



...because it's more than just code.

Beauty is in The Eye of the Beholder

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THE DAILY WTF

Curious Perversions in Information Technology

- **Software Disaster Stories**
- **Interviews Gone Bad**
- **Bad Code**
- **Funny Error Messages**
- **And sometimes... serious content!**



- **The day job**
- **BuildMaster**
 - release management & automation
 - continuous delivery platform

My 3 Bullet Point Résumé

- **Been in software for a while**
- **Worked on a bunch of different systems**
- **Worked at a bunch of different places**



...because it's more than just code.

Let's play a game!

IS IT HOT OR NOT?



```
%DTC
%DTC ; SF/XAK - DATE/TIME OPERATIONS ;1/16/92 11:36 AM
;;19.0;VA FileMan;;Jul 14, 1992
D I 'X1!'X2 S X="" Q
S X=X1 D H S X1=%H,X=X2,X2=%Y+1 D H S X=X1-%H,%Y=%Y+1&X2
K %H,X1,X2 Q
;
C S X=X1 Q:'X D H S %H=%H+X2 D YMD S:$P(X1,".",2) X=X_"_"$P(X1,".",2)
K X1,X2 Q
S S %=%#60/100+(%#3600\60)/100+(%\3600)/100 Q
;
H I X<1410000 S %H=0,%Y=-1 Q
S %Y=$E(X,1,3),%M=$E(X,4,5),%D=$E(X,6,7)
S %T=$E(X_0,9,10)*60+$E(X_"000",11,12)*60+$E(X_"00000",13,14)
TOH S
%H=%M>2&'(%Y#4)+$P("^31^59^90^120^151^181^212^243^273^304^334","^",%M)+%D
S %='%M!'%D,%Y=%Y-141,%H=%H+(%Y*365)+(%Y\4)-( %Y>59)+%,%Y=$S(%:-
1,1:%H+4#7)
K %M,%D,% Q
;
```



