Different Approaches to Maintaining Excel Reports

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ING Direct Canada

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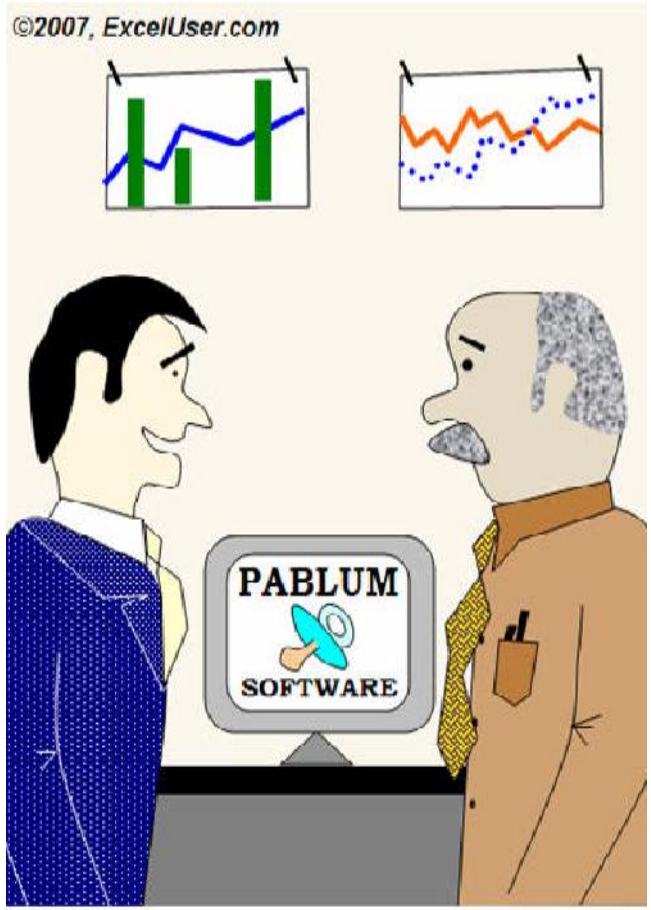
Objective

When we need to maintain routine reports, we would like to:

- Populate SAS data into formatted Excel spreadsheets as Excel reports are
  - easy to design
  - easy to format
  - easy to use and share
- Automate the routine update process as much as possible



It's for managers with no time for training.

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Outline

- Solution 1 : Update Excel reports through links to other data sources.

- Solution 2: Update Excel reports via Dynamic Data Exchange (DDE).

- Solution 3: Update Excel reports by calling Excel Macros

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Solution 1 – Update Reports Through Excel Links

Procedure

- Create a formatted Excel spreadsheet
- Populate SAS dataset
- Export SAS data to a new Excel worksheet
- Build links between the formatted Excel spreadsheet and the data sheet

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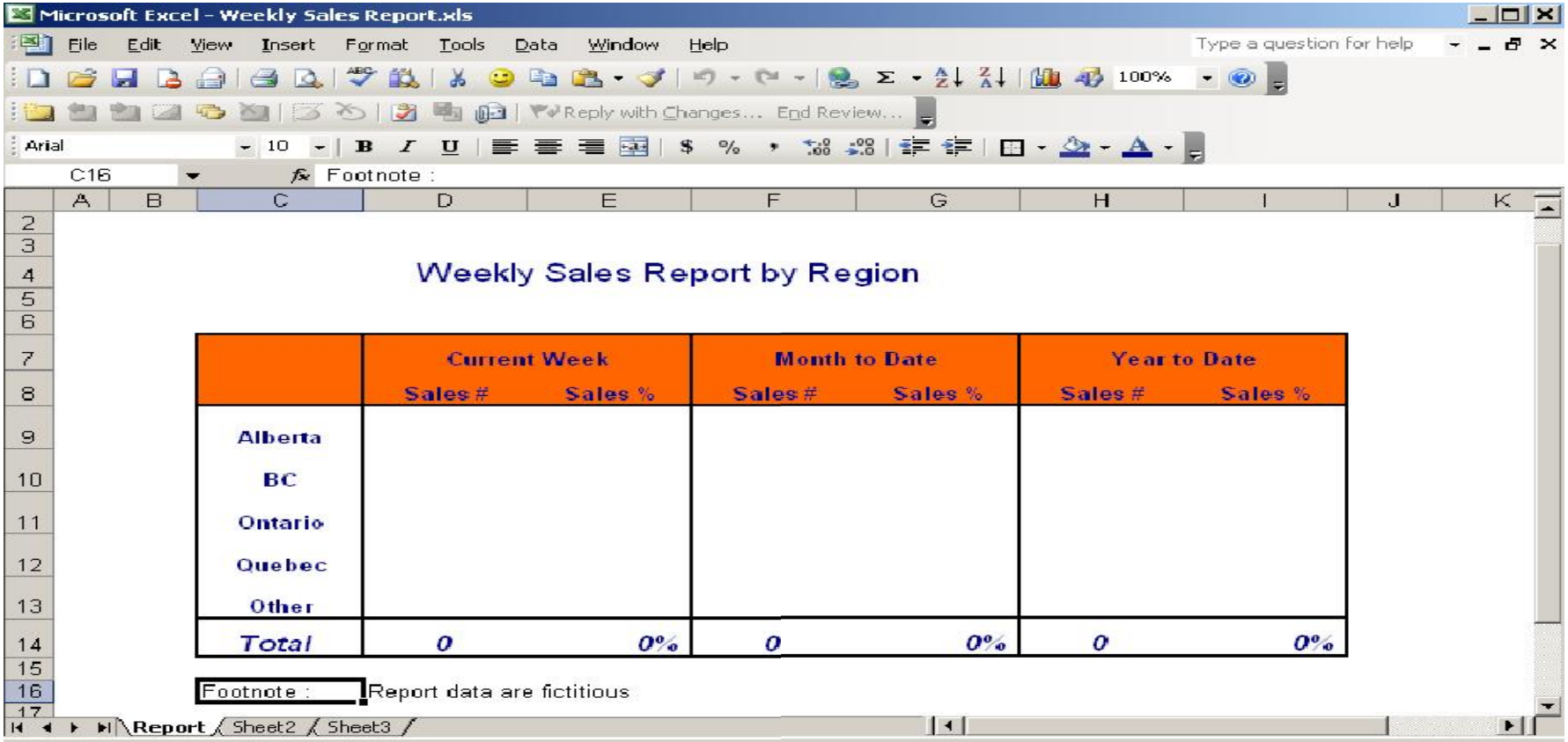
Solution 1 – Update Reports Through Excel Links

