

Web Development with RPG and CGIDEV2

Presentation for The Omni User Group
By Bob Dunn and Doug Bridwell

Introductions

- ▶ Bob Dunn – Dunn–Rite Services
Consultant / Contract Programmer
- ▶ Doug Bridwell – The Morey Corporation
Application Development Manager
Omni Seminar Director

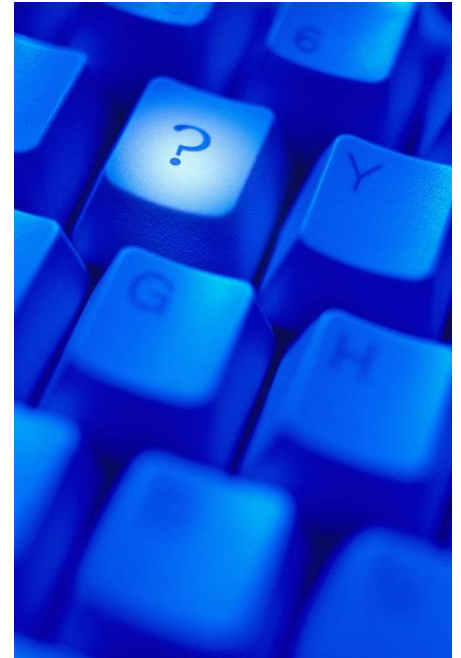
Technology of the Past



United Savings of America was a Chicago area bank with 30 branch offices running on a System/38

- 16 MB RAM
- 3.7 GB Disk Storage
- Analog Phone Lines for data communications
- That's less computing power, memory, and storage than an iPhone
- Technology has come a long way
- We are still using some of those same programs and technology today.

What Is CGIDEV2?



- ▶ Middleware
- ▶ In the form of a Service Program
- ▶ Sub-Procedures you can use to facilitate web development in your RPG programs

Why Use CGIDEV2?

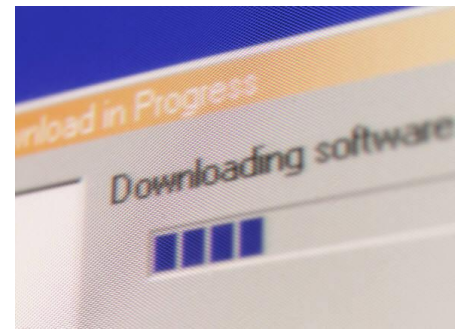
- ▶ We assume you already have mad RPG skills
- ▶ Your business logic is in RPG and your data exists in IBM DB2 for i
- ▶ Performance is Excellent
 - Hardware upgrade is not required
- ▶ Extend your applications beyond your 4 walls
- ▶ Give your users applications with a modern user interface



Which CGIDEV2 Do I Choose?

- ▶ Choosing between two CGIDEV2 offerings
 - The IBM version
 - Stagnant, not modified or supported
 - No examples or add-on tools
 - The Easy400 version (This is the best choice)
 - Giovanni Perotti continuously updates and supports this offering
 - Lots of examples, sample programs, & documentation
 - Add-on tools: MMAIL, LOGINOUT, FUPLOAD, JSDATEPICK, XLPARSE

Installation



- ▶ Go to Easy400: <http://www.easy400.net/en>
- ▶ Download page:
<http://www.easy400.net/easy400p/maindown.html>
 - CGIDEV2 – ILE RPG CGI Development Kit
 - MMAIL – Mime and Mail for IBM i
- ▶ See the readme.txt file in the downloads for installation instructions
- ▶ CGIDEV2 Documentation:
<http://cgidev2.easy400.net/>
 - Go through everything on this page
- ▶ The Apache configuration can be tricky. If you get stuck send us an email and we will try to assist.

Support



- ▶ Easy400 Yahoo Group
 - <https://groups.yahoo.com/neo/groups/Easy400Group/info>
- ▶ Various web resources
 - W3 Schools – www.w3schools.com
 - Scott Klement – www.scottklement.com
 - iProDeveloper – www.iprodeveloper.com
 - Midrange.com – www.midrange.com
 - Google – Surprisingly accurate and easy
 - Try googling “cgidev2 updHTMLvar”
- ▶ Free software but please donate and support Easy400 if you find it useful

Security

- ▶ You have 4 security options
 - No Security – No login required
 - Apache System Security – Uses IBM i User Profiles
 - Apache Validation List Security
 - Application level security with user friendly login and logout



