Best Practices

Project Management

- Project Database
- File Management
  - Programs
  - Data
  - Naming
  - Organization
- Journals
  - Rationale for decisions
  - Ability to go back in time

Project Database

Project Number	2013-14.455	**IRT Report Number**	
Project Name	Analysis of Transfer Students from Tyler Junior College and Blinn College	**PC Files / Programs**	K:\Projects\2013 - 2014\ 1314-455 TJC and Blinn Analysis.sas 1314-455 TJC and Blinn Analysis.xlsx
Project Description	Look into agreements with Tyler Junior College and Blinn College. The first step is to get some data on how many students we are getting from these two		
Requestor	Provost	**Paper Files**	
Assigned	FDK	**Comments**	Sent spreadsheet to Provost
Assignment Date:	11/5/2013		
Expected Completion Date:	11/12/2013		
Completion/ Cancellation Date:	11/6/2013		
Project Status:	Completed		

File Management

Name	Date modified	Type	Size
2000 - 2001 Ad Hoc Projects	1/13/2012 12:04 AM	File folder	
2001 - 2002 Ad Hoc Projects	1/13/2012 12:04 AM	File folder	
2002 - 2003 Ad Hoc Projects	1/13/2012 12:04 AM	File folder	
2003 - 2004 Ad Hoc Projects	1/13/2012 12:04 AM	File folder	
2004 - 2005 Ad Hoc Projects	1/13/2012 12:04 AM	File folder	
2005 - 2006 Ad Hoc Projects	1/13/2012 12:05 AM	File folder	
2006 - 2007	1/13/2012 12:06 AM	File folder	
2007 - 2008	1/13/2012 12:07 AM	File folder	
2008 - 2009	1/13/2012 12:09 AM	File folder	
2009 - 2010	1/13/2012 12:12 AM	File folder	
2010 - 2011	8/28/2013 11:44 AM	File folder	
2011 - 2012	8/28/2013 11:44 AM	File folder	
2012 - 2013	12/6/2013 1:47 PM	File folder	
2013 - 2014	1/15/2014 9:48 AM	File folder	
Monthly Summaries	8/28/2013 11:44 AM	File folder	
Project List	1/15/2014 9:55 PM	File folder	

File Management

Name	Date modified	Type	Size
1314-010 Graduate Exit Survey 2010-11 th...	1/15/2014 3:12 PM	File folder	
1314-043 Loan Debt of EDU Majors	8/28/2013 11:44 AM	File folder	
1314-110 Academic Advising Survey and ...	9/5/2013 10:11 AM	File folder	
1314-163 Enrollment Audit	1/8/2014 9:50 AM	File folder	
1314-172 Term GPAs of Theater Majors	1/6/2014 8:47 AM	File folder	
1314-174 Update Net Revenue Model	11/7/2013 9:26 AM	File folder	
1314-204 Graduates and Leavers, Spring a...	11/22/2013 1:05 PM	File folder	
1314-205 Pre-List of Graduates	11/22/2013 1:10 PM	File folder	
1314-214 LLP Retention Fall 2013	11/22/2013 11:48 ...	File folder	
1314-216 CLL GPA by Residence Hall, Fal...	9/17/2013 9:40 AM	File folder	
1314-219 NL First Year retention	9/16/2013 10:50 AM	File folder	
1314-221 NL Retention	12/3/2013 11:58 AM	File folder	

Version Control

- Software (Example: Apache Subversion)
- Manually
  - Active and Archive folders
  - Program naming
    - Descriptive – Conference Benchmarks SWC.sas
    - Date based – Conference Benchmarks 1995-12-31.sas
    - Version based – Conference Benchmarks V1.0.sas
- Backups

Program Documentation

- Header Block
  - Last Run Time
  - Program name and location
  - Author
  - Purpose
  - Inputs
  - Output
  - Modification history
  - Execution instructions (prerequisites)

Program Documentation

- Section descriptions
- Explanation of logic and methods
- References
- Data definitions
- Indention