- Create a formatted Excel spreadsheet



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Solution 1 – Update Reports Through Excel Links

- Populate SAS dataset

VIEWTABLE: Work.Region

	REGION	WEEKLY #	WEEKLY %	MTD #	MTD %	YTD #	YTD %
1	Alberta	163	0.0842812323	263	0.0351408223	9565	0.085488037
2	BC	207	0.1070320579	369	0.1194561347	12385	0.1106520375
3	Ontario	945	0.488E246122	1512	0.4394787957	53456	0.4777E77478
4	Other	83	0.0429162358	129	0.0417610877	4352	0.0388563855
5	Quebec	536	0.2771458118	816	0.2641631596	32129	0.2871557911

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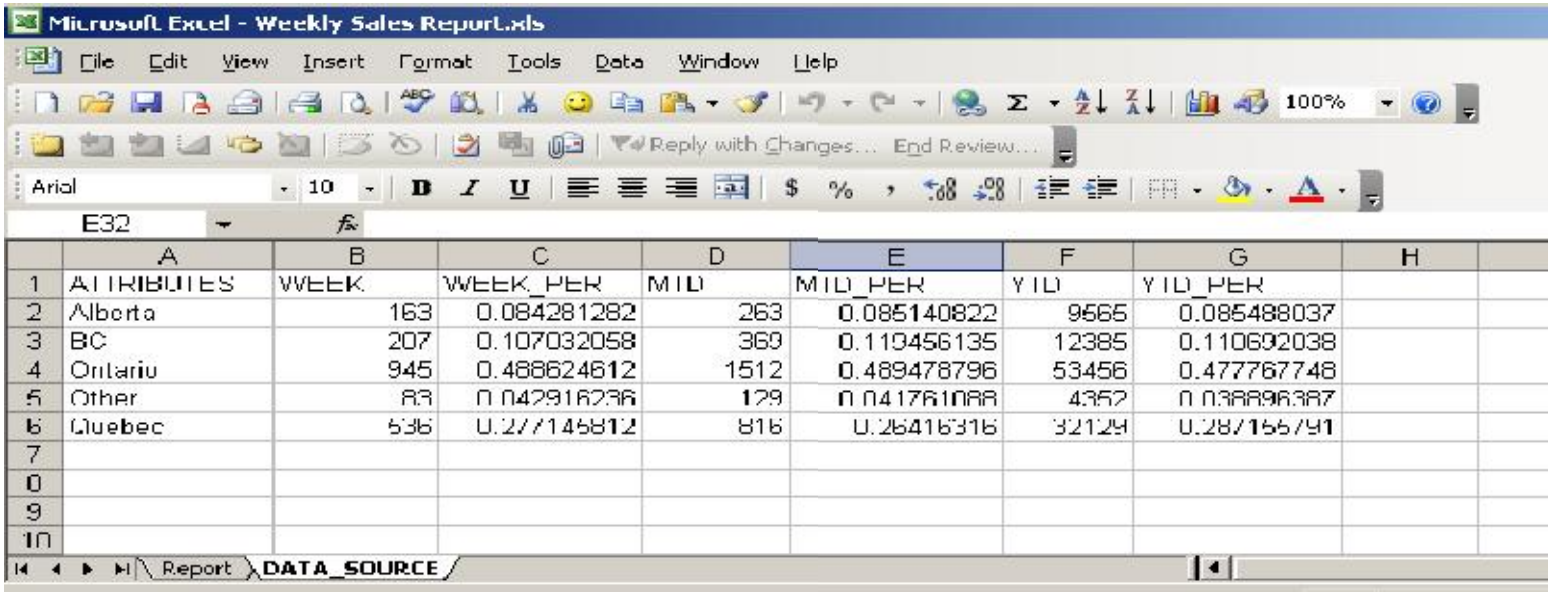
Solution 1 – Update Reports Through Excel Links

- Export SAS data to an Excel sheet

```
PROC EXPORT DATA=REGION DBMS=EXCEL
OUTFILE="My Documents\Weekly Sales Report" REPLACE;
SHEET="DATA_SOURCE";
RUN;
```



