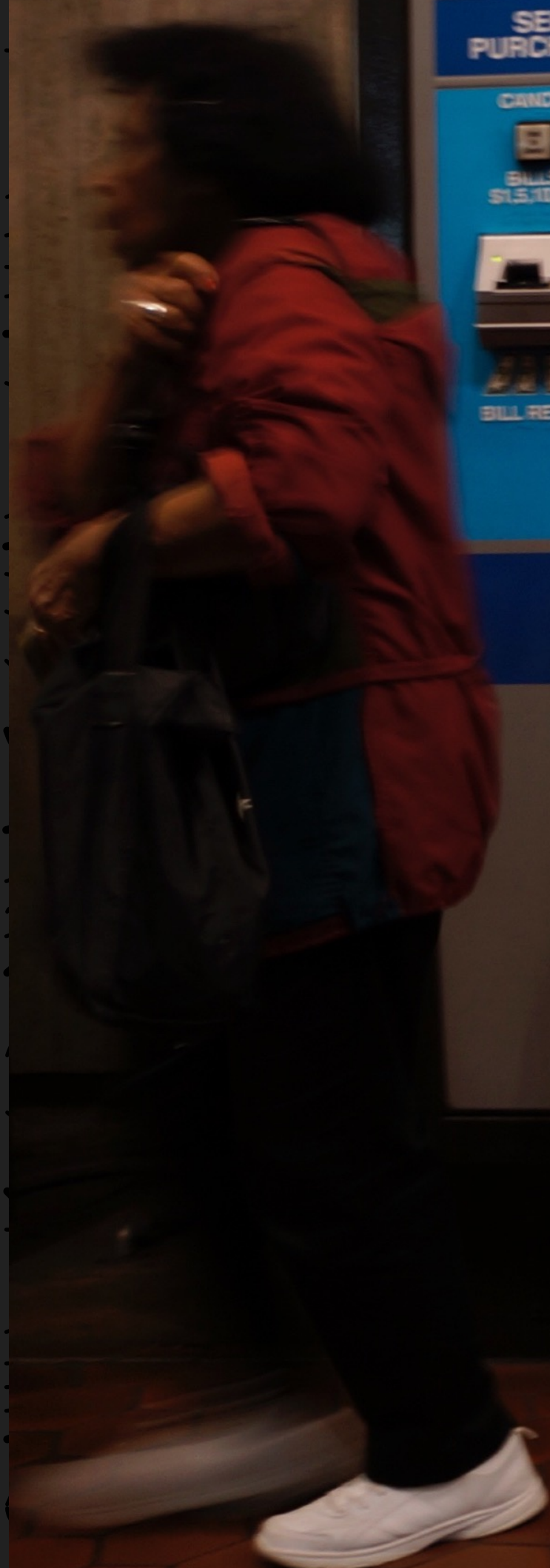
AUDIO: PRESS+ TO ADD VALUE, PRESS- TO DEDUCT VALUE

TO PAY WITH BANK OR CREDIT CARD: ENTER PIN, TAKE RECEIPT

BILL RETURN

TO INCREASE VALUE: Touch \$5.00 to Target, Insert Payment, RE-TOUCH \$5.00 to Target

