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:

i. The frequency of the regions.
ii. The percentage of visits.
iii. The frequency of visits for each region.
iv. The frequency of regions for each visit.
v. The sum of sales for each region.
vi. The sum of expenses for each region
vii. The block chart of mean of sale for each region by visit.

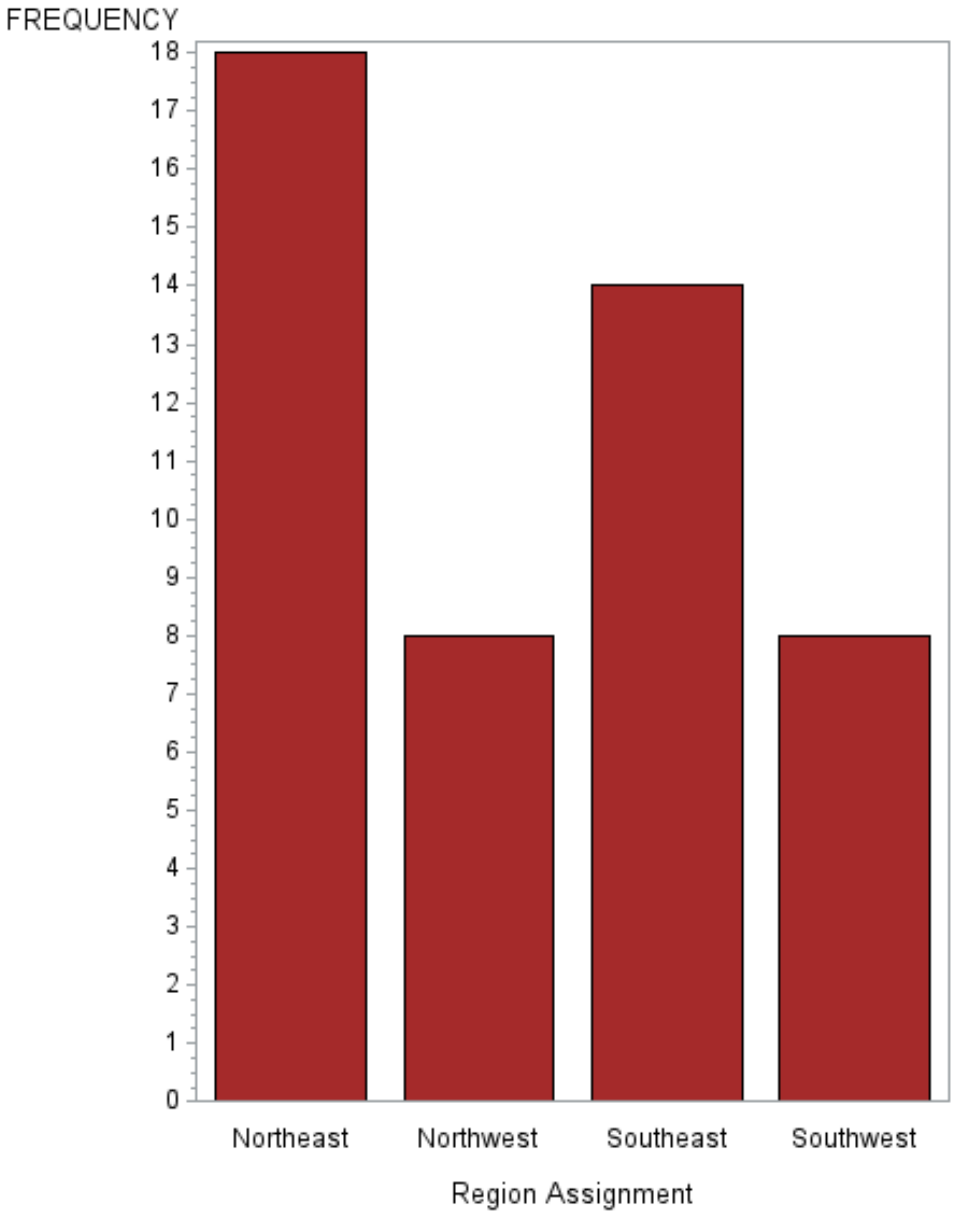
1B. Write a SAS program to perform the following using the permanent data set HW1:

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

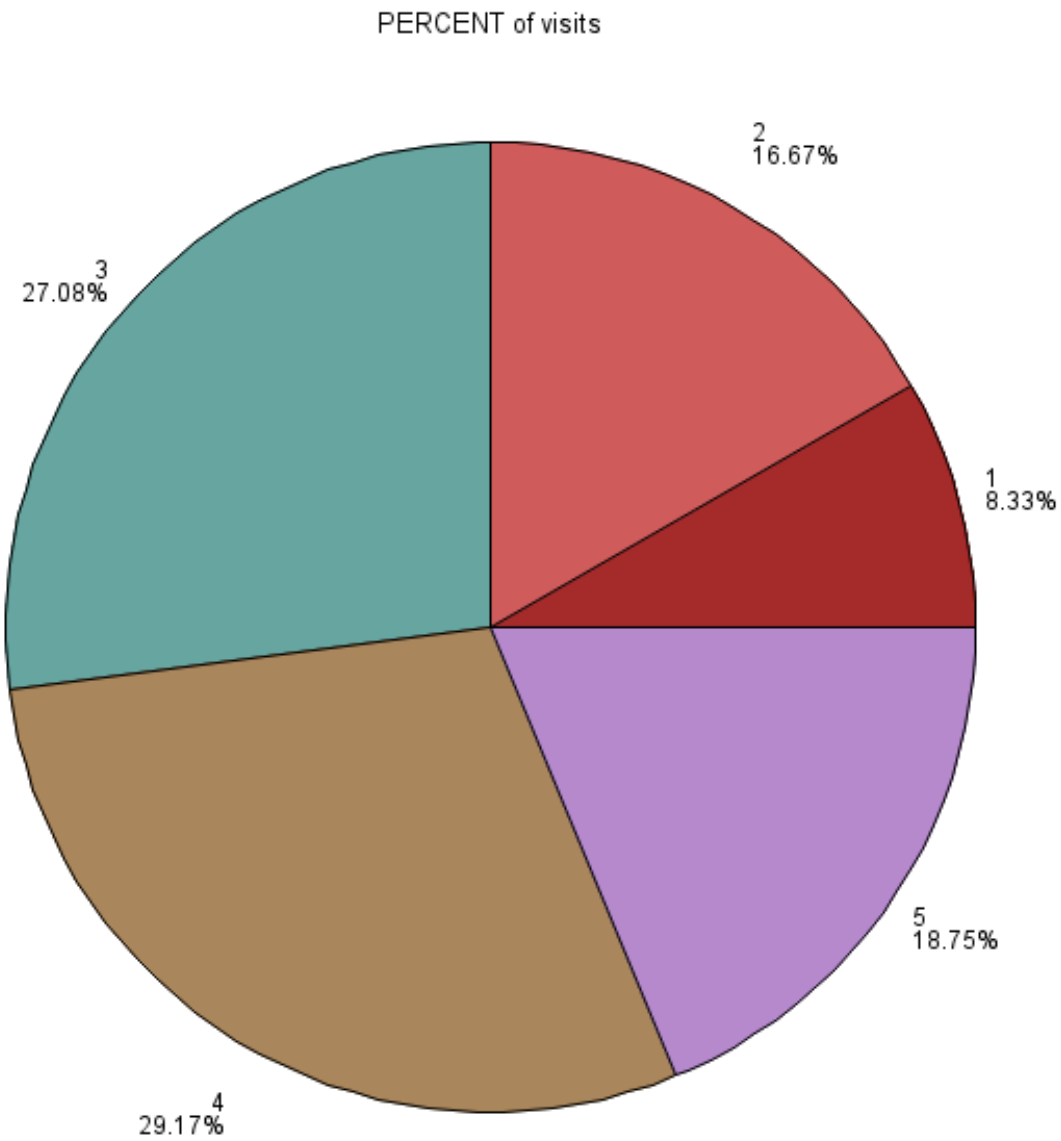
1C. Write a SAS program to print the following using the permanent data set HW1:

i. 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
ii. How many states were visited 1, 2, 3, 4, and 5 times by their regional manager?