	A	B	C	D	E	F	G	H
1	ATTRIBUTES	WEEK	WEEK_PER	MTD	MTD_PER	YTD	YTD_PER	
2	Alberta	163	0.084281282	263	0.085140822	9565	0.085488037	
3	BC	207	0.107032058	369	0.119456135	12385	0.110692038	
4	Ontario	945	0.488624612	1512	0.489478796	53456	0.477767748	
5	Other	83	0.042916236	129	0.041761088	4352	0.038896387	
6	Quebec	536	0.277146812	816	0.26416316	32129	0.287166791	
7								
8								
9								
10								

Report DATA_SOURCE

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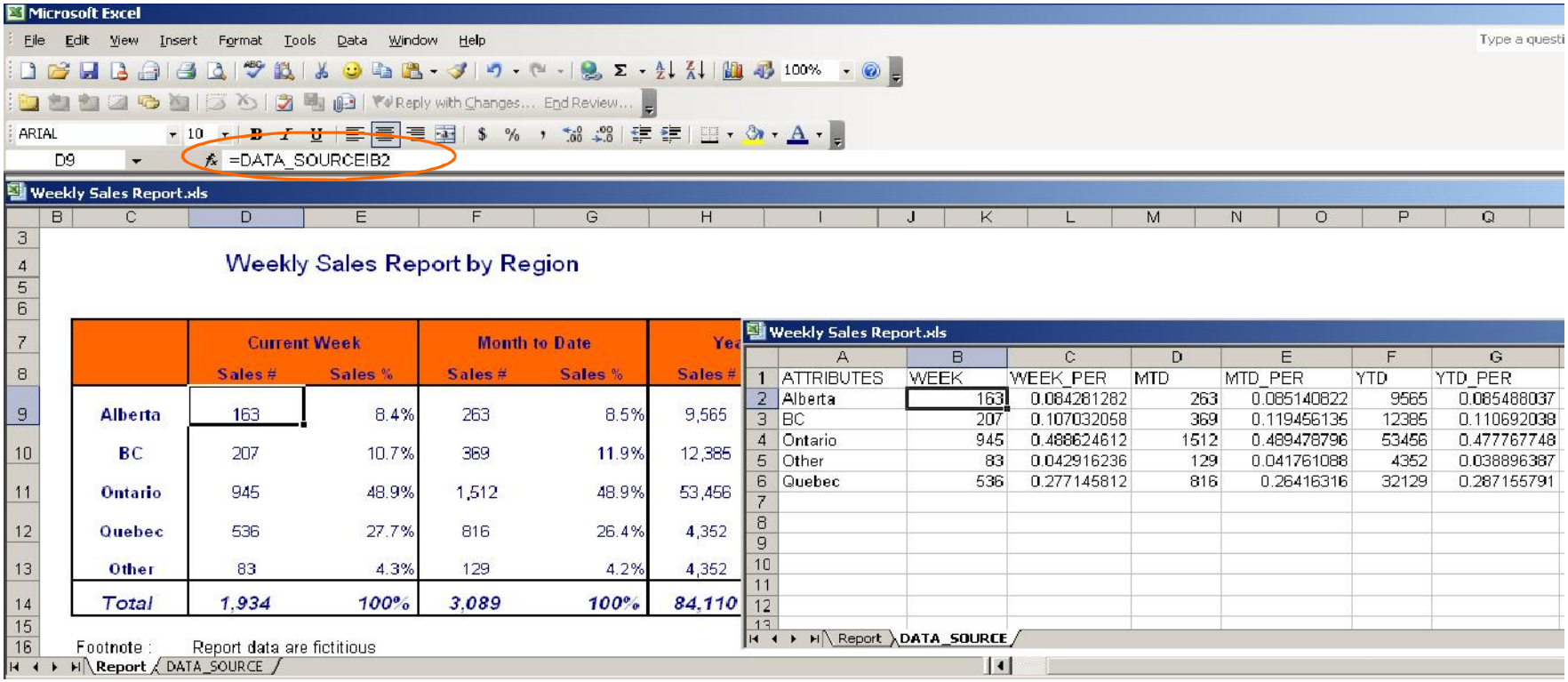
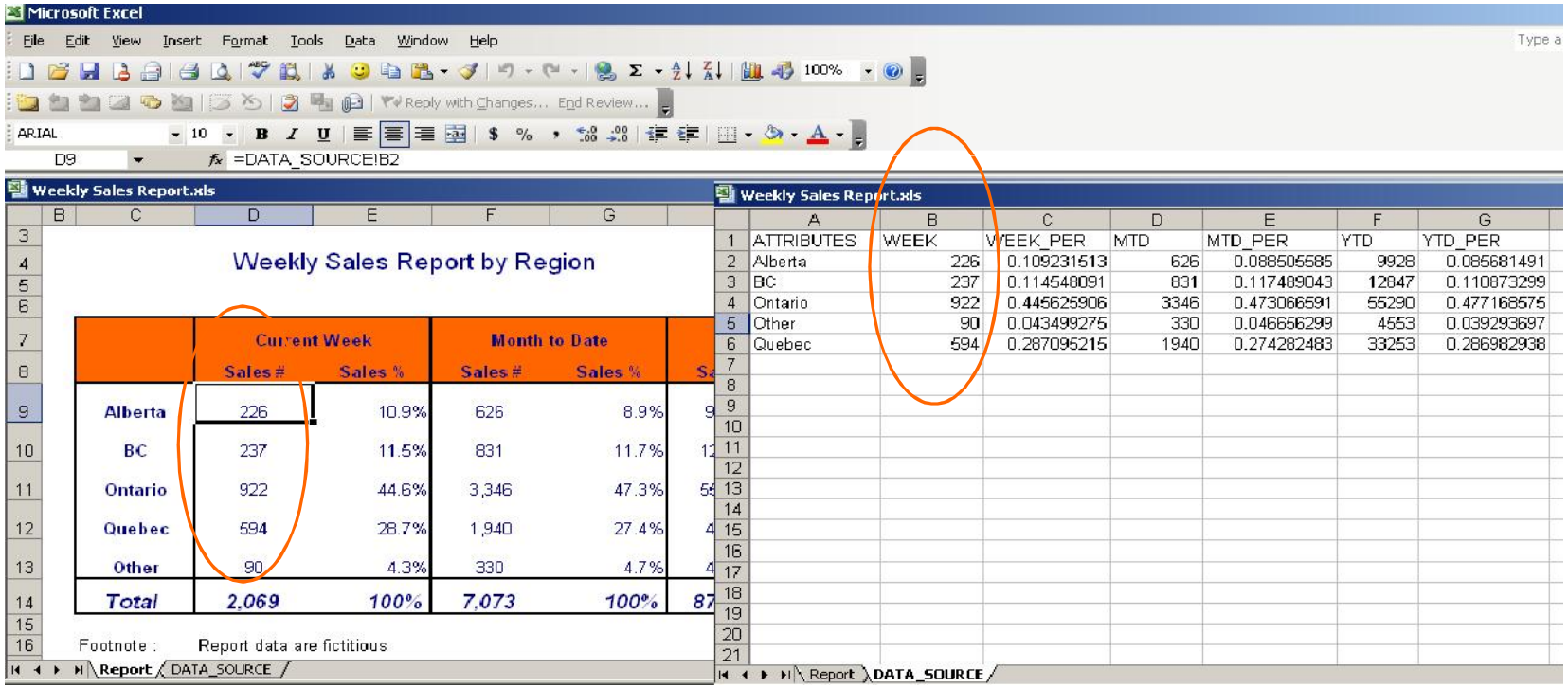
Solution 1 – Update Reports Through Excel Links