...because it's more than just code.

```
#include <math.h>
#include <sys/time.h>
#include <X11/Xlib.h>
#include <X11/keysym.h>
double L, o, P,
_ = dt, T, Z, D = 1, d,
s[999], E, h = 8, I,
J, K, W[999], M, m, O,
n[999], j = 33e-3, i =
1E3, r, t, u, v, W, S =
74.5, l = 221, X = 7.26,
a, B, A = 32.2, c, F, H;
int N, q, C, y, p, U;
window z; char f[52];
; GC k; main(){ Display *e =
XOpenDisplay( 0 ); z = RootWindow(e, 0); for (XSetForeground(e, k = XCreateGC (e, z, 0, 0), BlackPixel(e, 0))
; scanf("%lf%lf%lf", y + n, w + y, y + s) + 1; y ++); XSelectInput(e, z = XCreateSimpleWindow(e, z, 0, 0, 400, 400,
0, 0, WhitePixel(e, 0) ), KeyPressMask); for (XMapWindow(e, z); ; T = sin(O)) { struct timeval G = { 0, dt * 1e6;
; K = cos(j); N = 1e4; M += H * _; Z = D * K; F += _ * P; r = E * K; W = cos(O); m = K * W; H = K * T; O += D * _ * F / K * d * K * E * _; B =
sin(j); a = B * T * D - E * W; XClearWindow(e, z); t = T * E + D * B * W; j += d * _ * D - _ * F * E; P = W * E * B - T * D; for (O += (I = D * W * E
* T * B, E * d / K * B + v + B / K * F * D) * _; p < y; ){ T = p[s] + i; E = c - p[w]; D = n[p] - L; K = D * m - B * T - H * E; if (p [n] + w[ p ] + p[s
] == 0 | K < fabs(W - T * r - I * E + D * P) | fabs(D = t * D + Z * T - a * E) > K) N = 1e4; else { q = W / K * 4E2 + 2e2; C = 2E2 + 4e2 / K
* D; N = 1E4 && XDrawLine(e, z, k, N, U, q, C); N = q; U = C; } ++p; } L += _ * (X * t + P * M + m * l); T = X * X + l * l + M * M;
XDrawString(e, z, k, 20, 380, f, 17); D = v / l * 15; i += (B * l - M * r - X * Z) * _; for (; XPending(e); u * = CS * N) {
XEvent z; XNextEvent(e, &z);
++ * ((N = XLookupKeysym
(&z.xkey, 0)) - IT?
N - LT? UP - N? & E: &
J: & u: & h); -- * (
DN - N? N - DT ? N ==
RT? & u: & W: & h: & J
); } m = 15 * F / l;
c += (I = M / l, l * H
+ I * M + a * X) * _; H
= A * r + v * X - F * l + (
E = .1 + X * 4.9 / l, t
= T * m / 32 - I * T / 24
) / S; K = F * M + (
h * 1e4 / l - (T +
E * S * T * E) / 3e2
) / S - X * d - B * A;
a = 2.63 / l * d;
X += ( d * l - T / S
* (.19 * E + a
* .64 + j) / 1e3
) - M * v + A *
Z) * _; l +=
K * _; W = d;
sprintf(f,
"%5d %3d"
"%7d", p = l
/ 1.7, (C = 9E3 +
O * 57.3) % 0550, (int) i); d += T * (.45 - 14 / l *
X - a * 130 - J * .14) * _ / 125e2 + F * _ * v; P = (T * (47
* I - m * 52 + E * 94 * D - t * .38 + u * .21 * E) / 1e2 + W *
179 * v) / 2312; select(p = 0, 0, 0, 0, &G); v -= (
W * F - T * (.63 * m - I * .086 + m * E * 19 - D * 25 - .11 * u
) / 107e2) * _; D = cos(o); E = sin(o); } }
```

```
private void attachSupplementalDocuments ()
{
    if (stateCode == "AZ" || stateCode == "TX") {
        //SR008-04X/I are always required in these states
        attachDocument ("SR008-04X");
        attachDocument ("SR008-04XI");
    }

    if (ledgerAmt >= 500000) {
        //Ledger of 500K or more requires AUTHLDG-1A
        attachDocument ("AUTHLDG-1A");
    }

    if (coInsuredCount >= 5 && orgStatusCode != "CORP") {
        //Non-CORP orgs with 5 or more co-ins require AUTHCNS-1A
        attachDocument ("AUTHCNS-1A");
    }
}
```



```
public class ObjectWrapper
{
    private Object object;
    public ObjectWrapper(Object object)
    {
        this.object = object;
    }
    public Object getObject()
    {
        return object;
    }
}
```

```
// Begin preparing the PDF document
PdfDocument pdfDoc = new PdfDocument();
if (occurrenceRow[TableDefs.Occurrences_Extended.HasDocument_Indicator].Equals(Domains.YN.Yes))
{
    // Load current PDF document
    DataRow imageRow = DataHelper.ExecuteDataRow(
        StoredProcs.Occurrences_GetDocument,
        new SqlParameter("@Occurrence_Number", occurrenceNumber)
    );

    byte[] pdfBytes = (byte[])imageRow[TableDefs.Occurrences.Document_Bytes];
    pdfDoc.Read(pdfBytes);
}

// Add pages
foreach (FileUpload filFile in fileUploads)
{
    if (filFile.PostedFile.ContentType.Equals("application/pdf", StringComparison.InvariantCultureIgnoreCase) &&
        filFile.PostedFile.FileName.EndsWith(".pdf", StringComparison.InvariantCultureIgnoreCase))
    {
        pdfDoc.AppendDocument(filFile.PostedFile.InputStream);
    }
    else
    {
        // Try to add the image, alert if error (for example, user tries to upload .doc or .zip)
        if (!pdfDoc.TryAppendImage(filFile.PostedFile.InputStream))
        {
            divInvalidFileType.Visible = true;
            return;
        }
    }
}
```

```
1 public class MockCustomerDataAccess : ICustomerDataAccess {
2
3     private int _insertCustomerCount = 0;
4
5     public void InsertCustomer(string name) {
6         _insertCustomerCount++;
7     }
8
9     public int InsertCustomerCount {
10         get { return _insertCustomerCount; }
11     }
12 }
13
14 [TestMethod]
15 public void TestAddCustomerWithStaticMock() {
16     Customer customer = new Customer();
17     customer.Name = 'Ben';
18
19     ICustomerDataAccess mock = new MockCustomerDataAccess();
20
21     CustomerServices _customerServices = new CustomerServices(mock);
22     _customerServices.AddCustomer(customer);
23
24     Assert.AreEqual(1, mock.InsertCustomerCount);
25 }
```

