Math 338 Due 2/28/2021 Name: Nhi Vu

Kafai – HW 1

1A. Write a SAS program to graph the following using the permanent data set HW1:

1. The frequency of the regions.
2. The percentage of visits.
3. The frequency of visits for each region.
4. The frequency of regions for each visit.
5. The sum of sales for each region.
6. The sum of expenses for each region
7. The block chart of mean of sale for each region by visit.

1B. Write a SAS program to perform the following using the permanent data set HW1:

1. Find and print Only North east Region – All variables
2. Find and print Number of Visits from Regional manager is not 5 – All variables
3. Gross Sales for Last Quarter is larger than 700000 and Advertising Expenses for Last Quarter is less than 5000 – All variables
4. Only Southeast Region – State name and Region
5. All States except the ones that start with M and N and T.

1C. Write a SAS program to print the following using the permanent data set HW1:

1. For each region, how many salesmen are in each state, what are the advertising expenditures for each state (in ascending order), and what is the total advertising expenditure for the region
2. How many states were visited 1, 2, 3, 4, and 5 times by their regional manager?

\*\*\*\*\* PART 1A \*\* Nhi Vu \*\*\*\*\*/

libname datain "\\Client\C$\Users\nhivutu\Downloads";

pattern color= brown;

/\*\*\*\*\* 1A-i \*\* Nhi Vu \*\*\*\*\*/

\*The frequency of the regions;

**proc** **gchart** data= datain.HW1;

vbar region;

**run**;

Chart, bar chart

Description automatically generated

/\*\*\*\*\* 1A-ii \*\* Nhi Vu \*\*\*\*\*/

\*The percentage of visits;

**proc** **gchart** data= datain.HW1;

pie visits/discrete type= percent;

**run**;

Chart, pie chart

Description automatically generated

/\*\*\*\*\* 1A-iii \*\* Nhi Vu \*\*\*\*\*/

\*The frequency of visits for each region;

**proc** **gchart** data= datain.HW1;

vbar visits /discrete space=**0** group = region ;

**run**;

Chart, bar chart, histogram

Description automatically generated

/\*\*\*\*\* 1A-iv \*\* Nhi Vu \*\*\*\*\*/

\*The frequency of regions for each visit;

**proc** **gchart** data= datain.HW1;

block region/group= visits;

**run**;

Chart

Description automatically generated with low confidence

/\*\*\*\*\* 1A-v \*\* Nhi Vu \*\*\*\*\*/

\*The sum of sales for each region;

**proc** **gchart** data= datain.HW1;

donut region / sumvar = sale;

**run**;

Chart, pie chart

Description automatically generated

/\*\*\*\*\* 1A-vi \*\* Nhi Vu \*\*\*\*\*/

\*The sum of expenses for each region;

**proc** **gchart** data= datain.HW1;

pie region / sumvar = expenses;

**run**;

Chart, pie chart

Description automatically generated

/\*\*\*\*\* 1A-vii \*\* Nhi Vu \*\*\*\*\*/

**proc** **gchart** data= datain.HW1;

\*The block chart of mean of sale for each region by visit;

block region / group = visits sumvar = sale type = mean;

**run;**

**quit;**

Diagram

Description automatically generated

/\*\*\*\*\* PART-1B \*\* Nhi Vu \*\*\*\*\*/

libname datain "\\Client\C$\Users\nhivutu\Downloads";

/\*\*\*\*\* 1B-i \*\* Nhi Vu \*\*\*\*\*/

\*Find and print Only North east Region ñ All variables;

**proc** **print** data= datain.HW1 label noobs;

by region;

where region='Northeast';