- Build links between the formatted Excel spreadsheet and the data sheet



Solution 1 – Update Reports Through Excel Links

- Once we set up the links, the routine work is updated with the “Data_Source” worksheet by Proc Export.



Solution 1 – Update Reports Through Excel Links

- Strengths:
  - It minimizes SAS coding.
  - It's easy to use.

- Weaknesses:
  - Building links for a massive report might be a tedious task
  - End users are not able to copy the report data for other purposes since the data in the report sheet are just images of the original Data Source.
  - End users might get distracted by Data Source sheets

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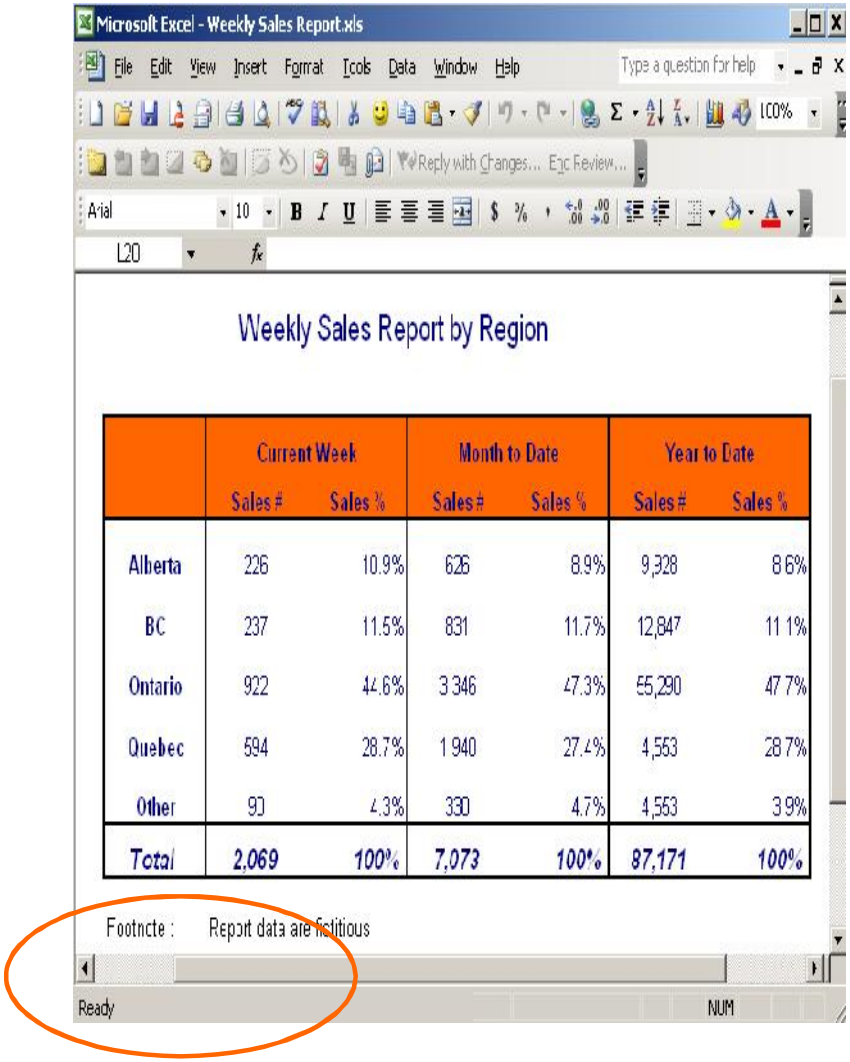
Solution 1 – Update Reports Through Excel Links

- Tips:
  - Keep Report sheets and Data Source sheets in one Excel file so that the report can be distributed
  - Focus users' attention on the report sheets by hiding sheet tabs.