TRADE-IN FARECARD



SELECT PURCHASE

1



SMARTTRIP ONLY

MAXIMUM CHANGE: \$5.00

CANCEL



BILLS
\$1, 5, 10, 20



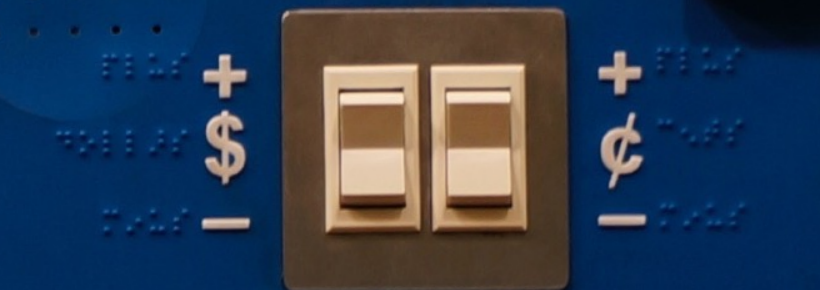
BILL RETURN

COINS
5, 10, 25¢



PUSH TO RETURN

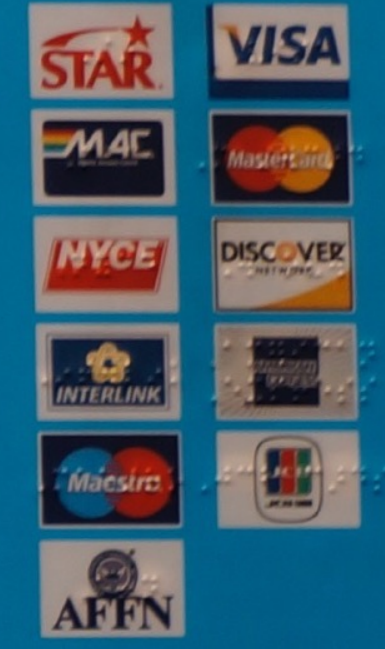
PRESS + TO ADD VALUE



PRESS - TO DEDUCT VALUE

AUDIO

TO PAY WITH BANK OR CREDIT CARD



ENTER PIN

TAKE RECEIPT

INSERT HERE

2

INSERT PAYMENT

SmartTrip TARGET

TO INCREASE **SmartTrip** VALUE

Touch **SmartTrip** to Target

Insert Payment

RE-TOUCH **SmartTrip** to Target



TRADE-IN FARECARD



3

TAKE PASS/FARECARDS



CARDS AND PASSES

The Metrorail system each customer must have a SmarTrip® card, farecard or pass

CASH • CREDIT • DEBIT

Machine provides change in coins up to \$10

FARE PERIODS **C PURCHASE FARE** Save \$1 each trip with a SmarTrip® card

Saturday	
7:00 a.m. – Midnight	Off-Peak
Midnight – 3:00 a.m.	Peak
Sunday	
7:00 a.m. – Midnight	Off-Peak
Federal Holidays	Off-Peak

Fares are based on entry time.

CASH, CREDIT AND DEBIT ACCEPTED AT THIS MACHINE TO:

- Add value to SmarTrip® card
- Add Rail Passes to SmarTrip® Card
 - 1-Day Pass Unlimited trips, valid all day \$14.50
 - 7-Day Short-Trip Pass Valid on trips up to \$3.50 for 7 consecutive days \$36.00
 - 7-Day Fast Pass Unlimited trips for 7 consecutive days \$59.25
 - 28-Day Pass Unlimited trips for 28 consecutive days \$237.00
- Purchase or add value to paper farecards
- Purchase a 1-Day Paper Rail Pass

RIDING METRO

- SmarTrip® cards, farecards and passes can be purchased at stations.
- SmarTrip® cards can also be purchased at wmata.com, Metro sales offices, regional transit stores and select retailers.

FARES

- Children**
 - Up to two children age 4 and younger ride free with a paying customer.
- Seniors/People With Disabilities**
 - Seniors 65 and up, and people with disabilities, who have a Metro ID or Medicare card and photo ID pay half the peak fare when using a senior/disabled farecard or senior/disabled SmarTrip® card. (Cards not available at stations. See station manager for details.)

PARKING AT METRO

- During weekdays, Metro daily parking facilities accept payment with a SmarTrip® card and major credit cards.
- Metered spaces at Metro parking lots accept coins only.
- During weekends and federal holidays, parking at Metro parking facilities is free, including metered spaces.

