# GRAPHS AND CHARTS

- Plots give the frequency and are known as scatter plots.

```
proc plot data=sasuser.admitjune;
plot age*height;
title"age vs height relationship";
run;
quit;
```
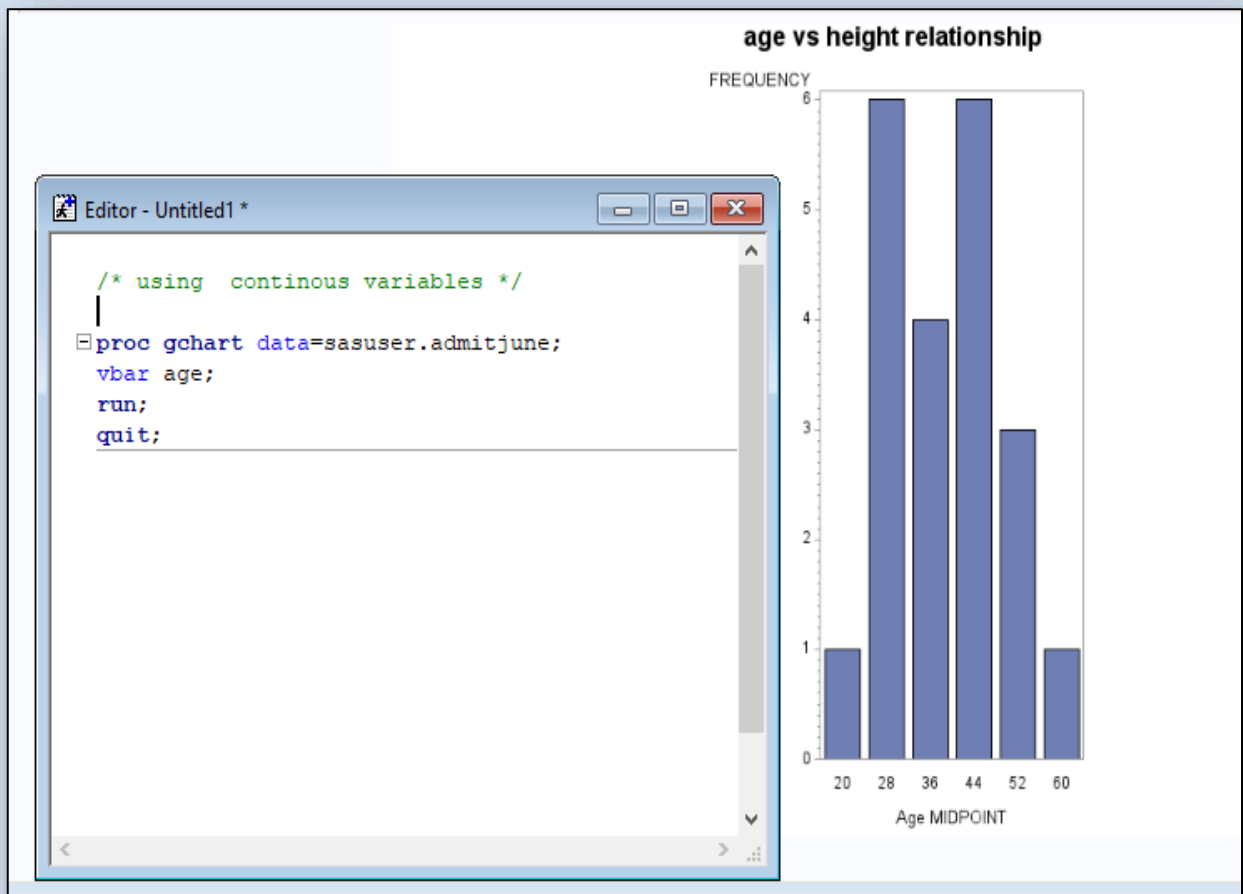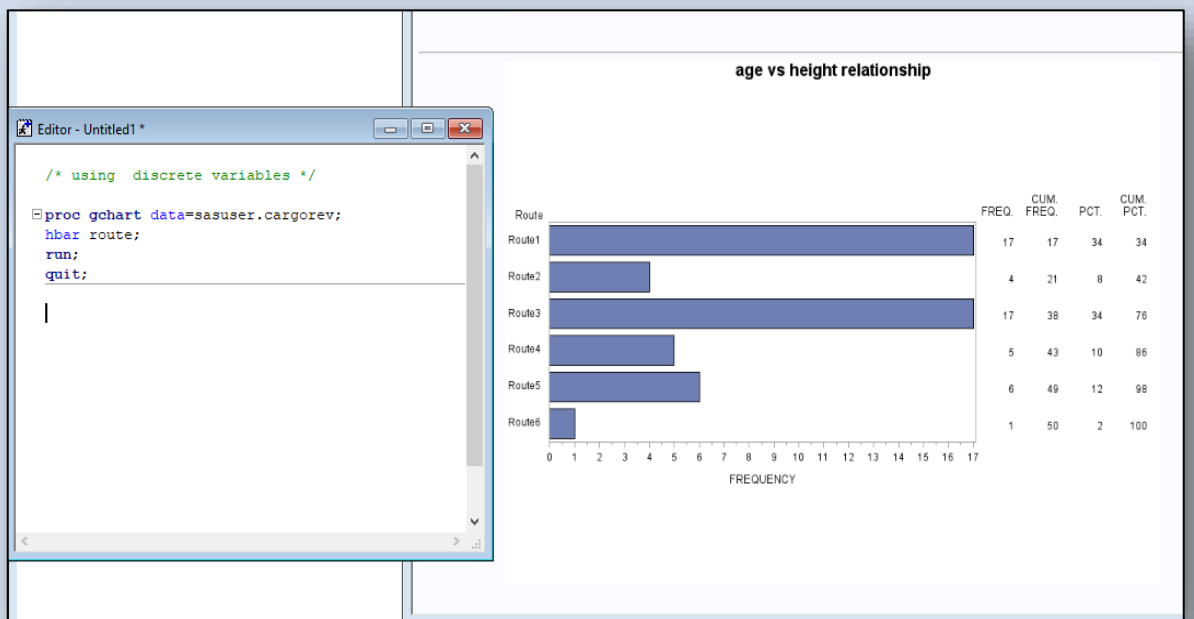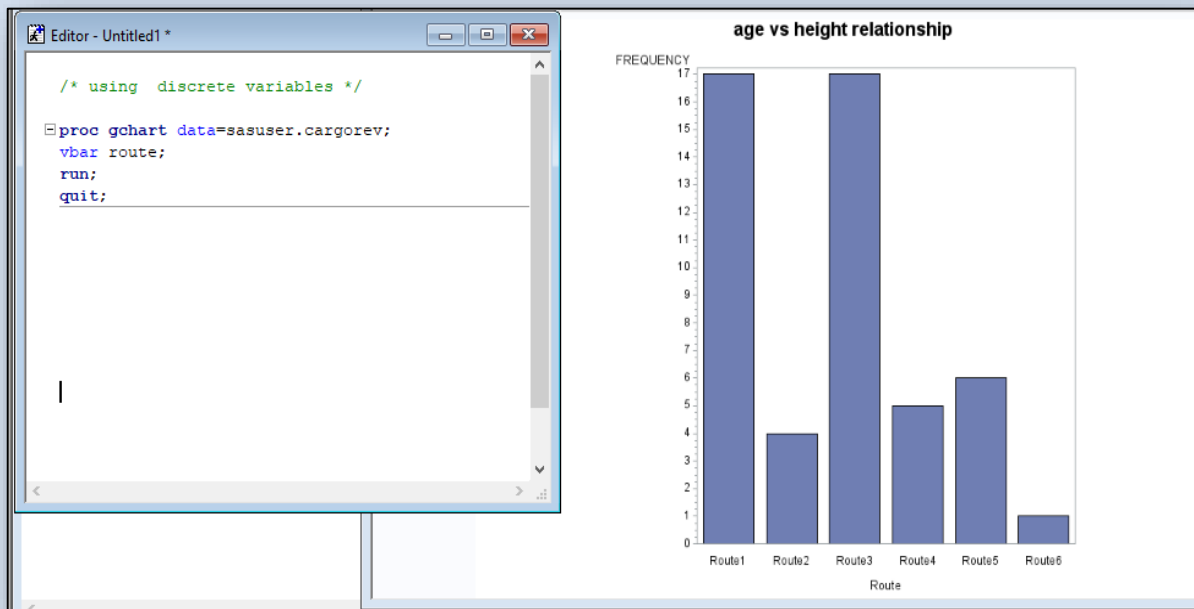