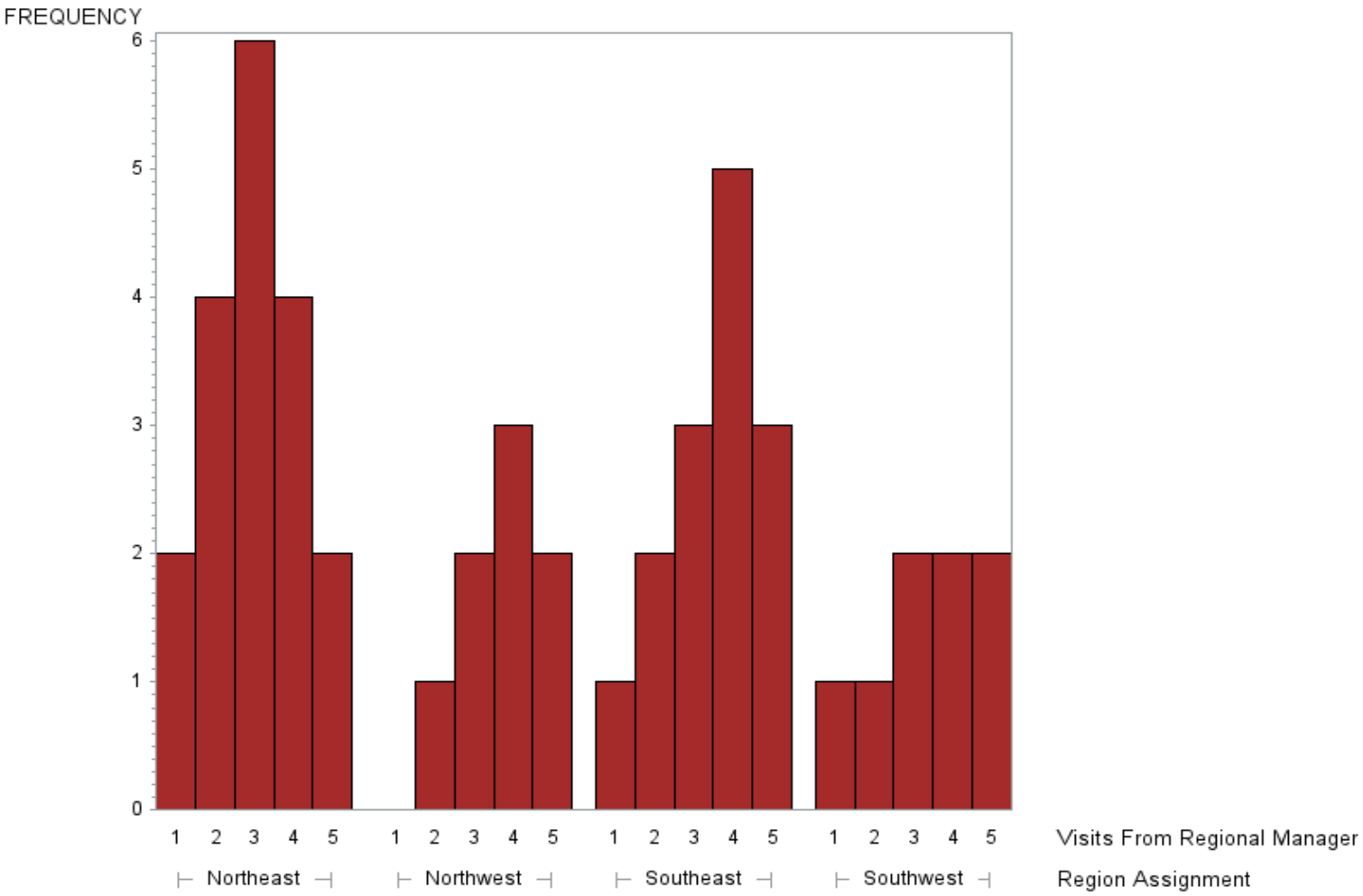
```
***** PART 1A ** Nhi Vu *****/
libname datain "\\Client\C$\Users\nhivutu\Downloads";
pattern color= brown;

/***** 1A-i ** Nhi Vu *****/
*The frequency of the regions;
proc gchart data= datain.HW1;
vbar region;
run;
```