SMARTRIP ONLY

DAY FARECARD PRICES BELOW Save \$1 each trip with a SmarTrip® card

LINE	TRAVEL TIME	PEAK	OFF-PEAK	DESTINATION	LINE	TRAVEL TIME	PEAK	OFF-PEAK	DESTINATION	LINE	TRAVEL TIME	PEAK	OFF-PEAK	DESTINATION	LINE	TRAVEL TIME	PEAK	OFF-PEAK	DESTINATION
30	5.45	4.50	Crystal City	8	3.20	2.80	Greenbelt	44	6.30	4.60	NoMa-Gallaudet U	20	3.55	3.05	Twinbrook	41	6.40	4.60	
23	4.00	3.35	Deanwood	27	4.85	4.00	Greensboro	24	5.30	4.40	Pentagon	5	3.15	2.75	Tysons Corner	22	5.10	4.15	
17	3.15	2.75	Dunn Loring	19	5.00	4.15	Grosvenor-Strathmore	35	5.70	4.60	Pentagon City	6	3.15	2.75	U Street	23	3.30	2.85	
2	3.15	2.75	Dupont Circle	16	3.15	2.75	Huntington	25	4.70	3.95	Potomac Ave	20	3.90	3.30	Union Station	18	3.40	2.95	
8	3.15	2.75	East Falls Church	12	3.75	3.20	Judiciary Sq	16	3.20	2.80	Prince George's Plaza	38	5.10	4.15	Van Dorn Street	22	5.15	4.15	
24	4.75	3.95	Eastern Market	18	3.70	3.15	King St-Old Town	17	4.40	3.70	Rhode Island Ave	22	3.85	3.25	Van Ness-UDC	23	3.75	3.20	
30	4.75	3.95	Eisenhower Ave	24	4.60	3.80	Landover	32	5.65	4.60	Rockville	44	6.90	4.60	Vienna	22	5.70	4.60	
15	4.25	3.35	Farragut North	14	3.15	2.75	Largo Town Center	36	6.25	4.60	Ronald Reagan Washington National Airport	10	3.40	2.90	Virginia Sq-GMU	6	3.15	2.75	
36	5.65	4.60	Farragut West	5	3.15	2.75	L'Enfant Plaza	12	3.25	2.85	Rosslyn	0	3.15	2.75	Waterfront	19	3.45	3.00	
24	4.05	3.35	Federal Center SW	14	3.35	2.90	McLean	20	4.90	4.10	Shady Grove	48	6.90	4.60	West Falls Church	15	4.35	3.35	
27	5.15	4.15	Federal Triangle	8	3.15	2.75	McPherson Sq	6	3.15	2.75	Shaw-Howard U	21	3.25	2.85	West Hyattsville	35	4.75	3.95	
16	3.55	3.05	Foggy Bottom-GWU	3	3.15	2.75	Medlot Center	32	5.05	4.15	Silver Spring	33	5.05	4.15	Wheaton	39	5.90	4.60	
29	5.15	4.15	Forest Glen	36	5.50	4.50	Metro Center	7	3.15	2.75	Smithsonian	10	3.15	2.75	White Flint	38	6.10	4.60	
5	3.15	2.75	Fort Totten	27	4.30	3.35	Minnesota Ave	25	4.60	3.85	Southern Ave	28	4.65	3.85	Wiehle-Reston East	34	6.90	4.60	
21	3.60	3.10	Franconia-Springfield	28	6.10	4.60	Morgan Boulevard	33	5.90	4.60	Spring Hill	26	5.50	4.50	Woodley Park	18	3.40	2.95	
41	5.60	4.60	Friendship Heights	27	4.25	3.35	Mt Vernon Sq	20	3.15	2.75	Stadium-Armory	21	4.10	3.35					
25	3.50	3.05	Gallery Place	14	3.15	2.75	Navy Yard-Ballpark	21	3.65	3.15	Suitland	33	5.25	4.15					
26	4.35	3.35	Georgia Ave-Petworth	28	3.75	3.20	Naylor Road	31	4.85	4.05	Takoma	30	4.70	3.95					
3	3.15	2.75	Glenmont	43	6.40	4.60	New Carrollton	35	6.05	4.60	Tenleytown-AU	25	4.00	3.35					