age vs height relationship

- Gplots are known as zeta plots, and they give the distinct value results.

```
proc gplot data=sasuser.admitjune;
plot age*height;
title"age vs height relationship";
run;
quit;
```


age vs height relationship
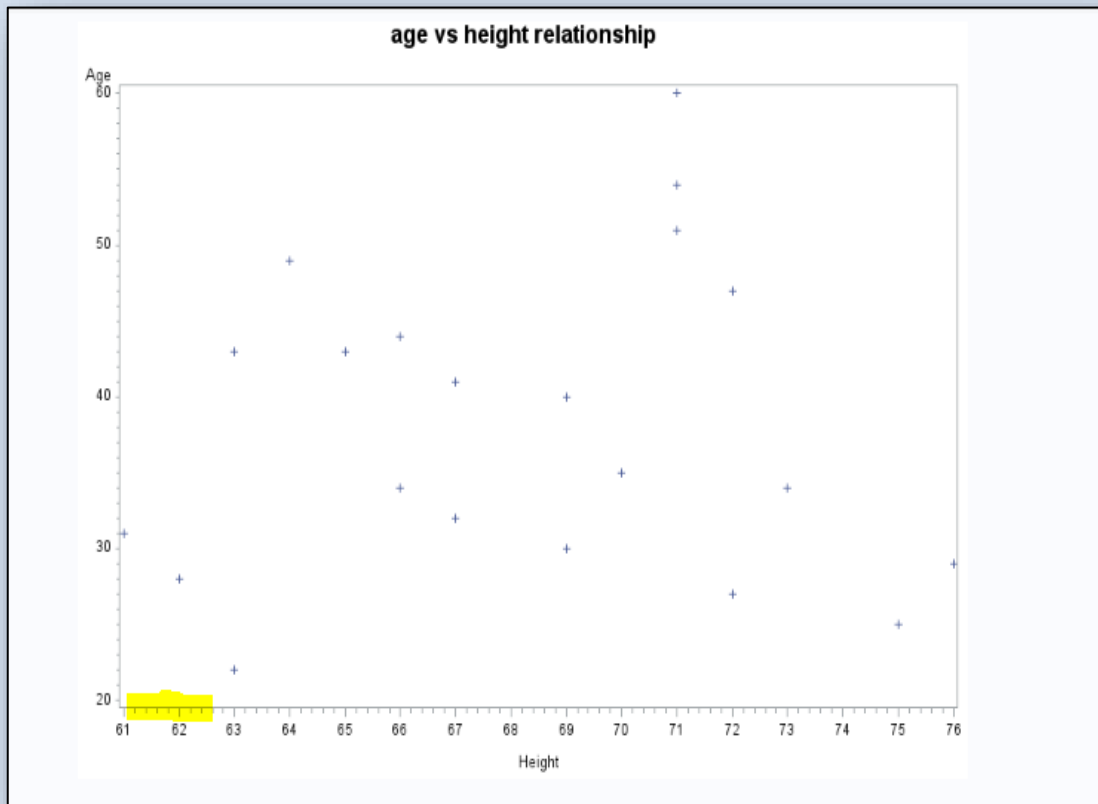
- Charts generally contains 2 types of variables :-
  - Discrete variables - type of variable which have fixed values. For e.g.- if we say we have 15 students in class then that means the count is fixed and it can only be represented as 15 not as 15.5 or 14.5 .
  - Continues variables - type of variables whose values can be represented in the form of floating values. For e.g. - if we have a variable called age then we can represent age of a person as 35 yrs. Or 35 yrs. 2 months or 35 yrs. 2 months 3 days do this value is continuous.