30-PROCESS-AUTHORS.

```
MOVE ZEROS TO QTR-AUTHOR-BORROWS, AUTHOR-ROYALTIES.
MOVE AUTHOR-NUM-FB TO AUTHOR-NUMBER-FA, PREV-AUTHOR.
DISPLAY "AUTHOR NUMBER " AUTHOR-NUMBER-FA.
MOVE AUTHOR-NAME-FB TO AUTHOR-NAME-PRN.
READ BOOK-FILE
    KEY IS AUTHOR-NUMBER-FA
    INVALID KEY
        DISPLAY "ERROR IN 20-PROCESS-AGENTS = " BOOK-ERROR-STATUS
END-READ.
DISPLAY "BOOK RECORD IN 20-PROCESS-AGENTS " BOOK-REC-FA.
PERFORM 40-PROCESS-BOOKS
    UNTIL END-OF-BOOK-FILE
        OR AUTHOR-NUMBER-FA NOT EQUAL TO PREV-AUTHOR.
SET NOT-END-OF-BOOK-FILE TO TRUE.
MOVE QTR-AUTHOR-BORROWS TO QTR-BORROWS-PRN.
MOVE AUTHOR-ROYALTIES TO QTR-ROYALTIES-PRN.
WRITE PRINT-LINE-FC FROM QTR-BORROWS-LINE AFTER ADVANCING 2 LINES.
WRITE PRINT-LINE-FC FROM QTR-ROYALTIES-LINE AFTER ADVANCING 1 LINE.
MOVE SPACES TO PRINT-LINE-FC.
WRITE PRINT-LINE-FC AFTER ADVANCING 2 LINES.
READ AUTHOR-FILE NEXT RECORD
    AT END SET END-OF-AUTHOR-FILE TO TRUE
END-READ.
```



I wear my geek-ness with pride



...because it's more than just code.

SURVEY SAYS...

That's right, I knew the results ahead of time.



- **Beauty is in the Eye of the Beholder**

- **Ugly Code is... just plain ugly**



...because it's more than just code.

DEFINING “UGLY” CODE

Can you really quantify aesthetics?



In Our World...

- **Code is not art**
- **We are not craftsman**
- **Our work supports or drives business**

Code Quality

- **Good vs. Bad** → “Who cares?”
- **Works vs. Broken** → “Bugs are bad!”
- **Beautify vs. Ugly** → ??????

A Matter of Maintenance

- Ugly code is difficult to understand
- More points of failure
- Costlier and Riskier to Maintain
- Extra: no one likes maintaining ugly code



...because it's more than just code.