CGIDEV2 Coding Basics

- ▶ You can go with Fixed or Free Format RPG
- ▶ Use SQL or Standard I/O (CHAIN/READ)
 - We highly recommend SQL if you have SQL DevKit
- ▶ You will need to understand Stateless processing as opposed to session processing
- ▶ Variables are passed in character format only
 - we convert numeric/date/integer data to character on output and reverse on input

Basic Program Flow

- ▶ Security checking / processing
- ▶ Get and parse input from browser
- ▶ Parse and convert input variables
- ▶ Retrieve HTML template into memory
- ▶ Process the request
- ▶ Validate passed data
- ▶ Move data to substitution variables in the HTML
- ▶ Output sections to the browser

Customer Maintenance

Last Name:

Last Name	Initial	Street	City	State	Zip
Abraham	M T	392 Mill St	Isle	MN	56342
Alison	J S	787 Lake Dr	Isle	MN	56342
Doe	J W	59 Archer Rd	Sutter	CA	95685
Hanning	G K	4859 Elm Ave	Dallas	TX	75217
Johnson	J A	3 Alpine Way	Helen	GA	30545
Jones	B D	218 NW 135 St	Clay	NY	13041
Lee	F L	5963 Oak St	Hector	NY	14841
Stevens	K L	208 Snow Pass	Denver	CO	80226
Thomas	A N	3 Dove Circle	Casper	WV	82609
Tyrone	W E	13 Myrtle Dr	Hector	NY	14841
Vine	S S	PO Box 79	Broton	VT	5046
Williams	E D	485 SE 2 Ave	Dallas	TX	75218

Demo the Sample Application >>

Customer Maintenance (WCUST001 /WCUST002)

Development Platform

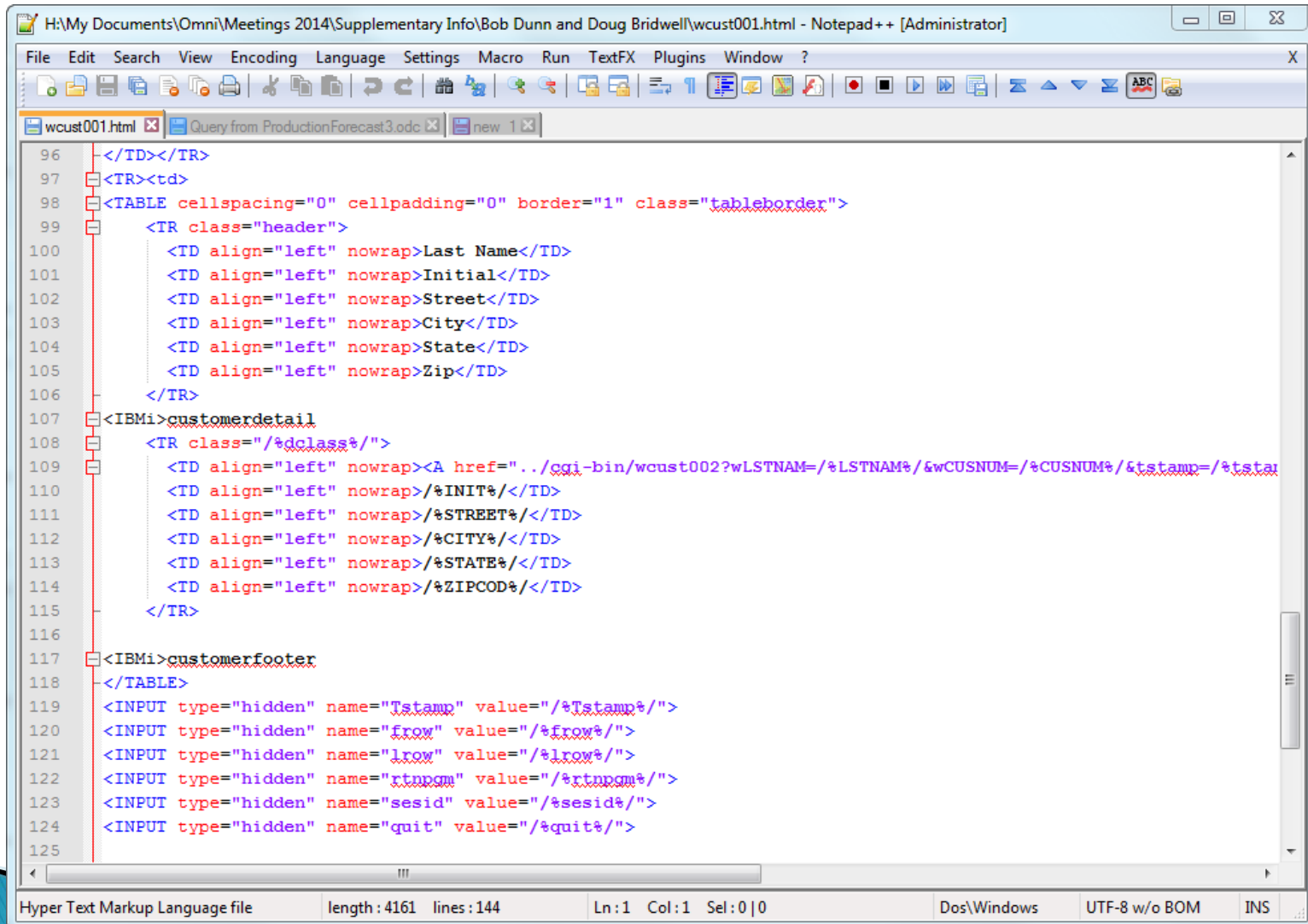
- ▶ You can use SEU for the RPG and Notepad for the HTML
- ▶ We recommend using Rational Developer for i (RDi) with the web page editor plug in
- ▶ Debugging is much easier with RDi and Service Entry Point debugging
- ▶ Adobe Dreamweaver
- ▶ Notepad++ (excellent free editor)