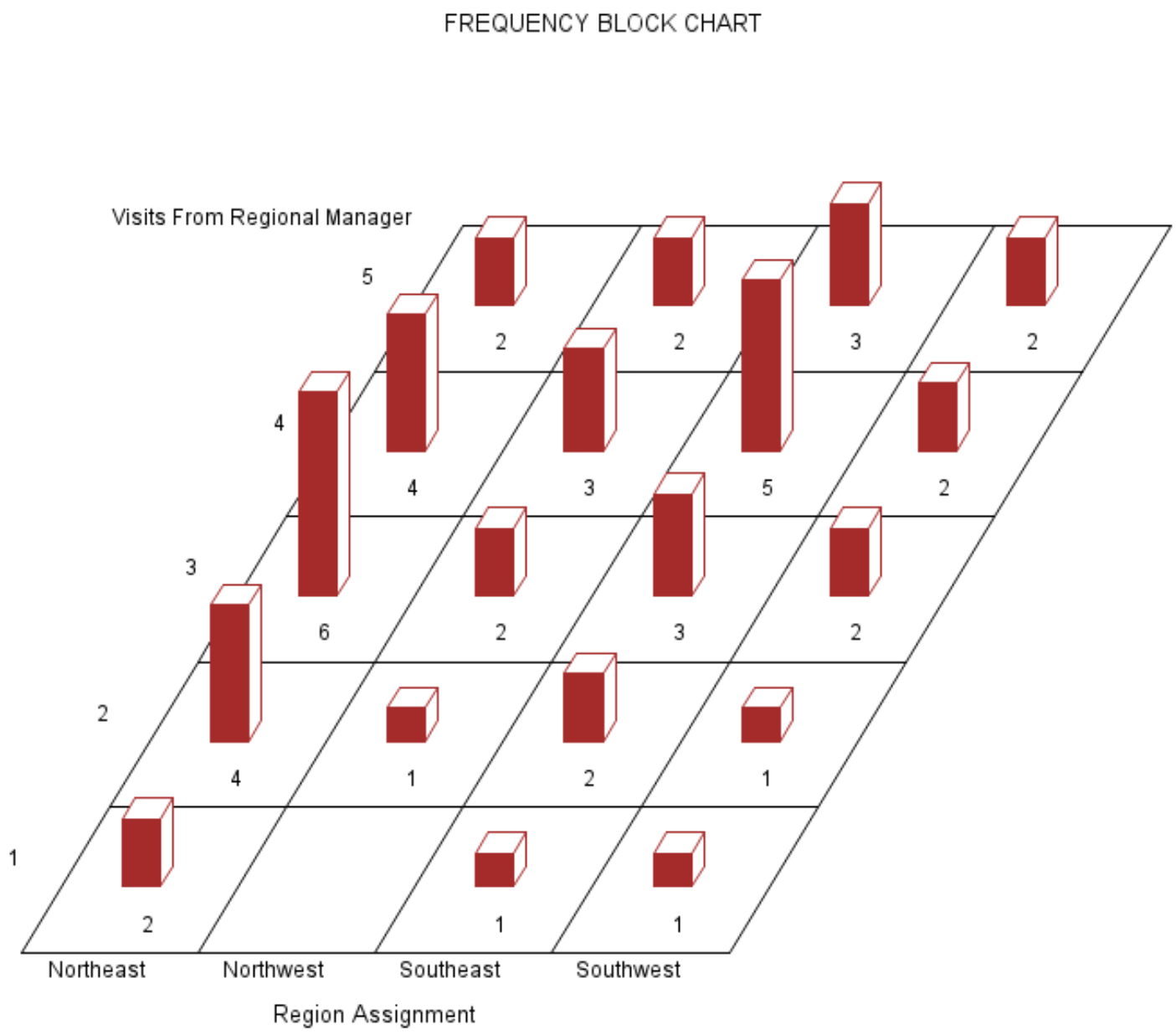
```
/***** 1A-ii ** Nhi Vu *****/
*The percentage of visits;
proc gchart data= datain.HW1;
pie visits/discrete type= percent;
run;
```