A TAXONOMY OF UGLY

It's more than just Ugly and Fugly



Dilapidated & Decrepit

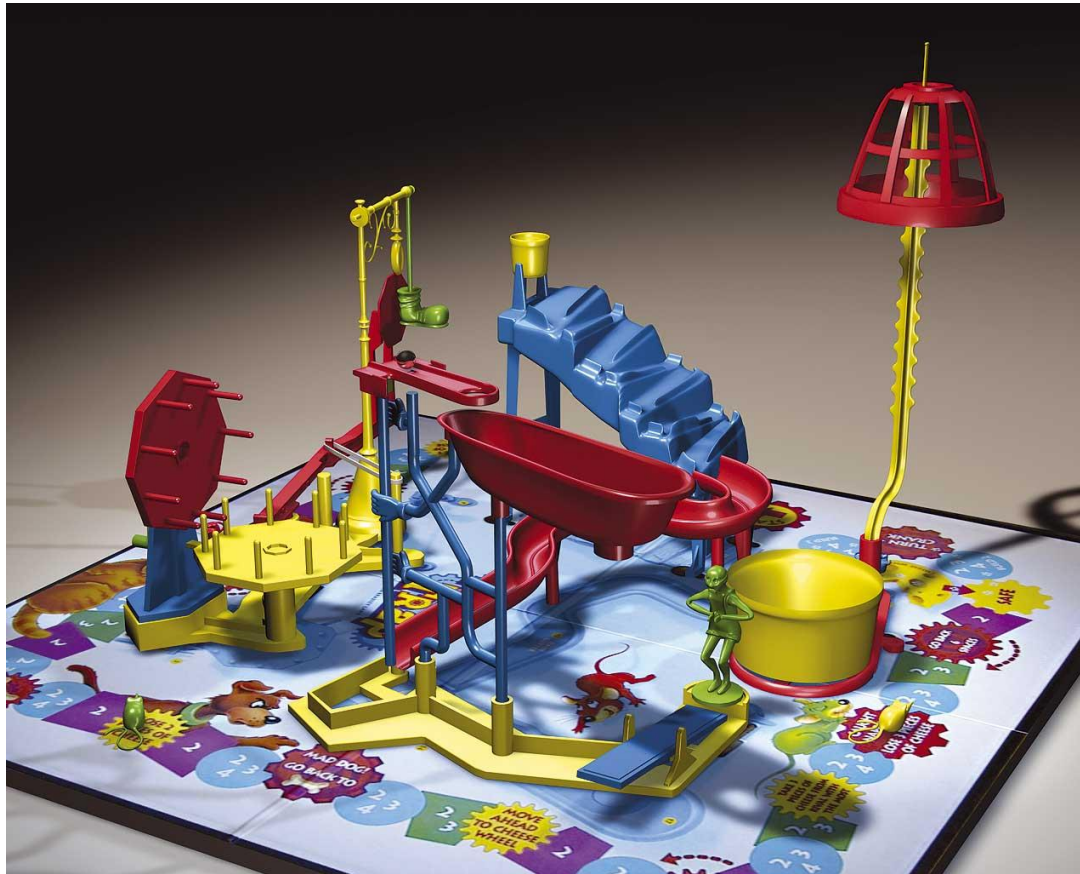


Dilapidated & Decrepit

```
#ifdef BOGUS
#ifdef BRUT_HAS_A_BUG
#ifdef BUG92283
#ifdef commented_out
#ifdef DIRECTIO_ON
#ifdef DONT_DELETE_PER_BOB
#ifdef DONT_DO_THIS
#ifdef DONT_LOG_IF_OK
#ifdef HAS_NAMESPACES
#ifdef HIDDEN
#ifdef needed
#ifdef NOTDEF
#ifdef NotDefined
#ifdef NOTDEFINED
#ifdef NOTDEFINED
#ifdef NOTNEEDED
#ifdef NOT_NEEDED
#ifdef NOT_REQUIRED
#ifdef NOT_USED
```

```
#ifdef NOT_USED_DELETE
#ifdef NOTYET
#ifdef NOTYET_NEEDED
#ifdef old
#ifdef OLDWAY
#ifdef OLD_WAY
#ifdef REAL_DELETE
#ifdef SLEEP_DOESNT_WORK
#ifdef TESTING_ONLY
#ifdef TOO_MUCH_DEBUG
#ifdef TOO_MUCH_INFO
#ifdef TOO_MUCH_LOGGING
#ifdef USE_OBSOLETE_CODE
#ifdef USE_OLD_VERSION
#ifdef USE_QUANTIFY
#ifdef USE_STDIO_FILE
#ifdef use_this
#ifdef USE_TIME
#ifdef UTIL_GLOBAL
```

Complex & Convoluted



Complex & Convoluted

```
'-----  
'-- NAME:                               IntDivide  
'-- PURPOSE:                             Returns the integer division of one  
'--                                         number by another.  
'-- IN PARAMETERS:                       Numerator, denominator.  
'-- OUT PARAMETERS:                      Result.  
'-----  
'-- REVISION HISTORY:  
'--  
'-- WHEN      WHO      WHAT  
'-- 08/29/08   ????    Initial creation.  
'-----  
Public Function IntDivide(ByVal Num As Integer, ByVal Denom As Integer) As Integer  
    Dim Result As Integer = 0  
  
    If Denom <> 0 Then  
        Dim SQL As String = "SELECT (" & Num.ToString & "/" & Denom.ToString & ") AS Res"  
        Dim ds As New DataSet  
        If GetDataSet(SQL, ds) Then  
            If ds.Tables(0).Rows.Count > 0 Then  
                Result = ds.Tables(0).Rows(0).Item(0)  
            End If  
        End If  
    End If  
  
    Return Result  
End Function
```