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Solution 2 – Update Reports Via DDE

Procedure

- Create a formatted Excel spreadsheet
- Populate SAS dataset
- Connect SAS with Excel and export data to formatted Excel report file directly

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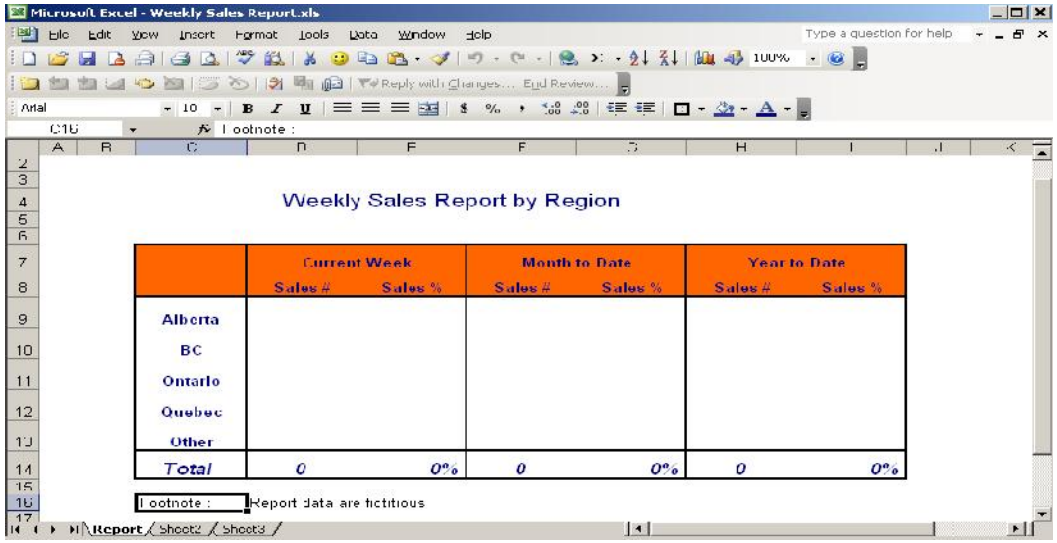
Solution 2 – Update Reports Via DDE

- Create a formatted Excel spreadsheet



- Populate SAS dataset

TABLE: Work.Region

Region	Weekly #	Weekly %	MTD #	MTD %	YTD #	YTD %
Alberta	226	0.1092315128	626	0.0885055846	9928	0.0856814906
BC	237	0.1145480909	831	0.1174890428	12847	0.1108732988
Ontario	922	0.4456259062	3346	0.4730665913	55290	0.4771685754
Quebec	594	0.2870952151	1940	0.2742824827	33253	0.2869829379
Other	90	0.043499275	330	0.0466562986	4553	0.0392936973

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Solution 2 – Update Reports Via DDE

- Connect SAS with Excel.

```
/*************************************************************
*** Open Excel application.
*************************************************************/
OPTIONS NOXSYNC NOXWAIT;
X " 'C:\Program Files\Microsoft Office\OFFICE11\excel.exe'";
/*************************************************************
*** Suspend SAS for 5 seconds to allow Excel to be fully started.
*************************************************************/
DATA _NULL_;
RC=SLEEP (5);
RUN;
/*************************************************************
*** Open the Report Template.
*************************************************************/
FILENAME OPEN DDE "EXCEL|SYSTEM" notab;
data _null_;
FILE OPEN  ;
PUT '[close("Book1")]';
PUT '[open("C:\Documents and Settings\AFENG\My Documents\Weekly Sales Report.xls")]';
run;
```

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Solution 2 – Update Reports Via DDE

- Export SAS data to the Excel report.

```
/*****************************************************************
*** Fill data directly into the Excel report .
*****************************************************************/
FILENAME REPORT DDE 'EXCEL|REPORT!R9C4:R13C9';
DATA _NULL_;
   SET REGION;
   FILE REPORT;
      PUT WEEK WEEK_PER MTD MTD_PER YTD YTD_PER;
RUN;
```

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Solution 2 – Update Reports Via DDE

- Export SAS data to the Excel report.

```
/*****************************************************************
*** Save the Excel Report and close Excel.
*****************************************************************/

data _null_;
FILE OPEN  ;
PUT "[Save()]";
PUT '[FILE.CLOSE(FALSE)]';
PUT '[QUIT()]';
RUN;

FILENAME OPEN CLEAR;
FILENAME REPORT CLEAR;

DATA _NULL_;
RC=SLEEP (5);
RUN;
```

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Solution 2 – Update Reports Via DDE

- Strengths:
  - SAS can operate Excel directly
  - SAS through DDE can do (almost) anything
    - Export data
    - Format data
    - Build formulas
- Weaknesses:
  - Needs a lot of hard coding
  - Difficult to use
    - Excel areas have to be addressed in code by columns and rows

"It's called Excel but I don't feel like I'm excelling..."