SEU

```
Columns . . . :    1  71                Edit                E0STEST/QRPGLESRC
SEU==>                                     WCUST001
FMT **   ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
0001.99   //=====
0002.00   // Main line
0002.01   //=====
0002.02
0002.03   /FREE
0002.04
0002.05       //Initialization:
0002.06       $Initialize();
0002.07
0002.08       //Get HTML Input Variables:
0002.09       $GetInput();
0002.10
0002.11       //Process Browser request:
0002.12       $ProcessRequest();
0002.13
0002.14       //Wirte HTML output:
0002.15       $DoOutput();

F3=Exit   F4=Prompt   F5=Refresh   F9=Retrieve   F10=Cursor   F11=Toggle
F16=Repeat find   F17=Repeat change   F24=More keys
```

Notepad++

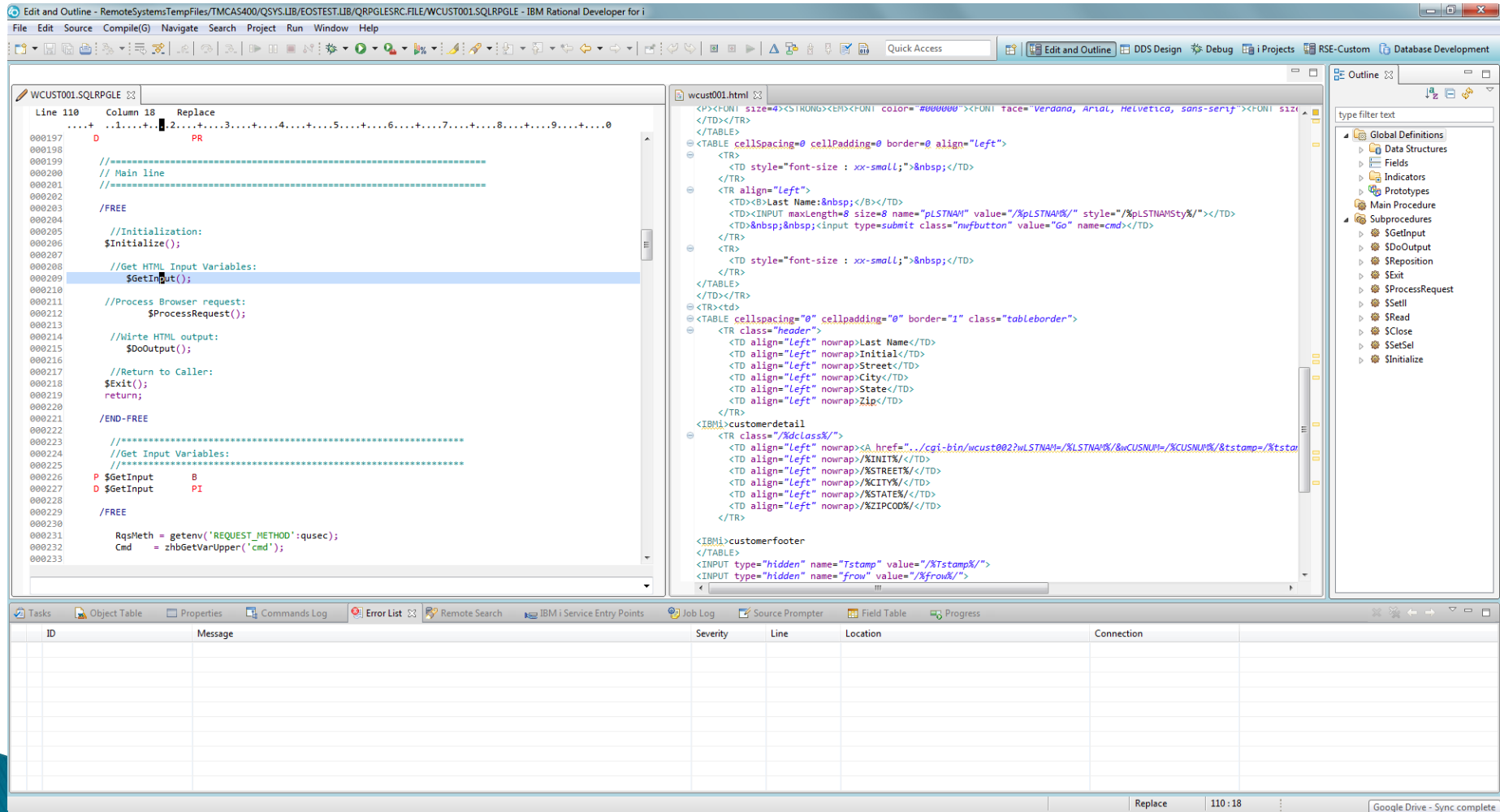


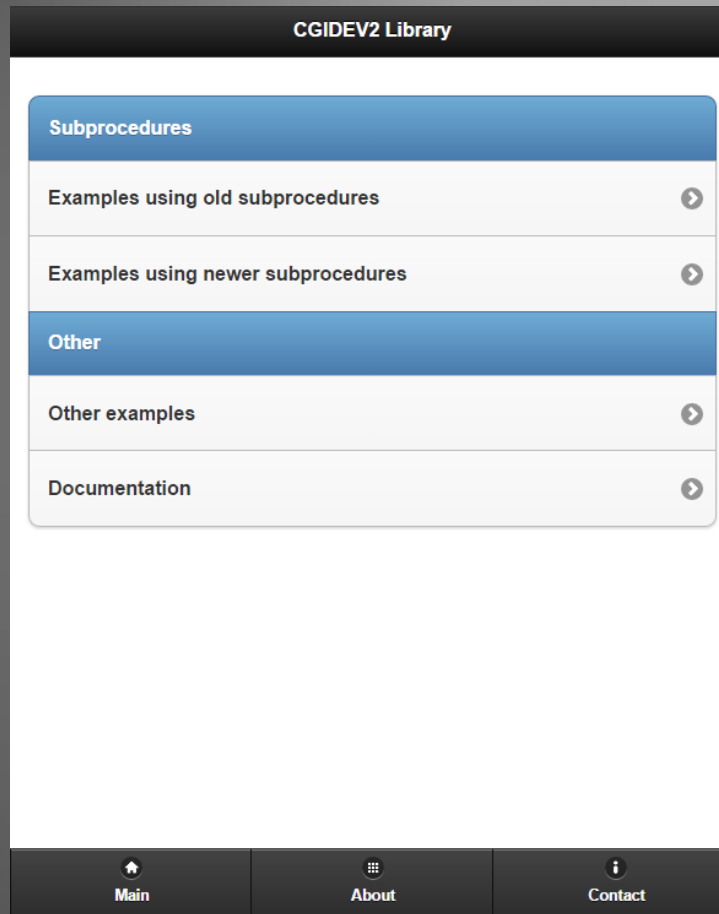
The screenshot shows the Notepad++ application window with the title bar "H:\My Documents\Omni\Meetings 2014\Supplementary Info\Bob Dunn and Doug Bridwell\wcust001.html - Notepad++ [Administrator]". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Macro, Run, TextFX, Plugins, Window, and ?. The toolbar contains various icons for file operations and editing. The editor displays an HTML file named "wcust001.html" with the following code:

```
96 </TD></TR>
97 <TR><td>
98 <TABLE cellspacing="0" cellpadding="0" border="1" class="tableborder">
99 <TR class="header">
100 <TD align="left" nowrap>Last Name</TD>
101 <TD align="left" nowrap>Initial</TD>
102 <TD align="left" nowrap>Street</TD>
103 <TD align="left" nowrap>City</TD>
104 <TD align="left" nowrap>State</TD>
105 <TD align="left" nowrap>Zip</TD>
106 </TR>
107 <IBMi>customerdetail
108 <TR class="%dclass%">
109 <TD align="left" nowrap><A href=" ../cgi-bin/wcust002?wLSTNAM=%LSTNAM%&wCUSNUM=%CUSNUM%&tstamp=%tstamp%>
110 <TD align="left" nowrap>/%INIT%</TD>
111 <TD align="left" nowrap>/%STREET%</TD>
112 <TD align="left" nowrap>/%CITY%</TD>
113 <TD align="left" nowrap>/%STATE%</TD>
114 <TD align="left" nowrap>/%ZIPCOD%</TD>
115 </TR>
116
117 <IBMi>customerfooter
118 </TABLE>
119 <INPUT type="hidden" name="tstamp" value="/%tstamp%/">
120 <INPUT type="hidden" name="frow" value="/%frow%/">
121 <INPUT type="hidden" name="lrow" value="/%lrow%/">
122 <INPUT type="hidden" name="rtmpgm" value="/%rtmpgm%/">
123 <INPUT type="hidden" name="sesid" value="/%sesid%/">
124 <INPUT type="hidden" name="quit" value="/%quit%/">
125
```