Complete Clusterfrack



Complete Clusterfrack

```

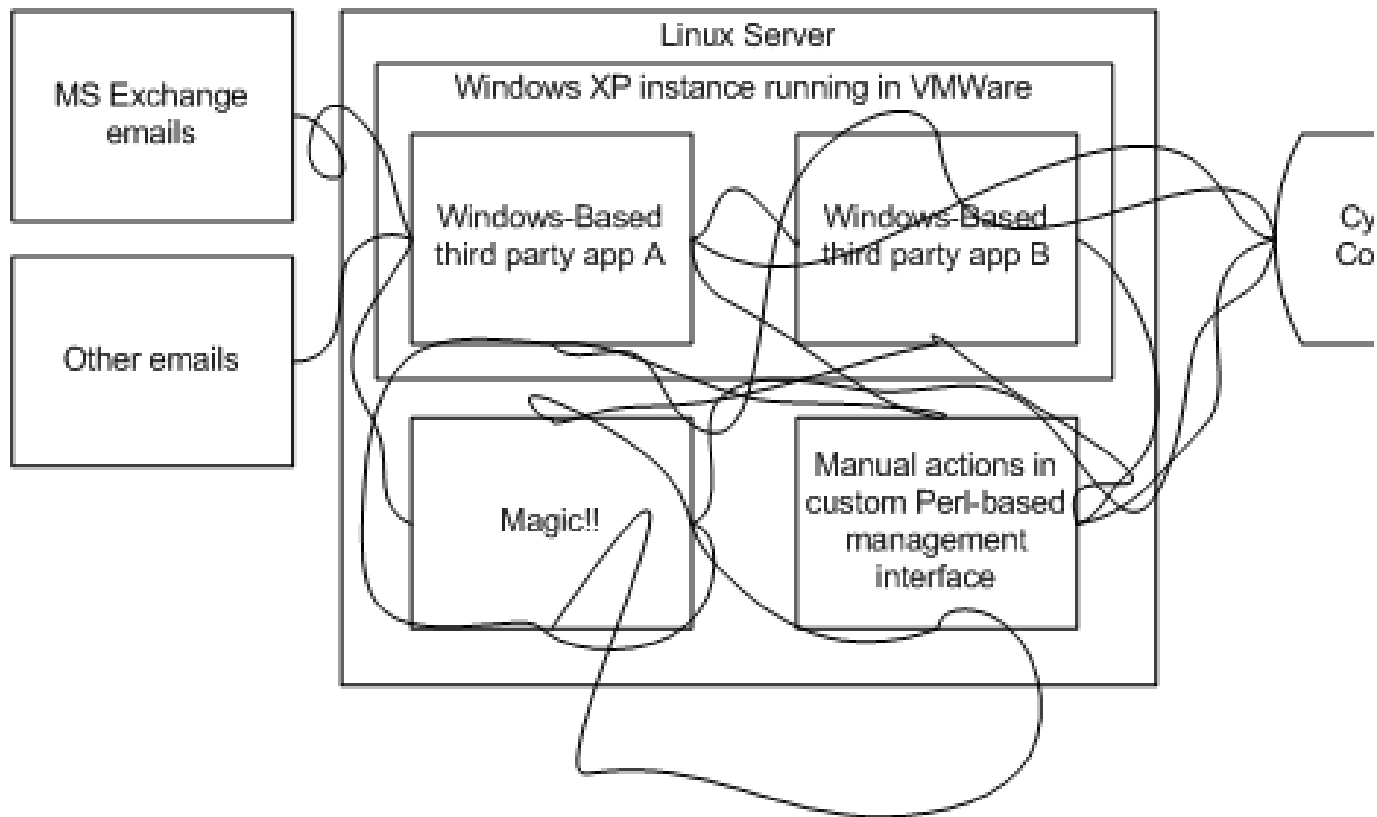
SELECT @tv_109 = ((10 - @f_M) + 4*(2 - @f_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M - 1) + 4*(2 - @q3_sd))/3
SELECT @tv_111 = ((10 - @g_M) + 4*(2 - @g_sd) + (@m_M - 1) + 4*(2 - @m_sd) + (10 - @o_M) + 4*(2 - @o_sd) + (@q1_M
SELECT @tv_115 = ((10 - @f_M) + 4*(2 - @f_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M - 1) + 4*(2 - @q3_sd))/3
SELECT @tv_116 = ((@b_M - 1) + 4*(2 - @b_sd) + (@f_M - 1) + 4*(2 - @f_sd) + (10 - @g_M) + 4*(2 - @g_sd) + (10 - @o
SELECT @tv_118 = ((@b_M - 1) + 4*(2 - @b_sd) + (10 - @f_M) + 4*(2 - @f_sd) + (@q3_M - 1) + 4*(2 - @q3_sd))/3
SELECT @tv_122 = ((@b_M - 1) + 4*(2 - @b_sd) + (@m_M - 1) + 4*(2 - @m_sd) + (@q1_M - 1) + 4*(2 - @q1_sd))/3
SELECT @tv_123 = ((10 - @e_M) + 4*(2 - @e_sd) + (10 - @h_M) + 4*(2 - @h_sd) + (10 - @m_M) + 4*(2 - @m_sd) + (@q1_M
SELECT @tv_125 = ((@a_M - 1) + 4*(2 - @a_sd) - 0.5*ABS(5.5 - @i_M) + (@L_M - 1) + 4*(2 - @L_sd))/2
SELECT @tv_126 = ((@b_M - 1) + 4*(2 - @b_sd) + (10 - @f_M) + 4*(2 - @f_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M -
SELECT @tv_127 = ((10 - @f_M) + 4*(2 - @f_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (10 - @q1_M) + 4*(2 - @q1_sd) + (@q3
SELECT @tv_129 = ((10 - @m_M) + 4*(2 - @m_sd) + (10 - @o_M) + 4*(2 - @o_sd) + (10 - @q1_M) + 4*(2 - @q1_sd) + (10
SELECT @tv_131 = ((@e_M - 1) + 4*(2 - @e_sd) + (10 - @g_M) + 4*(2 - @g_sd) + (10 - @q2_M) + 4*(2 - @q2_sd))/3
SELECT @tv_132 = ((10 - @a_M) + 4*(2 - @a_sd) + (@e_M - 1) + 4*(2 - @e_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (10 -
@q2_sd))/5
SELECT @tv_134 = ((@a_M - 1) + 4*(2 - @a_sd) + (10 - @c_M) + 4*(2 - @c_sd) + (10 - @g_M) + 4*(2 - @g_sd) + (@i
@L_sd))/5
SELECT @tv_135 = ((@a_M - 1) + 4*(2 - @a_sd) + (10 - @b_M) + 4*(2 - @b_sd) + (@i_M - 1) + 4*(2 - @i_sd) + (10 -
@q3_sd))/5
SELECT @tv_138 = ((10 - @b_M) + 4*(2 - @b_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M - 1) + 4*(2 - @q3_sd) + (@q4_M
SELECT @tv_139 = ((10 - @b_M) + 4*(2 - @b_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M - 1) + 4*(2 - @q3_sd) + (@q4_M
SELECT @tv_140 = (10 - @q3_M) + 4*(2 - @q3_sd)
SELECT @tv_141 = ((@b_M - 1) + 4*(2 - @b_sd) + (@q3_M - 1) + 4*(2 - @q3_sd))/2
SELECT @tv_143 = ((10 - @a_M) + 4*(2 - @a_sd) + (10 - @i_M) + 4*(2 - @i_sd) + (@L_M - 1) + 4*(2 - @L_sd))/3
SELECT @tv_145 = ((10 - @b_M) + 4*(2 - @b_sd) + (10 - @m_M) + 4*(2 - @m_sd) + (@o_M - 1) + 4*(2 - @o_sd) + (10 -
@q3_sd))/5
SELECT @tv_146 = ((10 - @f_M) + 4*(2 - @f_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M - 1) + 4*(2 - @q3_sd))/3
SELECT @tv_147 = ((10 - @b_M) + 4*(2 - @b_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M - 1) + 4*(2 - @q3_sd))/3
SELECT @tv_148 = ((10 - @b_M) + 4*(2 - @b_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (@q3_M - 1) + 4*(2 - @q3_sd))/3
SELECT @tv_149 = ((@c_M - 1) + 4*(2 - @c_sd) + (10 - @q4_M) + 4*(2 - @q4_sd))/2
SELECT @tv_150 = ((@c_M - 1) + 4*(2 - @c_sd) + (10 - @q4_M) + 4*(2 - @q4_sd))/2
SELECT @tv_151 = ((@c_M - 1) + 4*(2 - @c_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (10 - @L_M) + 4*(2 - @L_sd))/3
SELECT @tv_152 = ((@c_M - 1) + 4*(2 - @c_sd) + (@g_M - 1) + 4*(2 - @g_sd) + (10 - @L_M) + 4*(2 - @L_sd))/3
SELECT @tv_153 = (10 - @q4_M) + 4*(2 - @q4_sd)