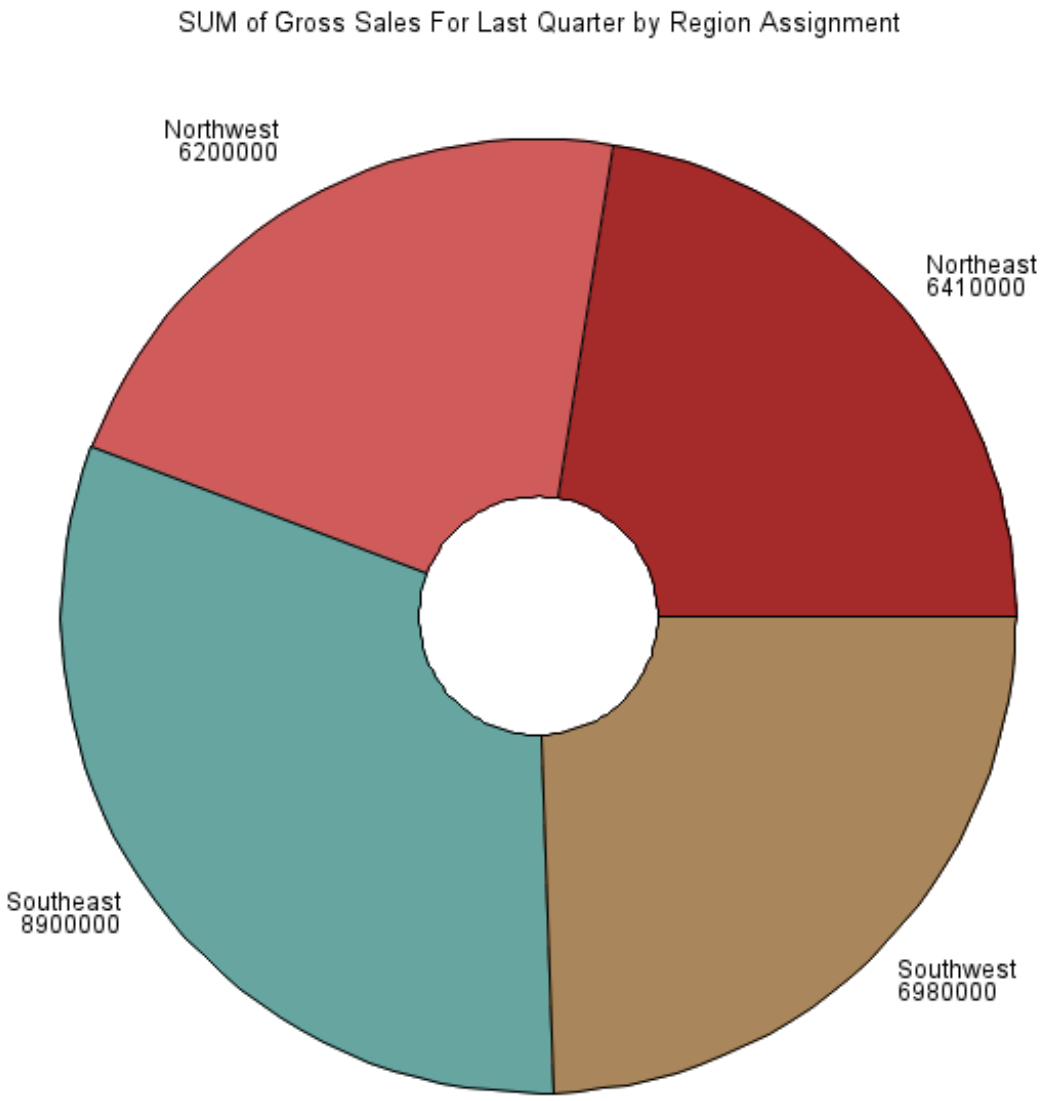
```
/***** 1A-iii ** Nhi Vu *****/
*The frequency of visits for each region;
proc gchart data= datain.HW1;
vbar visits /discrete space=0 group = region ;
run;
```