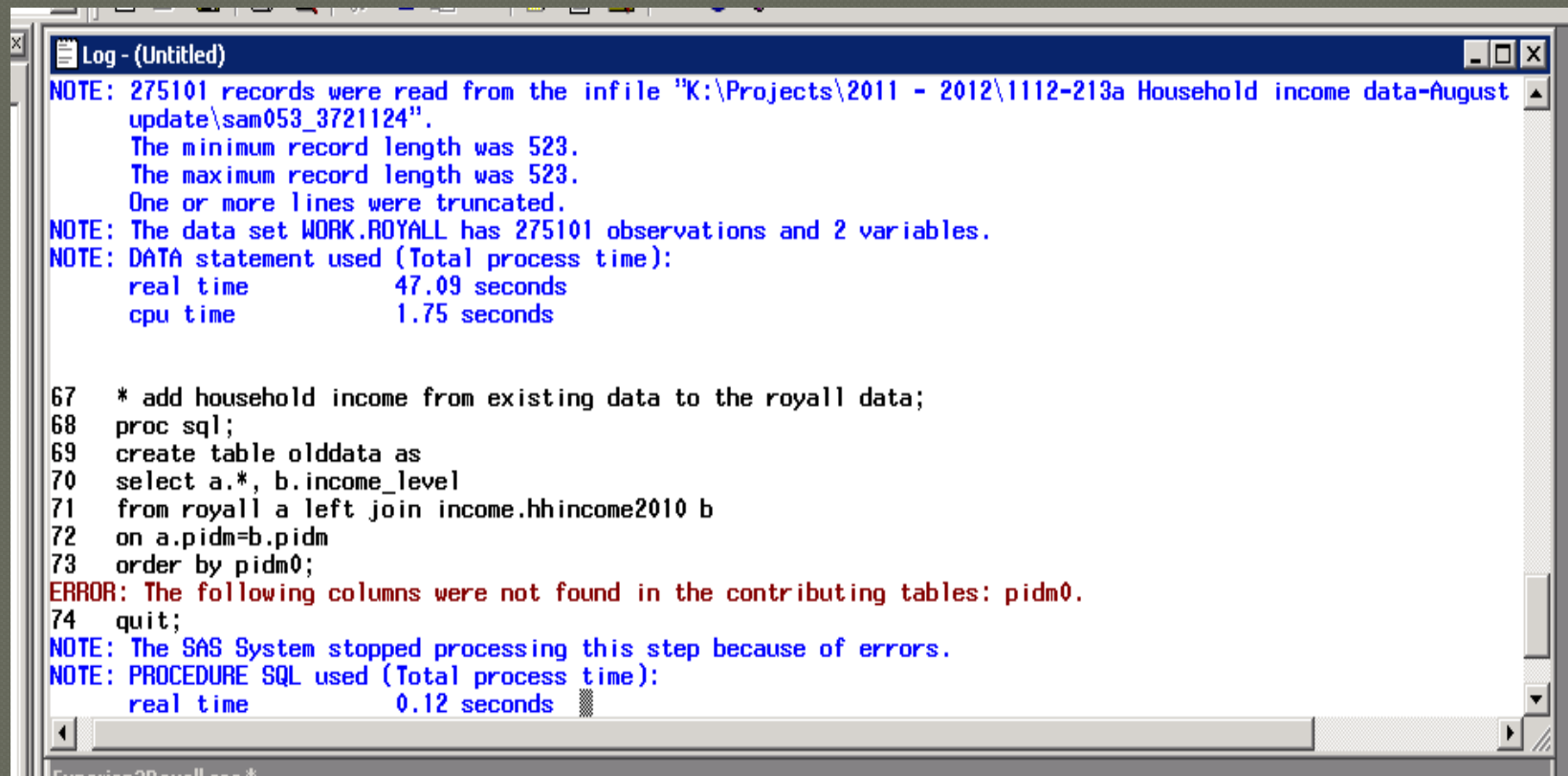# Programming Environments

TEST

PRODUCTION

Program Validation

- Read the log
  - Errors
  - Warnings
  - Notes
  - Absence of errors is no guarantee of correctness
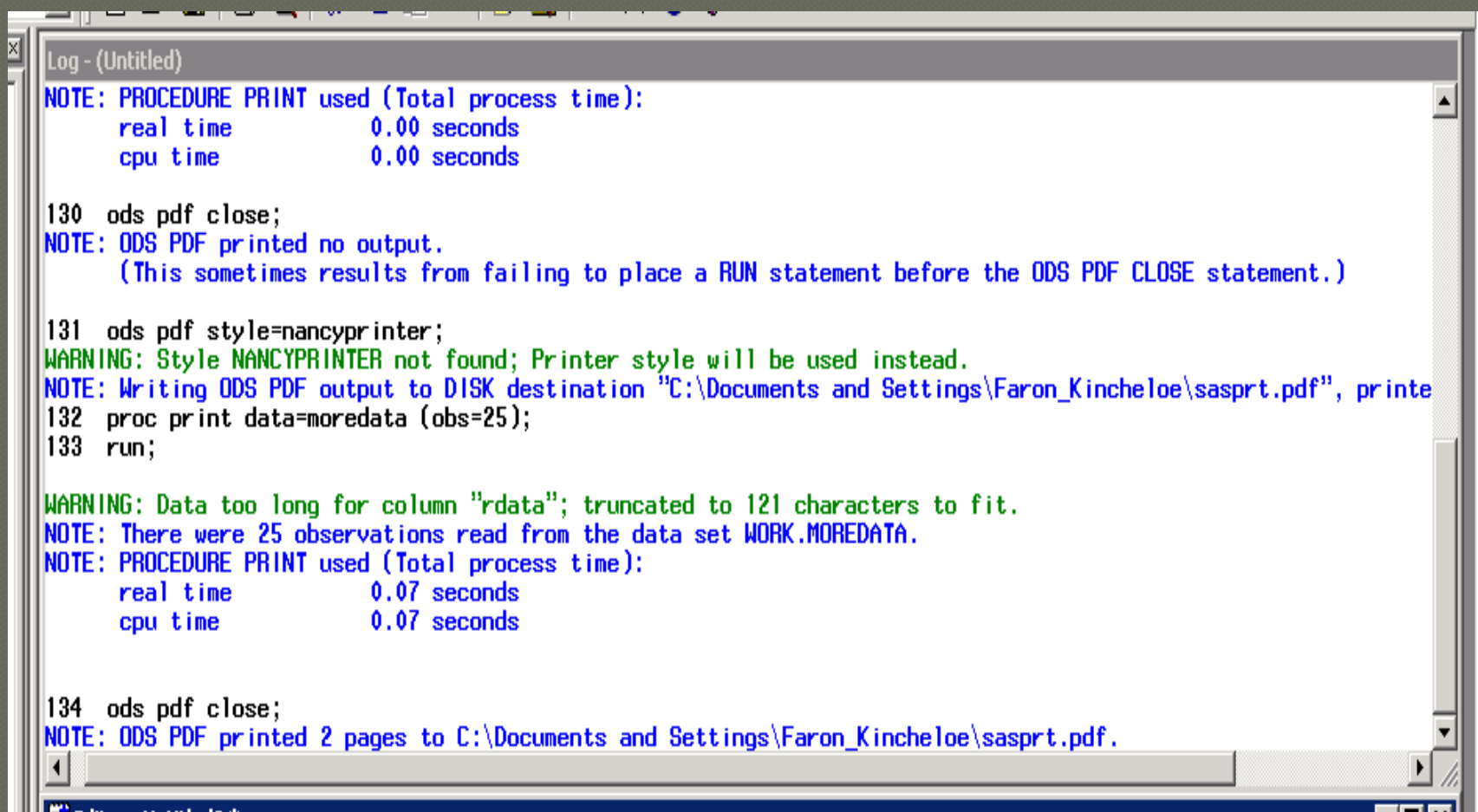
Program Validation


```
Log - (Untitled)                                                      _ □ ×
NOTE: 275101 records were read from the infile "K:\Projects\2011 - 2012\1112-213a Household income data-August
      update\sam053_3721124".
      The minimum record length was 523.
      The maximum record length was 523.
      One or more lines were truncated.
NOTE: The data set WORK.ROYALL has 275101 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time            47.09 seconds
      cpu time             1.75 seconds


67    * add household income from existing data to the royall data;
68    proc sql;
69    create table olddata as
70    select a.*, b.income_level
71    from royall a left join income.hhincome2010 b
72    on a.pidm=b.pidm
73    order by pidm0;
ERROR: The following columns were not found in the contributing tables: pidm0.
74    quit;
NOTE: The SAS System stopped processing this step because of errors.
NOTE: PROCEDURE SQL used (Total process time):
      real time            0.12 seconds
```

Program Validation

```
Log - (Untitled)
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.00 seconds
      cpu time            0.00 seconds