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Solution 2 – Update Reports Via DDE

- Tips:

Please refer TASS presentation by Nathaniel Derby on June 13,08

Populating Excel: The DDE Way - Nathaniel Derby

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Solution 3 – Update Reports by Calling Excel Macros

- Procedure
  - Create a formatted Excel spreadsheet
  - Populate SAS dataset and export to an Excel data source file
  - Create Excel Macros to update the formatted Excel spreadsheet by copying data from the data source file
  - Connect SAS with Excel and call Excel Macros to update Excel reports

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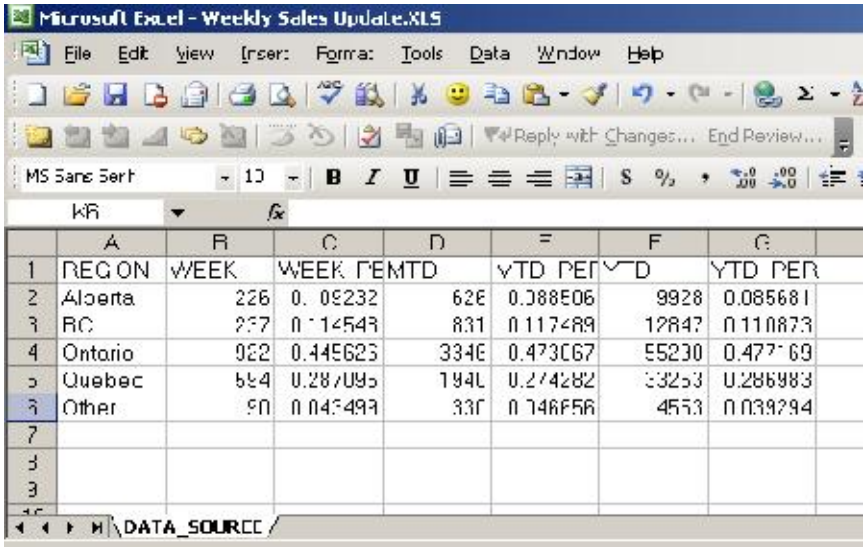
Solution 3 – Update Reports by Calling Excel Macros

- Create a formatted Excel spreadsheet.
- Populate SAS dataset and export to a new Excel data source file.

```
PROC EXPORT DATA=REGION
   DBMS=EXCEL
OUTFILE="My Documents\Weekly
   Sales Update" REPLACE;
SHEET="DATA_SOURCE";
RUN;
```

TABLE: Work.Region

Region	Weekly #	Weekly %	MTD #	MTD %	YTD #	YTD %
Alberta	226	0.10923151728	626	0.08656856846	9928	0.08687493406
BC	257	0.11745497479	831	0.11748900428	12847	0.11067729888
Ontario	922	0.44562593062	3346	0.47306659713	55290	0.47716855754
Quebec	554	0.26709521511	1940	0.27428224827	33253	0.28658329379
Other	90	0.04348499275	330	0.04666562986	4553	0.03929369373



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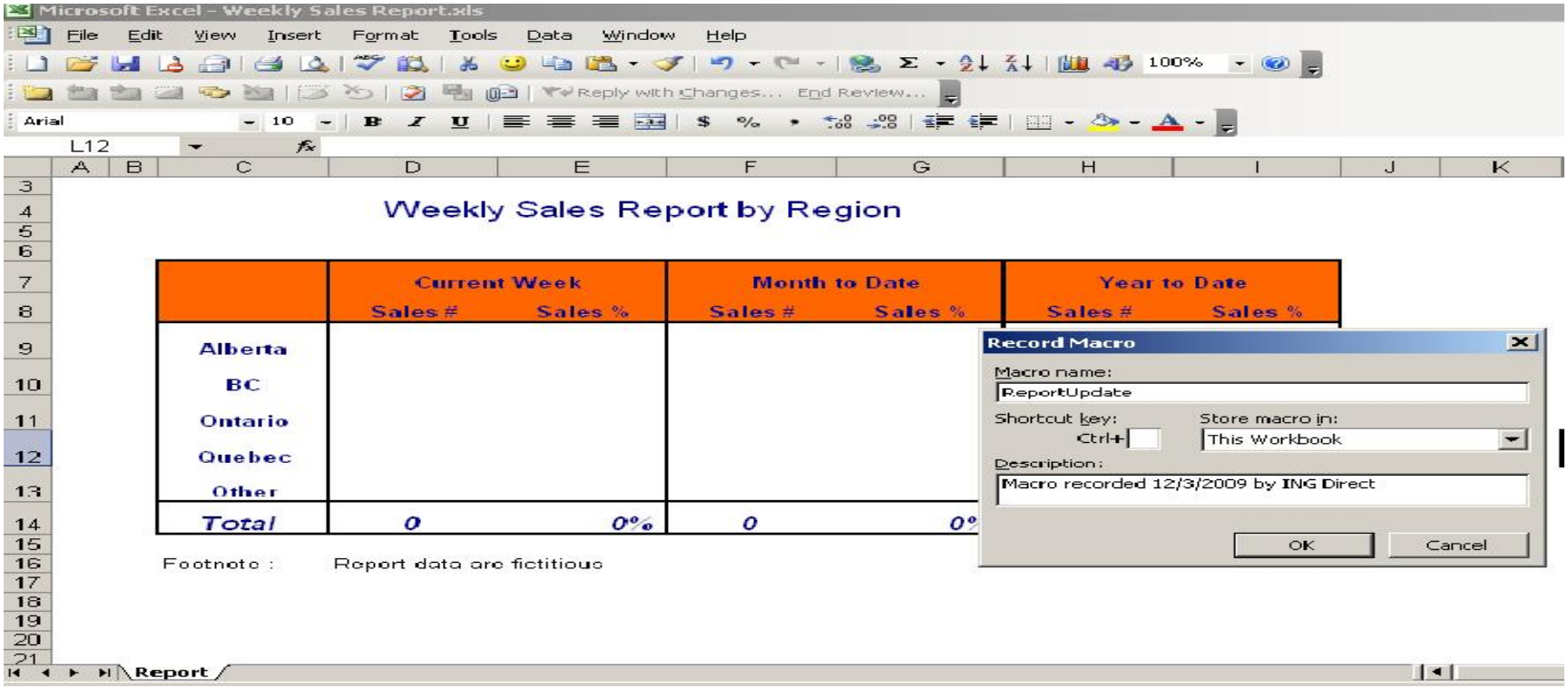
Solution 3 – Update Reports by Calling Excel Macros