```

Maddening Mishmash



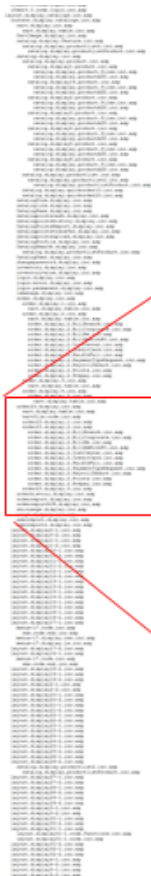
Maddening Mishmash



Disastrously Disheveled



Disastrously Disheveled



```
order.display.4.inc.asp
  order.display.3.inc.asp
    cart.display.table.inc.asp
order23.display.inc.asp
  cart.display.table.inc.asp
  cartfile.code.inc.asp
  order23.display.1.inc.asp
  order23.display.2.inc.asp
    order.display.2.BillBranch.inc.asp
    order.display.2.BillCorporate.inc.asp
    order.display.2.BillMe.inc.asp
    order.display.2.BillMeWithPO.inc.asp
    order.display.2.CostCenter.inc.asp
    order.display.2.CreditCard.inc.asp
    order.display.2.PaidInFull.inc.asp
    order.display.2.PaymentTypeRequest.inc.asp
    order.display.2.PayrollDeduct.inc.asp
    order.display.2.Points.inc.asp
    order.display.2.Prepay.inc.asp
  order23.display.3.inc.asp
  orderhistory.display.inc.asp
  orderreport.display.inc.asp
  orderreportRJR.display.inc.asp
  rmiscpage.display.inc.asp
```



...because it's more than just code.

