```
/* 3장 연습문제 */
/* 1-1 */

data energy_;
input Region Division State $ Type Expenditures @@;
cards;
1 1 ME 1 708 1 1 ME 2 379 1 1 NH 1 597 1 1 nH 2 301 1 1 VT 1 353
1 1 VT 2 188 1 1 Ma 1 3264 1 1 MA 2 2498 1 1 RI 1 531 1 1 RI 2 358
1 1 CT 1 2024 1 1 CT 2 1405 1 2 NY 1 8786 1 2 NY 2 7825 1 2 NJ 1 4115
1 2 NJ 2 35588 1 2 PA 1 6478 1 2 PA 2 3695 4 3 MT 1 322 4 3 MT 2 232
4 3 ID 1 392 4 3 ID 2 298 4 3 WY 1 194 4 3 WY 2 184 4 3 CO 1 1215
4 3 CO 2 1173 4 3 NM 1 545 4 3 NM 2 578 4 3 AZ 1 1694 4 3 AZ 2 1448
4 3 UT 1 621 4 3 UT 2 438 4 3 NV 1 493 4 3 NV 2 378 4 4 WA 1 1680
4 4 WA 2 1122 4 4 OR 1 1014 4 4 OR 2 756 4 4 CA 1 10643
4 4 CA 2 10114 4 4 AK 1 349 4 4 AK 2 329 4 4 HI 1 273 4 4 HI 2 298
;
proc freq data=energy_;
  table Division*State / norow nocol nopercent;
run;
label
Region ='지역'
Division ='권역'
State ='주이름'
Type ='사용처'
Expenditures ='소비량'
;
proc format;
 value regfmt 1='Northeast' 2='South' 3='Midwest' 4='west';
 value divfmt 1='New England' 2='Middle Atlantic' 3='Mountain' 4='pacific';
 value typetmf 1='주거용' 2='산업용';
run;
proc tabulate data=energy_;
  class Division State ;
  table Division='권역별', State='주'*n=''/ misstext='0';
  format Division divfmt. ;
run;

/* 1-2번 */
proc tabulate data=energy_;
  class Division Type ;
  var Expenditures;
  table Division='권역별'*Type='유형별' ,
Expenditures='에너지 소비액'*(n='지역수' sum='합계'*f=dollar10.); /* 달러형식 */
  format Division divfmt. Type typetmf. ;
run;
```

```
/* 1-3번 */

proc means data=energy_;
  class Division Type ;
  var Expenditures;
  ways 1 2;
format Division divfmt. Type typetmf. ;
run;

/* 1-4번 */

proc univariate data=energy_ ;
  var type;
  class Expenditures;
  output out=out1 pctlpre=p pctlpts=10,20,30,40,50,60,70,80,90,100;
format Division divfmt. Type typetmf. ;
proc print data=out1;
run;

/* 1-5번 */

proc univariate data=energy_;
  var Division;
  histogram Division;
format Division divfmt. Type typetmf. ;
run;

/* 3장 2번 */

data sales_;
input Region $ CitySize $ Popuiation Product $ SaleType $ Units NetSales @@;
cards;
NC S 25000 A100 R 150 3750.00
NC M 125000 A100 R 350 8650.00
NC L 837000 A100 R 800 20000.00
NC S 25000 A100 W 150 3000.00
NC M 125000 A100 W 350 7000.00
NC M 625000 A100 W 750 15000.00
TX M 227000 A100 W 350 7250.00
TX L 5000 A100 W 750 5000.00
;
run;

/* 2-1번 */
```

```sas
proc means data=sales_ mean std maxdec=2;
class SaleType;
var NetSales;
run;

/* 2-2번 */

proc tabulate data=sales_ format=dollar12.0;
class Region CitySize;
var NetSales;
table Region , CitySize*(NetSales);
run;

/* 2-3번 */

proc tabulate data=sales_;
class CitySize;
var Units;
table CitySize, Units*(mean='평균'*f=8.2);
run;

proc means data=sales_ mean maxdec=2;
var  units;
class citysize;
run;

/* 2-4번 */

proc tabulate data=sales_ format=comma12.0 ;
class Region CitySize;
var Popuiation;
table Region, CitySize*Popuiation*(sum='총인구수');
run;

proc tabulate data=sales_ format=comma12.;
class Region CitySize;
var Popuiation;
table Region all, CitySize*Popuiation*sum all*Popuiation=''*sum;
run;


/* 2-5번 */

proc tabulate data=sales_ ;
```

```
class Region SaleType;
var NetSales;
table Region all, SaleType*NetSales*mean all*NetSales*mean;
run;

proc tabulate data=sales_ ;
class Region;
var NetSales;
table Region all, NetSales*mean*f=10.2;
run;


/* 3장 2번 */

data sales_;
input Region $ CitySize $ Popuiation Product $ SaleType $ Units NetSales @@;
cards;
NC S 25000 A100 R 150 3750.00
NC M 125000 A100 R 350 8650.00
NC L 837000 A100 R 800 20000.00
NC S 25000 A100 W 150 3000.00
NC M 125000 A100 W 350 7000.00
NC M 625000 A100 W 750 15000.00
TX M 227000 A100 W 350 7250.00
TX L 5000 A100 W 750 5000.00
;
run;

/* 2-1번 */

proc means data=sales_ mean std maxdec=2;
class SaleType;
var NetSales;
run;

/* 2-2번 */

proc tabulate data=sales_ format=dollar12.0;
class Region CitySize;
var NetSales;
table Region , CitySize*(NetSales);
run;

/* 2-3번 */
```

```
proc tabulate data=sales_;
class CitySize;
var Units;
table CitySize, Units*(mean='평균'*f=8.2);
run;

proc means data=sales_ mean maxdec=2;
var  units;
class citysize;
run;

/* 2-4번 */

proc tabulate data=sales_ format=comma12.0 ;
class Region CitySize;
var Popuiation;
table Region, CitySize*Popuiation*(sum='총인구수');
run;

proc tabulate data=sales_ format=comma12.;
class Region CitySize;
var Popuiation;
table Region all, CitySize*Popuiation*sum all*Popuiation=''*sum;
run;


/* 2-5번 */

proc tabulate data=sales_ ;
class Region SaleType;
var NetSales;
table Region all, SaleType*NetSales*mean all*NetSales*mean;
run;

proc tabulate data=sales_ ;
class Region;
var NetSales;
table Region all, NetSales*mean*f=10.2;
run;


/* 2-6번 */

proc univariate data=sales_ plot noprint;
var NetSales;
```

```
histogram NetSales;
run;

proc univariate data=sales plot noprint;
histogram netsales;
run;
```