**run**;

------------------------- Region Assignment=Northeast ------------------------

Visits Gross

From Number Sales For Advertising

Regional Of Last ExpensesFor

State Name Manager Salesmen Quarter Last Quarter

NewYork 5 4 280000 8000

New Jersey 3 3 520000 6000

Pennsylvania 3 5 480000 6000

Michigan 4 4 300000 6000

Massachusetts 3 2 510000 5000

Ohio 3 4 450000 5000

Maryland 3 3 600000 4000

Illinois 5 4 240000 4000

Connecticut 3 1 530000 3000

Iowa 4 2 360000 3000

Wisconsin 4 3 310000 3000

Idiana 2 2 340000 2000

Minnesota 4 3 320000 2000

Delaware 1 1 120000 1000

Rhode Island 1 1 180000 1000

Maine 2 1 300000 1000

New Hampshire 2 2 290000 1000

Vermont 2 2 280000 1000

/\*\*\*\*\* 1B-ii \*\* Nhi Vu \*\*\*\*\*/

\*Find and print Number of Visits from Regional manager is not 5 ñ All variables;

**proc** **sort** data=datain.HW1;

by visits;

**proc** **print** data= datain.HW1 label noobs;

id visits;

where visits < **5**;

**run**;

Visits Gross

From Number Sales For Advertising

Regional Region Of Last Expenses For

Manager State Name Assignment Salesmen Quarter Last Quarter

1 Delaware Northeast 1 120000 1000

1 Rhode Island Northeast 1 180000 1000

1 West Virginia Southeast 1 260000 2000

1 Nevada Southwest 1 290000 1000

2 Idiana Northeast 2 340000 2000

2 Maine Northeast 1 300000 1000

2 New Hampshire Northeast 2 290000 1000

2 Vermont Northeast 2 280000 1000

2 Nebraska Northwest 3 800000 2000

2 Virginia Southeast 3 460000 4000

2 Kentucky Southeast 1 390000 2000

2 Utah Southwest 3 780000 6000

3 New Jersey Northeast 3 520000 6000

3 Pennsylvania Northeast 5 480000 6000

3 Massachusetts Northeast 2 510000 5000

3 Ohio Northeast 4 450000 5000

3 Maryland Northeast 3 600000 4000

3 Connecticut Northeast 1 530000 3000

3 Washington Northwest 4 650000 6000

3 Oregon Northwest 4 600000 5000

3 Missouri Southeast 3 530000 5000

3 Lousiana Southeast 2 480000 4000

3 Arkansas Southeast 1 520000 1000

3 New Mexico Southwest 2 680000 4000

3 Oklahoma Southwest 3 540000 4000

4 Michigan Northeast 4 300000 6000

4 Iowa Northeast 2 360000 3000

4 Wisconsin Northeast 3 310000 3000

4 Minnesota Northeast 3 320000 2000

4 Wyoming Northwest 2 590000 5000

4 Montana Northwest 2 620000 3000

4 Idaho Northwest 3 600000 2000

4 Arizona Southeast 3 810000 5000

4 Alabama Southeast 2 600000 4000

4 Missisippi Southeast 2 620000 4000

4 Tennessee Southeast 2 550000 3000

4 Georgia Southeast 2 580000 2000

4 Colorado Southwest 3 650000 4000

4 Kansas Southwest 3 700000 4000

/\*\*\*\*\* 1B-iii \*\* Nhi Vu \*\*\*\*\*/

\*Gross Sales for Last Quarter is larger than 700000 and Advertising Expenses for Last Quarter is less than 5000 ñ All variables;

**data** datain.temp0;

set datain.HW1;

if sale> **700000** && expenses < **5000** then output;

**run**;

**proc** **print** data= datain.temp0 label noobs;

**run**;

Visits Gross

From Number Sales For Advertising

State Region Regional Of Last Expenses For

Name Assignment Manager Salesmen Quarter Last Quarter

Nebraska Northwest 2 3 800000 2000

/\*\*\*\*\* 1B-v \*\* Nhi Vu \*\*\*\*\*/

\*All States except the ones that start with M and N and T;

**data** datain.temp1;

set datain.HW1;

if state =: 'M'or state =:'N' or state =:'T' then delete;

**run**;

**proc** **sort** data=datain.temp1;

by state;

**proc** **print** data=datain.temp1 label noobs;

var state;