- Create Excel Macros to update the formatted Excel spreadsheet by copying data from the data source file



Solution 3 – Update Reports by Calling Excel Macros

- Connect SAS with Excel

```
/*************************************************************
*** Open Excel application.
*************************************************************/
OPTIONS NOXSYNC NOXWAIT;
X " 'C:\Program Files\Microsoft Office\OFFICE11\excel.exe'";

/*************************************************************
*** Suspend SAS for 5 seconds to allow Excel to be fully started.
*************************************************************/
DATA _NULL_;
RC=SLEEP (5);
RUN;

FILENAME OPEN DDE "EXCEL|SYSTEM" notab;

data _null_;
FILE OPEN  ;
PUT '[close("Book1")]';
PUT '[open("C:\Documents and Settings\AFENG\My Documents\Weekly Sales Report.xls")]';
run;
```

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Solution 3 – Update Reports by Calling Excel Macros

- Call Excel Macros to update Excel Report

```
/*---------------------------------------------------------------------*/
/* Execute the macro */
/*---------------------------------------------------------------------*/
data _null_;
FILE OPEN;
PUT '[RUN("REPORTUPDATE")]';
PUT "[Save()]";
PUT '[FILE.CLOSE(FALSE)]';
PUT '[QUIT()]';
RUN;

/*---------------------------------------------------------------------*/
/* Clean up the filerefs */
/*---------------------------------------------------------------------*/
FILENAME OPEN CLEAR;

DATA _NULL_;
RC=SLEEP (5);
RUN;
```

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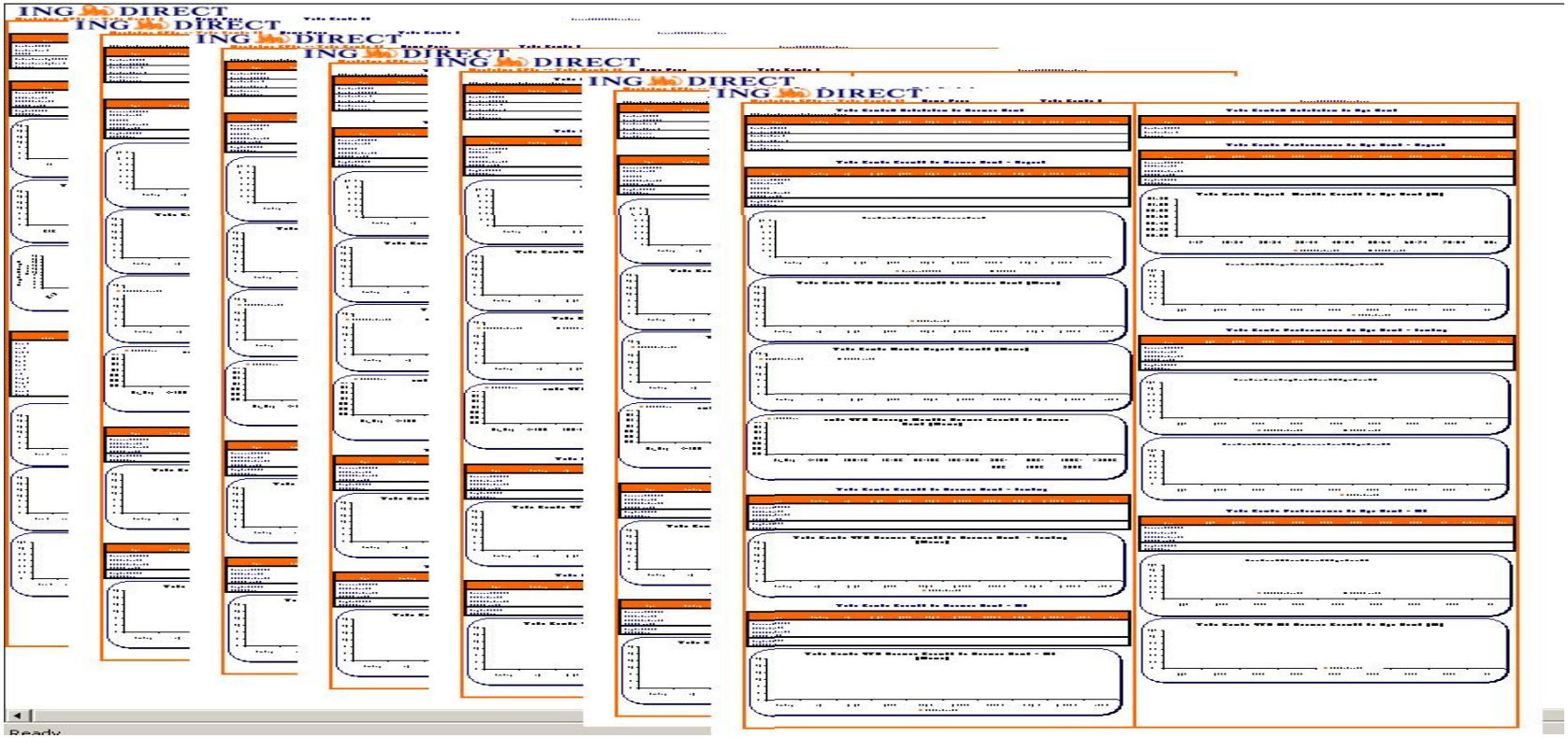
Solution 3 – Update Reports by Calling Excel Macros