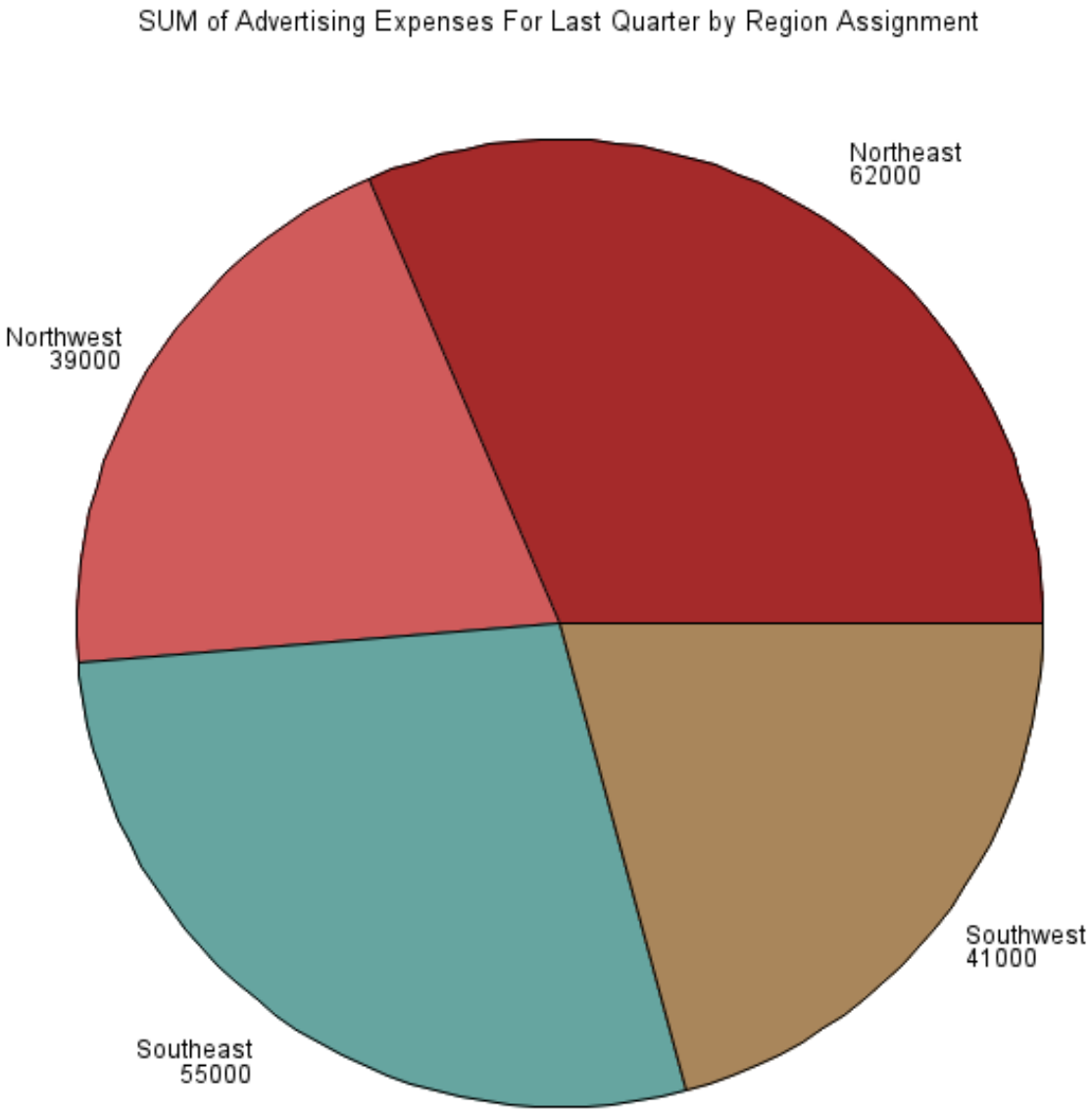
```
/***** 1A-iv ** Nhi Vu *****/
*The frequency of regions for each visit;
proc gchart data= datain.HW1;
block region/group= visits;
run;
```