For more information ask a Station Manager or visit wmata.com

SELECT
CHARGE

1

A
B
C

SMARTRIP ONLY

MAXIMUM CHANGE: \$5.00

CANCEL

COINS
5, 10, 25¢

AUDIO

PRESS +
TO ADD VALUE

Push

TO PAY WITH BANK OR CREDIT CARD

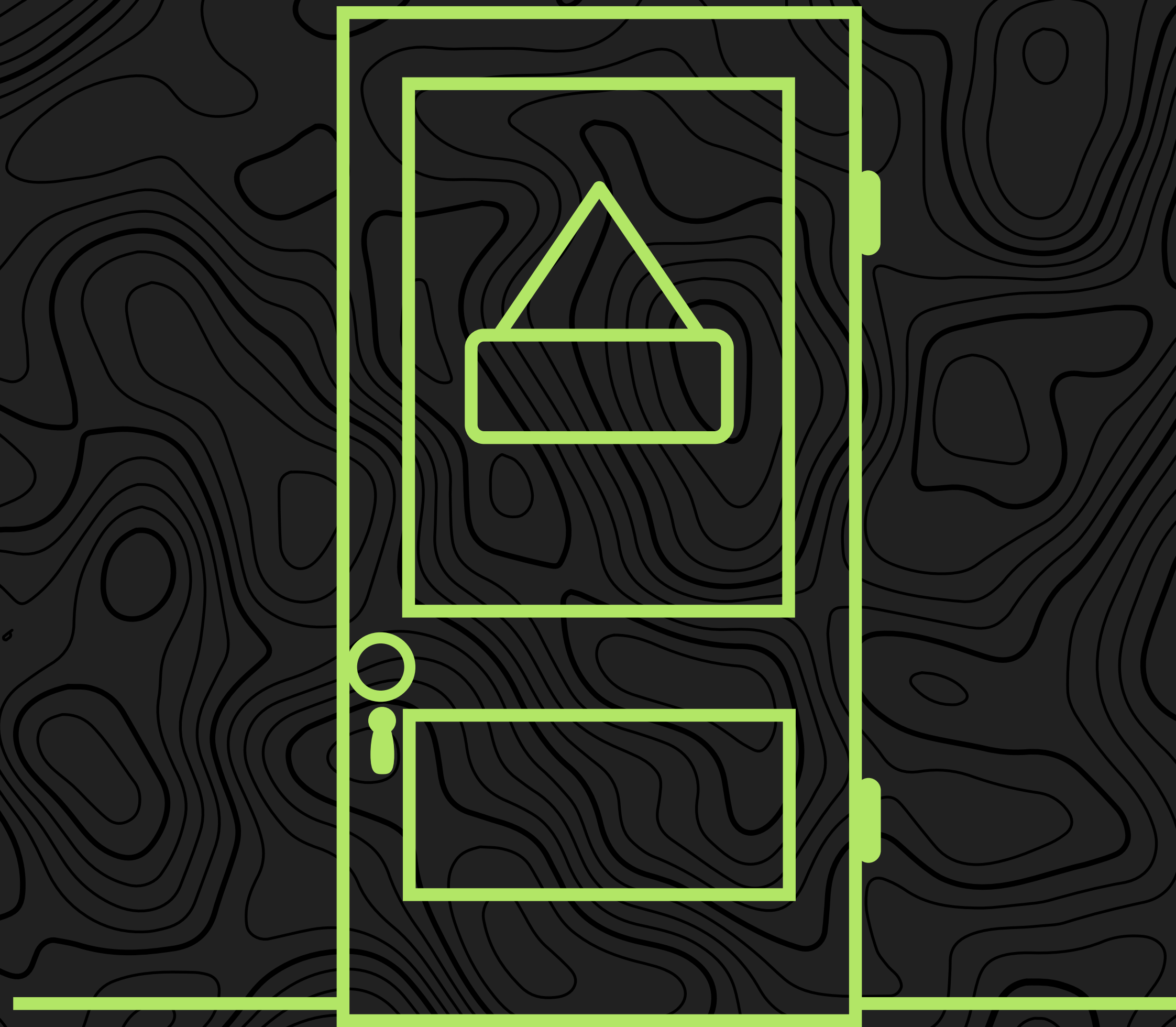
“UX helps the user decide on whether or not they will act.

UI gives the user the means in which to act”

– Chris Feix (@chrisfeix)



UI is...