**run**;

**quit;**

State Name

Alabama

Arizona

Arkansas

California

Colorado

Connecticut

Delaware

Florida

Georgia

Idaho

Idiana

Illinois

Iowa

Kansas

Kentucky

Lousiana

Ohio

Oklahoma

Oregon

Pennsylvania

Rhode Island

South Carolina

South Dakota

Utah

Vermont

Virginia

Washington

West Virginia

Wisconsin

Wyoming

/\*\*\*\*\* PART-1C-\*\* Nhi Vu \*\*\*\*\*/

libname datain "\\Client\C$\Users\nhivutu\Downloads";

/\*\*\*\*\* 1C-i \*\* Nhi Vu \*\*\*\*\*/

\*For each region, how many salesmen are in each state, what are the advertising expenditures for each state (in ascending order), and what is the total advertising expenditure for the region;

**proc** **sort** data=datain.HW1;

by region descending expenses;

**proc** **print** data=datain.HW1 label noobs;

by region;

id state;

sum expenses;

var salesman sale expenses;

**run**;

--------------------------------- Region Assignment=Northeast ---------------------------------

Gross

Number Sales For Advertising

Of Last Expenses For

State Name Salesmen Quarter Last Quarter

NewYork 4 280000 8000

New Jersey 3 520000 6000

Pennsylvania 5 480000 6000

Michigan 4 300000 6000

Massachusetts 2 510000 5000

Ohio 4 450000 5000

Maryland 3 600000 4000

Illinois 4 240000 4000

Connecticut 1 530000 3000

Iowa 2 360000 3000

Wisconsin 3 310000 3000

Idiana 2 340000 2000

Minnesota 3 320000 2000

Delaware 1 120000 1000

Rhode Island 1 180000 1000

Maine 1 300000 1000

New Hampshire 2 290000 1000

Vermont 2 280000 1000

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region 62000

--------------------------------- Region Assignment=Northwest ---------------------------------

Gross

Number Sales For Advertising

Of Last Expenses For

State Name Salesmen Quarter Last Quarter

North Dakota 3 1240000 8000

South Dakota 3 1100000 8000

Washington 4 650000 6000

Oregon 4 600000 5000

Wyoming 2 590000 5000

Montana 2 620000 3000

Nebraska 3 800000 2000

Idaho 3 600000 2000

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region 39000

--------------------------------- Region Assignment=Southeast ---------------------------------

Gross

Number Sales For Advertising

Of Last Expenses For

State Name Salesmen Quarter Last Quarter

North Carolina 2 1030000 7000

South Carolina 3 1120000 7000

Missouri 3 530000 5000

Arizona 3 810000 5000

Florida 4 950000 5000

Virginia 3 460000 4000

Lousiana 2 480000 4000

Alabama 2 600000 4000

Missisippi 2 620000 4000

Tennessee 2 550000 3000

West Virginia 1 260000 2000

Kentucky 1 390000 2000

Georgia 2 580000 2000

Arkansas 1 520000 1000

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region 55000

--------------------------------- Region Assignment=Southwest ---------------------------------

Gross

Number Sales For Advertising

Of Last Expenses For

State Name Salesmen Quarter Last Quarter

California 6 1500000 9000

Texas 7 1840000 9000

Utah 3 780000 6000

New Mexico 2 680000 4000

Oklahoma 3 540000 4000

Colorado 3 650000 4000

Kansas 3 700000 4000

Nevada 1 290000 1000

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region 41000

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197000

/\*\*\*\*\* 1C-ii \*\* Nhi Vu \*\*\*\*\*/

\*How many states were visited 1, 2, 3, 4, and 5 times by their regional manager?;

**proc** **freq** data=datain.HW1;

table visits;

**run**;

**quit**;

The FREQ Procedure

Visits From Regional Manager

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Cumulative Cumulative

visits Frequency Percent Frequency Percent

1 4 8.33 4 8.33

2 8 16.67 12 25.00

3 13 27.08 25 52.08

4 14 29.17 39 81.25

5 9 18.75 48 100.00