NOT-SO BEAUTIFUL CODE

But not quite ugly, either. Homely?



Old & Over-the-hill



Old & Over-the-hill

30-PROCESS-AUTHORS.

```
MOVE ZEROS TO QTR-AUTHOR-BORROWS, AUTHOR-ROYALTIES.
MOVE AUTHOR-NUM-FB TO AUTHOR-NUMBER-FA, PREV-AUTHOR.
DISPLAY "AUTHOR NUMBER " AUTHOR-NUMBER-FA.
MOVE AUTHOR-NAME-FB TO AUTHOR-NAME-PRN.
READ BOOK-FILE
    KEY IS AUTHOR-NUMBER-FA
    INVALID KEY
        DISPLAY "ERROR IN 20-PROCESS-AGENTS = " BOOK-ERROR-STATUS
END-READ.
DISPLAY "BOOK RECORD IN 20-PROCESS-AGENTS " BOOK-REC-FA.
PERFORM 40-PROCESS-BOOKS
    UNTIL END-OF-BOOK-FILE
        OR AUTHOR-NUMBER-FA NOT EQUAL TO PREV-AUTHOR.
SET NOT-END-OF-BOOK-FILE TO TRUE.
MOVE QTR-AUTHOR-BORROWS TO QTR-BORROWS-PRN.
MOVE AUTHOR-ROYALTIES    TO QTR-ROYALTIES-PRN.
WRITE PRINT-LINE-FC FROM QTR-BORROWS-LINE AFTER ADVANCING 2 LINES.
WRITE PRINT-LINE-FC FROM QTR-ROYALTIES-LINE AFTER ADVANCING 1 LINE.
MOVE SPACES TO PRINT-LINE-FC.
WRITE PRINT-LINE-FC AFTER ADVANCING 2 LINES.
READ AUTHOR-FILE NEXT RECORD
    AT END SET END-OF-AUTHOR-FILE TO TRUE
END-READ.
```

Freakishly Foreign



Freakishly Foreign

begin

```
temp_a := cnt and "01100011";
temp_b := '1';
for i in 0 to WIDTH-1 loop
    temp_b := temp_a(i) xnor temp_b;
end loop;

if (rising_edge(clk)) then
    if (reset = '1') then
        cnt <= (others=>'0');
    elsif (enable = '1') then
        if (up_down = '1') then
            cnt <= (temp_b & cnt(WIDTH-1 downto 1));
        else
            cnt <= (cnt(WIDTH-2 downto 0) & temp_b);
        end if;
    end if;
end if;
end process;
```

Five Kinds of Ugly

- **Dilapidated & Decrepit**
- **Complex & Convoluted**
- **Complete Clusterfrack**
- **Maddening Mishmash**
- **Disastrously Disheveled**



...because it's more than just code.

THE ORIGIN OF UGLY CODE

It was pretty much born that way.



Clueless Coders



Cowboy Coders



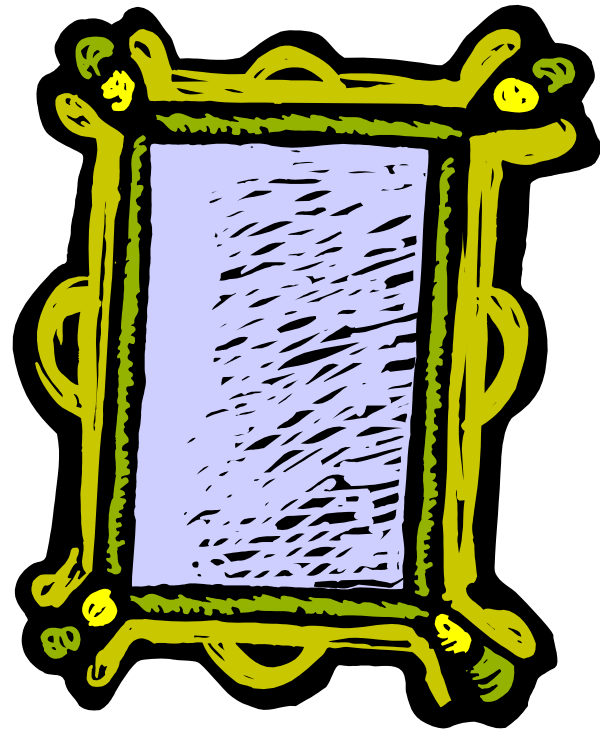
Clever Coders



“Programmers... often take refuge in an understandable, but disastrous, inclination towards complexity and ingenuity in their work. Forbidden to design anything larger than a program, they respond by making that program intricate enough to challenge their professional skill.”