- Don Norman, *The Design of Everyday Things*

Discoverability

UI PRINCIPLE

Hierarchy

UI PRINCIPLE

Color

UI PRINCIPLE

Typography

UI PRINCIPLE

Patterns

UI PRINCIPLE

Bloomberg Terminal

CASE STUDY: Bloomberg Terminal

File Launch Find Tools Reveal Help

Hit (1,2 or 3) on for more indices

World Equity Indices

Base Currency: Ticker:

Index	Last	% Change	Volume	Last Trade Information	Percent Change
30 Americas 10 News					
1 Dow Jones Indus. Avg	12833.09	+117.78			-3.20
2 S&P 500 INDEX	1420.33	+11.30			-3.27
3 NASDAQ COMPOSITE INDEX	2488.52	+13.97			-6.17
4 S&P/TSX COMPOSITE INDEX	33642.66	+62.71			-1.38
5 MEXICO BOLSA INDEX	29069.56	+667.65			-1.58
6 BRAZIL BOVESPA STOCK IND	63535.48	+841.70			-0.58
20 Europe/Africa/Middle East 10 News					
10 DJ EURO STOCK 50 € Ft	4237.62	-30.70			-3.68
11 FTSE 100 INDEX	6222.70	-50.00			-3.63
12 CAC 40 INDEX	3400.43	-34.99			-3.81
13 DAX INDEX	7733.09	-69.62			-4.39
14 IBEX 35 INDEX	54524.00	-79.50			-4.34
15 S&P/MIB INDEX	37292.00	-38.00			-3.27
16 AMSTERDAM EXCHANGES IND	484.30	-7.64			-6.34
17 OHX STOCKHOLM 20 INDEX	989.70	-13.99			-6.48
18 THAISET MARKET INDEX	8220.78	-49.60			-2.28
20 Asia/Pacific 10 News					
19 NIKKEI 225	14388.11	-211.65			-6.01
20 HANG SENG INDEX	27230.00	-384.99			-2.09
21 S&P/ASX 200 INDEX	6092.10	+13.40			-3.91

17:58	FED FUNDS	US T-BILL YIELD PRICE	EURODEP	REVERSE	REPC
BID/ASK	4 1/4	4 1/4	4M	3.27	-0.02
LSTOPEN	4 1/4	4 1/4	3M	3.21	-0.02
HIGH/LOW	4 1/4	4 1/4	6M	3.20	-0.05

DJIA	12883.09	+117.78	S&P 500 FUT	1421.00	+9.40	COMP	2488.52	+13.97
10yr Note Fut <td>114.08</td> <td>-0.21</td> <td>SWAP RATES <td>Key Rates <td>Prime</td> <td>7.25</td> </td></td>	114.08	-0.21	SWAP RATES <td>Key Rates <td>Prime</td> <td>7.25</td> </td>	Key Rates <td>Prime</td> <td>7.25</td>	Prime	7.25		
10yr Note Put <td>114.08</td> <td>-0.21</td> <td>5Y <td>3.621</td> <td>Prime</td> <td>6.00</td> </td>	114.08	-0.21	5Y <td>3.621</td> <td>Prime</td> <td>6.00</td>	3.621	Prime	6.00		
10yr Note Call <td>114.08</td> <td>-0.21</td> <td>10Y <td>4.600</td> <td>Prime</td> <td>4.25</td> </td>	114.08	-0.21	10Y <td>4.600</td> <td>Prime</td> <td>4.25</td>	4.600	Prime	4.25		

US BONDS YLD/BID/ASK/CHG	DEALER CP	90D EURO FUT	FUNDS PU	LIBOR FIX								
3% 12/31/09	2.892	101-01+	101-02	+01+	180	4.290	MAR	96.24	JAN	96.88	1W	4.20000
3% 12/31/12	3.183	102-04+	102-05	-02	300	4.240	JUN	96.88	FEB	96.32	3M	4.21928
4% 11/15/17	3.884	102-00	102-01	-18+	600	4.270	SEP	96.88	MAR	96.37	6M	4.20200
5 05/15/27	4.480	108-25+	108-20+	-1-23+	900	4.370	DEC	96.84	APR	96.53	1Y	4.20200
SPOT FOREX	CRB	363.89	-0.68	1800	4.090	JUN	96.83	JUN	96.82	1Y	3.81000	