130  ods pdf close;
NOTE: ODS PDF printed no output.
      (This sometimes results from failing to place a RUN statement before the ODS PDF CLOSE statement.)

131  ods pdf style=nancyprinter;
WARNING: Style NANCYPRINTER not found; Printer style will be used instead.
NOTE: Writing ODS PDF output to DISK destination "C:\Documents and Settings\Faron_Kincheloe\sasprt.pdf", printe
132  proc print data=moredata (obs=25);
133  run;

WARNING: Data too long for column "rdata"; truncated to 121 characters to fit.
NOTE: There were 25 observations read from the data set WORK.MOREDATA.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.07 seconds
      cpu time            0.07 seconds


134  ods pdf close;
NOTE: ODS PDF printed 2 pages to C:\Documents and Settings\Faron_Kincheloe\sasprt.pdf.
```

Program Validation

- Programmer's Cardinal Rule
  - Know Thy Data
  - Understand the business process
- Manually calculate
  - Sample data
  - Multiple scenarios
- Frequency distribution
- Visually look at output
- Compare with historical data

Additional Tips

- Smaller and simpler is better
- How do you swallow an elephant?
  - One bite at a time!
- Consistency
  - Reusable code (macro programs)
  - Standardized field names
  - Standardized data (when possible)

Additional Tips

- The Devil is in the Details!
- Accuracy over speed
  - *"Why is there never enough time to do it right but always enough time to do it over?"* - Unknown