The status bar at the bottom indicates: Hyper Text Markup Language file, length : 4161 lines : 144, Ln : 1 Col : 1 Sel : 0 | 0, Dos\Windows, UTF-8 w/o BOM, INS.

Rational Developer for i (RD*i*)

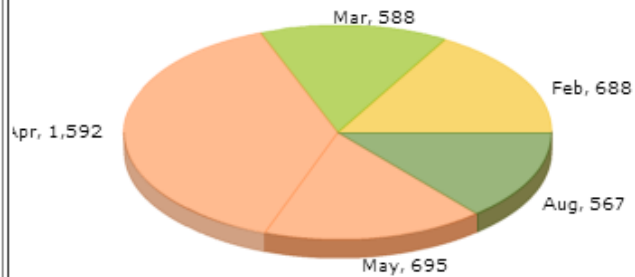




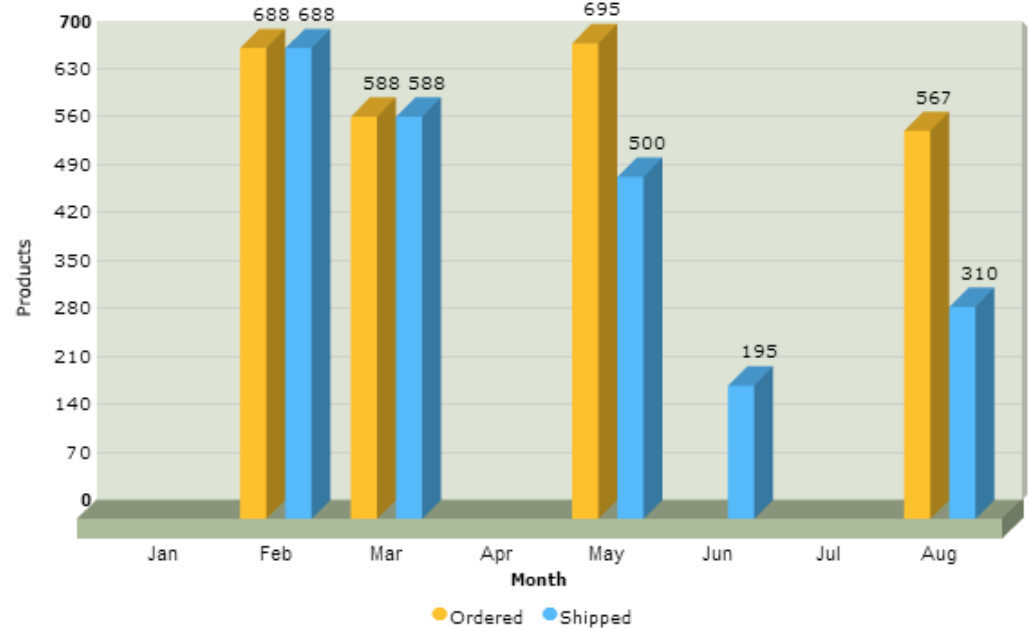
Demo the JQuery Mobile Application >>

JQueryMobile Menu Application

Morey Monthly Sales in Dollars



Morey Sales Analysis
Products Ordered VS Products Shipped



Demo Morey Sandbox Application >>

Data Driven Graph Application

Order History

Customer ID: Order Number: Date:

Customer ID	Customer Name	Order Number	Total Units	Total Amount	Ship To
		59475	4	350.00	473 E
		59474	4		
		59473	2		
		59472	4		
		59471	1		
		59470	3		
		59469	4		
		59467	6		
		59466	4		
		59465	20		
		59464	3		
		59463	2		
		59462	4		
		59461	2		
		59460	1		
		59458	61		
		59456	8		
		59455	24		
		59454	224		
		59453	8		
		59452	1		
		59451	1		
		59450	4		
		59449	1		
	Pyramid Air Conditioning, Inc.	59448	1	100	

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Demo VNWF Electronic Order Application >>

This is a web based order entry application that has been in use since 2009

Order History

Order Number: Customer ID:  Date: Status:

Order Number	Customer ID	Customer Name	Total Units	Total Amount	Ship To Address	City	State	Order Date	Ship Date	Status
852	00000233		30			Charlotte	NC	10/03/2014		ImportPend
851	00000245		15			San Antonio	TX	10/02/2014	10/02/2014	Shipped
817	00000233		10			Calvert City	KY	09/30/2014	10/01/2014	Shipped
816	00000303		8			Gibsonia	PA	09/29/2014	09/30/2014	Shipped
812	00000233		2			Charlotte	NC	09/25/2014	09/25/2014	Shipped
811	00000182		1			El Paso	TX	09/25/2014	09/25/2014	Shipped
809	00000233		2			Nashville	TN	09/24/2014	09/25/2014	Shipped