JPY	109.4680	EUR	1.4808	GBP	1.9814	CHF	1.5032	MXN	10.3278	CAD	1.4190
10yr Note Put <td>114.08</td> <td>-0.21</td> <td>SWAP RATES <td>Key Rates <td>Prime</td> <td>7.25</td> </td></td>	114.08	-0.21	SWAP RATES <td>Key Rates <td>Prime</td> <td>7.25</td> </td>	Key Rates <td>Prime</td> <td>7.25</td>	Prime	7.25					
10yr Note Call <td>114.08</td> <td>-0.21</td> <td>5Y <td>3.621</td> <td>Prime</td> <td>6.00</td> </td>	114.08	-0.21	5Y <td>3.621</td> <td>Prime</td> <td>6.00</td>	3.621	Prime	6.00					
10yr Note Put <td>114.08</td> <td>-0.21</td> <td>10Y <td>4.600</td> <td>Prime</td> <td>4.25</td> </td>	114.08	-0.21	10Y <td>4.600</td> <td>Prime</td> <td>4.25</td>	4.600	Prime	4.25					

Click the button below to see LIVE schedule

See LIVE SCHEDULE

米アメックス：10-12月間に特別費用4.4億ドル計上へ
 Valor (BR): American Express reconhecera despesa de US\$ 440
 Canadian Bus: Housing slump and decaying credit quality will
 AmComp, American Express, United Rentals: U.S. Equity Preview
 Morningstar: American Express To Take 4Q Charge Of \$275 Million
 Morningstar: UPDATE: American Express To Take \$275 Million
 Capital.fr: American Express avertit à son tour sur ses

American Express Co

FINANCE-CREDIT CARD

American Express Company, through its subsidiaries, provides travel-related, financial advisory, and international banking services around the world. The Company's products include the American Express Card, the Optima Card, and American Express Travelers Cheque.

19 Q - NTC 22.54 Q - NTC 22.54 Q - MSFT 34.33 Q - MSFT 34.33 Q - NTC 5s 22.47 Q - NTC 2s 22.46 Q



CONDÉ NAST





Bloomberg

News

Breaking News

06:11 06:08 **Supreme Court to hear on gay rights**
The Supreme Court will hear arguments on whether the federal government can sue to force states to recognize same-sex marriages.

06:11 06:08 **Philips Medical Lapses To A High**
Philips Medical Lapses To A High Point In The First Quarter, As The Company Reports Strong Growth In Its Medical Devices Division.

06:11 06:08 **U.S. House Approves Bill To Regulate**
The U.S. House of Representatives has passed a bill to regulate the use of personal data by companies, a move that could limit the amount of information that firms can collect about consumers.

Audio / Video Reports



Market Summary

DOW



Equity Indexes

Index	Value	Change
DOW	12,424.20	+187.86
S&P 500	1,215.12	+15.34
NASDAQ	2,875.45	+25.67

U.S. After Hours Most Active Stocks

Symbol	Price	Change
IBM	135.20	+1.50
MSFT	31.50	+0.20
GOOG	285.00	+3.00

Commodity Futures

Commodity	Price	Change
Oil	78.50	+0.50
Gold	1,200.00	+10.00
Wheat	5.50	+0.05

Industry Group Returns (%) Change

Industry	Return	Change
Technology	1.2%	+0.1%
Healthcare	0.8%	+0.05%
Financial	0.5%	+0.02%

Sector Summary

Sector

Sector	Value	Change
Technology	1.2%	+0.1%
Healthcare	0.8%	+0.05%
Financial	0.5%	+0.02%

Top Stocks

Symbol	Price	Change
IBM	135.20	+1.50
MSFT	31.50	+0.20
GOOG	285.00	+3.00

Company

Description

Starbucks is a multinational coffeehouse chain. The company operates in the United States, Canada, and other countries. It is known for its high-quality coffee and customer service.