– Michael A. Jackson, 1975

Problem:



New Problem:



use this to build a tool that can pound-in nails

Ad Infinitum:



Final Solution:



Cleverness is Unavoidable



Clever:

```
' NOTE: random number functions don't produce true random numbers.  
'      adding them together will improve the randomness by  
Function SuperRand() As Integer  
    Dim iBadRandom As Integer  
    Dim iGoodRandom As Integer  
  
    Randomize  
  
    ' Bad random should be total officers, good random should be total  
    '   officers divided by 2  
  
    iBadRandom = Int(46 * Rnd) + 1  
    iGoodRandom = Int(23 * Rnd) + 1  
    iGoodRandom = iGoodRandom + Int(23 * Rnd) + 1  
  
    Do While iGoodRandom = iBadRandom  
        iGoodRandom = Int(23 * Rnd) + 1  
        iGoodRandom = iGoodRandom + Int(23 * Rnd) + 1  
    Loop  
  
    SuperRand = iGoodRandom  
  
End Function
```

Clever:

```
<?xml version="1.0" encoding="iso-8859-1" ?>
<result>
  <fields>
    <field>NAME</field>
    <field>LAST NAME</field>
    <field>MOTHER MAIDEN NAME</field>
    <field>BIRTHDATE</field>
    ...
  </fields>
  <data>
    <row>
      <value>MARLENE</value>
      <value>RUTH</value>
      <value>DE MARCO</value>
      <value>1973-02-24 00:00:00</value>
      ...
    </row>
  </data>
</result>
```


Clever:

```
public class ObjectWrapper
{
    private Object object;
    public ObjectWrapper(Object object)
    {
        this.object = object;
    }
    public Object getObject()
    {
        return object;
    }
}
```

The logo for 'inedo' is displayed in a bold, blue, sans-serif font. To the left of the text is a small red square icon with a white geometric shape inside. The logo is positioned in the upper left corner of the slide.

because it's more than just code.

Oh Dear God!





...because it's more than just code.

“Never attribute to malice that which is adequately explained by ~~stupidity~~ cleverness”

Where Ugly Doesn't Come From

- **Development Process**
- **Lack of Testing**
- **Tools**



...because it's more than just code.

PREVENTING UGLY CODING

You too can prevent ugly code.



Clueing-in the Clueless

- **Clueless by their nature**
- **Training and education can help**
- **If all else fails... isolation!**

Corral the Cowboys

- **Process**
- **Process**
- **Process**

Cease the Cleverness

- **Step Back, Re-evaluate**
- **Think “Gloves”**
- **Get a second or third opinion**



...because it's more than just code.

CULLING THE UGLY CODE

“Just take a little off the top”



Evaluate Organizational Support

- How much will it take to fix?
- Why fix what isn't broken?

Selling Change

- **It's All About the Benjamins, Baby**
- **Value proposition:**
 - Lower costs
 - Reduce risk of change
 - Increase opportunity

Going Rogue

- **Easier to ask for forgiveness**
- **No one will really notice**
- **Proper terminology: “upgrade” not “rewrite”**

Stop Writing Ugly Code

- **Clue-in the Clueless**
- **Corral the Cowboys**
- **Cease the Cleverness**

Create a Demarcation Line

- **Not all ugly code should go**
- **Logical boundaries can isolate the ugly**
- **Criteria: rate and risk of change**

Abstract the “Legacy”

- **Formalizes Boundaries**
- **Makes coding Easier**
- **Loose Coupling is a Good Thing™**

Rewrite & Refactor

- **Unit Tests**
- **“Feature Toggle” When Possible**
- **Small, isolated changes**

Stay Committed

- **Rewriting is boring and tedious**
- **Should have ZERO noticeable impact**
- **Giving up will make things worse**

Step-by-Step

- Evaluate Organizational Support
- Sell Change or Go Rogue
- Stop Writing Ugly Code
- Abstract the “Legacy”
- Rewrite & Refactor
- Stay Committed

Much, Much Worse