- Strength:
  - Can handle massive and complex reports !



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Solution 3 – Update Reports by Calling Excel Macros

- Strengths:
  - SAS will operate Excel directly
  - It's FUN to watch the update process

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Solution 3 – Update Reports by Calling Excel Macros

- Weakness:
  - Need to learn how to record Excel Macros (This is not difficult at all! You don't need to know how to do VBA coding before you can record Excel Macros)

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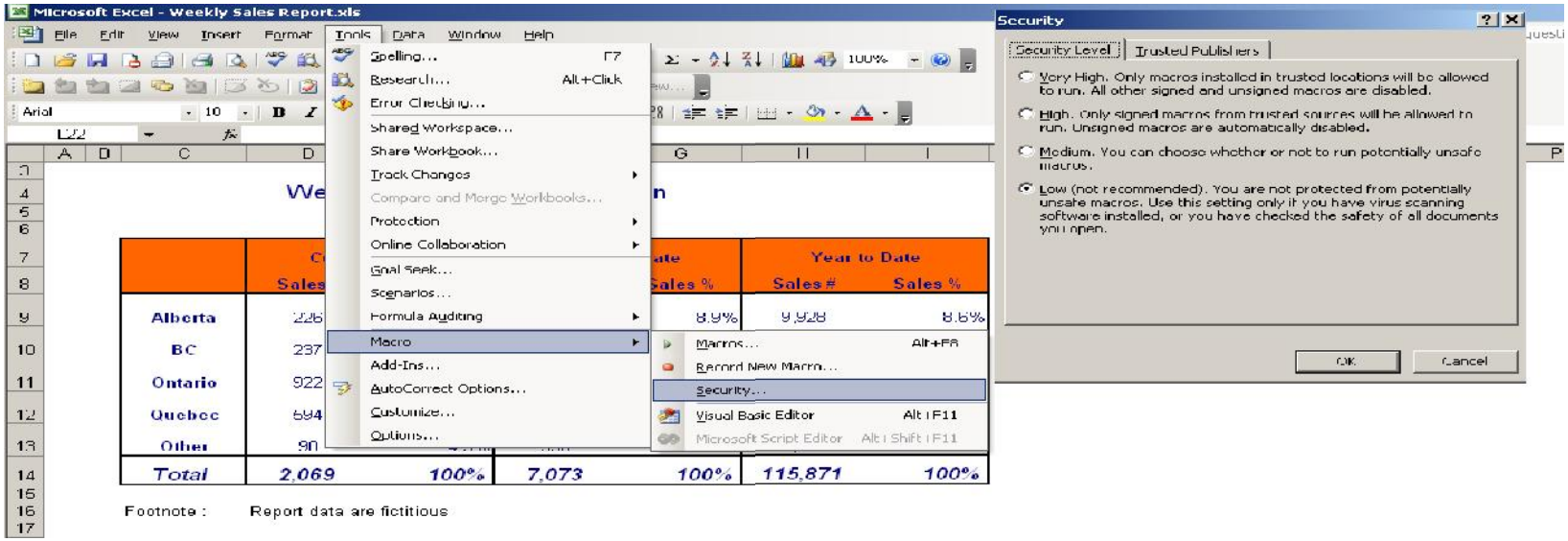
Solution 3 – Update Reports by Calling Excel Macros

- Tips:
  - Keep Report spreadsheets and Data Source sheets in different Excel files.
  - Set Security Level from Medium (by default) to Low to suppress the Excel Macro warning



Outline

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- Solution 2: Update Excel reports via Dynamic Data Exchange (DDE).

- Solution 3: Update Excel reports by calling Excel Macros

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Acknowledgements & Contact Information

- Acknowledgements
  - Special thanks to Peter Eberhardt , Darryl Prebble and Rupinder Dhillon for taking precious time to review this presentation.
  - SAS is a Registered Trademark of the SAS Institute, Inc. of Cary, North Carolina
  - Microsoft Excel is a Registered Trademark of the Microsoft Corporation
- Contact Information

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