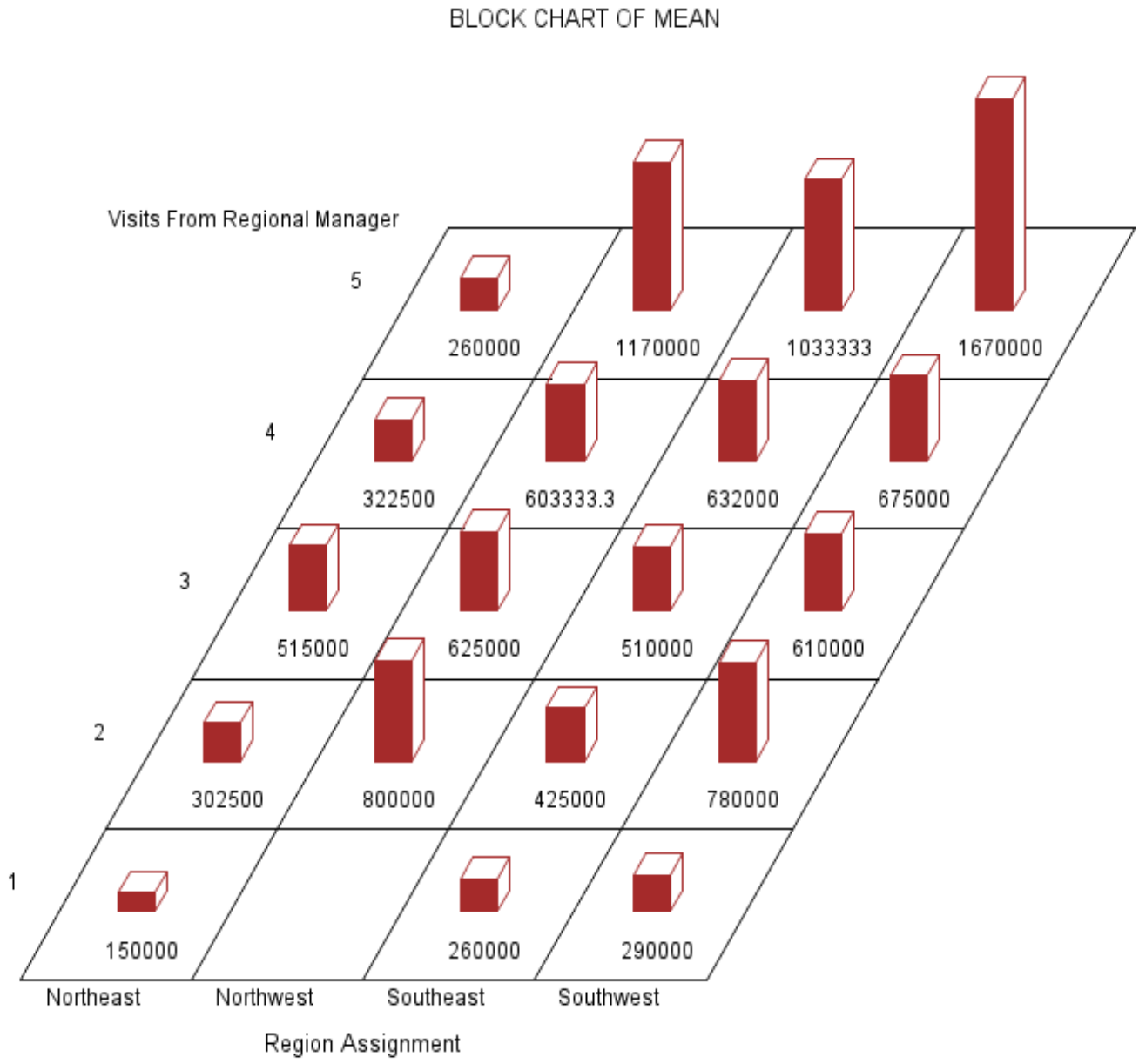
```
/***** 1A-v ** Nhi Vu *****/
*The sum of sales for each region;
proc gchart data= datain.HW1;
donut region / sumvar = sale;
run;
```



```
/***** 1A-vi ** Nhi Vu *****/
*The sum of expenses for each region;
proc gchart data= datain.HW1;
pie region / sumvar = expenses;
run;
```



```
/***** 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;
```



```sas
/***** 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 ----------

State Name	Visits From Regional Manager	Number Of Salesmen	Gross Sales For Last Quarter	Advertising ExpensesFor 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 From Regional Manager	State Name	Region Assignment	Number Of Salesmen	Gross Sales For Last Quarter	Advertising Expenses For 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	Mississippi	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;
```

State Name	Region Assignment	Visits From Regional Manager	Number Of Salesmen	Gross Sales For Last Quarter	Advertising Expenses For 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 ----------

State Name	Number Of Salesmen	Gross Sales For Last Quarter	Advertising Expenses For 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
region			62000

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

State Name	Number Of Salesmen	Gross Sales For Last Quarter	Advertising Expenses For 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
region			39000

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

State Name	Number Of Salesmen	Gross Sales For Last Quarter	Advertising Expenses For 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
Mississippi	2	620000	4000
Tennessee	2	550000	3000
West Virginia	1	260000	2000
Kentucky	1	390000	2000
Georgia	2	580000	2000
Arkansas	1	520000	1000
region			55000

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

State Name	Number Of Salesmen	Gross Sales For Last Quarter	Advertising Expenses For 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
----------			----------
region			41000
			==========
			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

visits	Frequency	Percent	Cumulative Frequency	Cumulative 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