Performance



Contacts

Name	Phone	Email
John Doe	123-456-7890	john.doe@starbucks.com
Jane Smith	987-654-3210	jane.smith@starbucks.com

Recent News

Starbucks reports strong earnings growth in the first quarter, driven by increased sales in its core markets. The company also announced a new expansion plan for the next year.

Equities Details

Historical Price

Date	Price
2008-01-01	25.00
2008-06-01	27.50
2008-11-01	30.00

Relative Performance

Index	Value	Change
Starbucks	27.50	+2.50
S&P 500	1,215.12	+15.34

Fundamentals and Earnings Analysis

Metric	Value
Revenue	\$1.2B
Net Income	\$0.2B
EPS	\$1.50







UX is...



Simple

UX PRINCIPLE

Clarity

UX PRINCIPLE

Empathy

UX PRINCIPLE

Holistic

UX PRINCIPLE

Invisible

UX PRINCIPLE

Clear Rx / Pill Pack

CASE STUDY: Target Rx / Pill Pack



PHARMACY
OPEN PUSH WITH PALM & TURN

DO NOT OPERATE VEHICLES OR MACHINERY WHILE TAKING THIS MEDICATION
SWALLOW WHOLE
TAKE WITH FOOD
D: 07/06/10
W: 06/08/07
QTY: 30
USE BY: 07/05/08

BEFORE USING SALT SUBSTITUTES, CHECK WITH YOUR PHYSICIAN OR PHARMACIST.
CAUTION THIS DRUG ALONE OR WITH ALCOHOL MAY IMPAIR YOUR ABILITY TO DRIVE
YOU SHOULD AVOID PROLONGED OR EXCESSIVE EXPOSURE TO DIRECT AND/OR ARTIFICIAL SUNLIGHT WHILE TAKING THIS MEDICATION

PHARMACY
MONTON
DEA: B57718
RPH: TMD
W: 10/10/07
D: 07/06/10
WILLIAMSTOWNE, NJ 08094
MOUTH DAILY
(609) 567-1234

PHARMACY
SOUTH WHITEHORSE PHARMACY
MONTON NJ 08094
Rx: 042177
1/2 TABLET IN PM
TABLET IN AM
Dr: CAM
No Refills

PHARMACY
SOUTH WHITEHORSE PHARMACY
MONTON NJ 08094
Rx: 042177
1/2 TABLET IN PM
TABLET IN AM
Dr: CAM
No Refills

PHARMACY
MONTON
DEA: B57718
RPH: TMD
W: 10/10/07
D: 07/06/10
WILLIAMSTOWNE, NJ 08094
MOUTH DAILY
(609) 567-1234



Target A Guest

AMOXICILLIN 500 MG

Capsule Generic for: Amoxil

Take one capsule by mouth three times daily for 10 days.

qty: 30

refills: No

Dr. C Wilson

disp: 10/04/07

NDC: 63304-0655-01 mfr: Ranbaxy Ph

(877)798-2743 ^R ^X 6638693-1375

TARGET PHARMACY
900 Nicollet Mall
Minneapolis, MN 55403

Target A Guest

AMOXICILLIN

Capsule

Take one capsule by mouth three times daily for 10 days.

qty: 30

refills: No

Dr. C Wilson

disp: 10/04/07

NDC: 63304-0655-01

(877)798-2743

TARGET PHARMACY
900 Nicollet Mall
Minneapolis, MN 55403

st

AMOXICILLIN 500 MG

Generic for: Amoxil

Take one capsule by mouth three times daily for 10 days.

mfr: Ranbaxy Ph

6638693-1375

TARGET PHARMACY
900 Nicollet Mall
Minneapolis, MN 55403

PATIENT INFO CARD

PATIENT INFO CARD



**GIS is a powerful tool,
with a powerful language**

**to tell a powerful story,
and you'll take people on a journey.**

Design in the Real World

goo.gl/cxonu3

slideshare.net/TheBlueDog

Erich Rainville | ESRI R&D Center, Washington DC | @TheBlueDog