808	00000245		90			San Antonio	TX	09/24/2014	09/24/2014	Shipped
807	00000245		10			San Antonio	TX	09/24/2014	09/24/2014	Shipped
805	00000245		100			San Antonio	TX	09/23/2014		Cancelled
803	00000233		10			Knoxville	TN	09/19/2014	09/19/2014	Shipped
802	00000415		30			San Antonio	TX	09/17/2014	09/17/2014	Shipped
799	00001120		60			Macon	GA	09/18/2014	09/19/2014	Shipped
798	00000181		9			Gibsonia	PA	09/15/2014	09/15/2014	Shipped
797	00000427		2			Knoxville	TN	09/11/2014	09/12/2014	Shipped
796	00000406		6			Gibsonia	PA	09/10/2014	09/10/2014	Shipped
794	00001119		14			Nashville	TN	09/09/2014	09/09/2014	Shipped
793	00000421		5			Redding	CA	09/08/2014	09/09/2014	Shipped
792	00000415		40			San Antonio	TX	09/05/2014	09/05/2014	Shipped
791	00000357		1			Santa Fe	NM	09/08/2014	09/08/2014	Shipped
789	00000358		4			Nashville	TN	09/04/2014	09/05/2014	Shipped
788	00000427		6			Knoxville	TN	09/03/2014	09/03/2014	Shipped
787	00000181		30			Pompton Lakes	NJ	09/03/2014	09/03/2014	Shipped
786	00001050		178			Nashville	TN	08/29/2014	09/03/2014	Shipped
785	00000181		90		141 Poplar Ave.	Pompton Lakes	NJ	08/28/2014	08/29/2014	Shipped

Demo TeMeDa Electronic Order Fulfillment Application

This is a web based order fulfillment application that has been in use since 2013

DDAT - DEVICE DATA



DDAT - The Morey Corporation

Demo Device Data (DDAT) Application >>

This is a web based shipped device inquiry application



Demo Electronic Ordering System (EOS) Application



This is a web based Order Entry application

Next Steps

- ▶ Download and Install CGIDEV2 and MMAIL
- ▶ Get the sample program running
- ▶ Start small and add more complexity as you learn



Contact Us

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