- Gcharts generally have 2 types :-
  - Hbar- horizontal bars
  - Vbar- vertical bars;

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```
/* using  discrete variables */

proc gchart data=sasuser.cargorev;
vbar route;
run;
quit;
```


age vs height relationship

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```
/* using  discrete variables */

proc gchart data=sasuser.cargorev;
hbar route;
run;
quit;
```


age vs height relationship

Route		FREQ.	CUM. FREQ.	PCT.	CUM. PCT.
Route1		17	17	34	34
Route2		4	21	8	42
Route3		17	38	34	76
Route4		5	43	10	86
Route5		6	49	12	98
Route6		1	50	2	100

- The below example of GPLOT is one of the innovative way of creating graphs using SAS. The HBAR3D is used to tell the SAS that we want the horizontal bars in 3-D format. SUMVAR is used to tell that the respective variable for which the values or means should be displayed.

  SUBGROUP tells that the further grouping of the bar graphs should be done on the basis of the color.

  GROUP will simply group the charts in different categories.
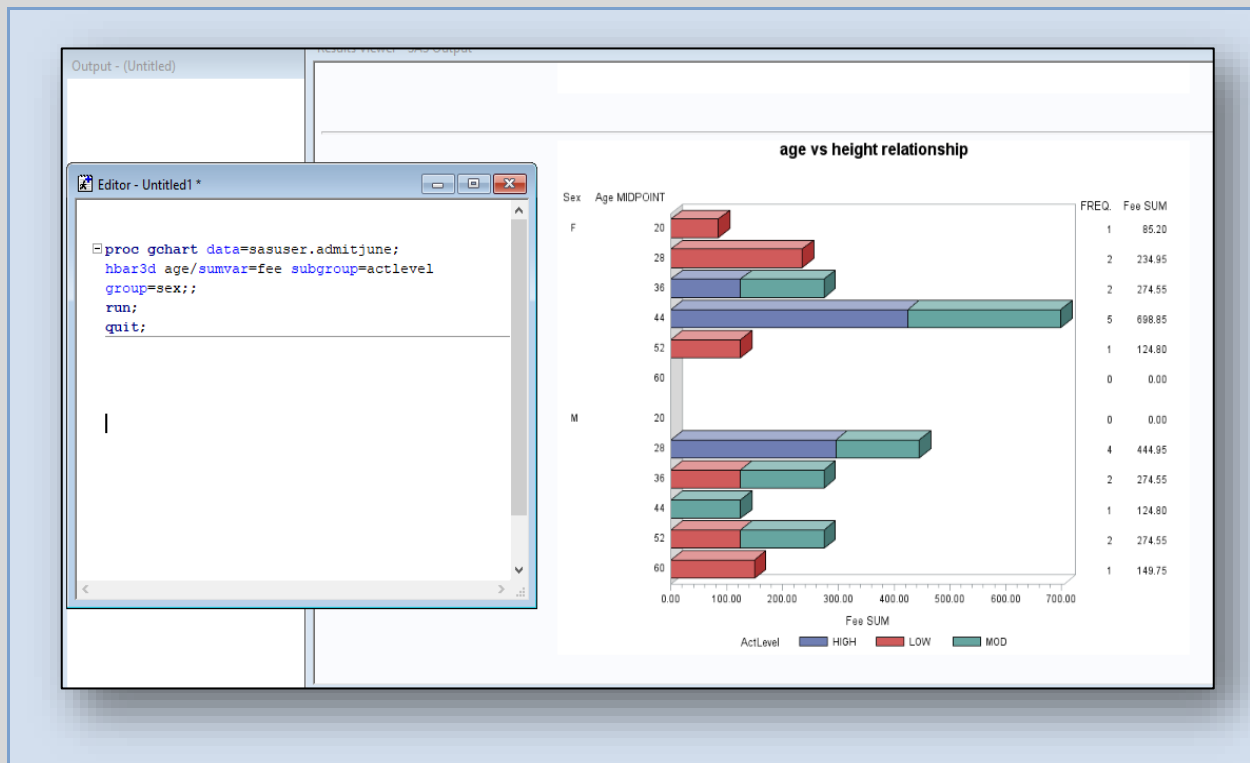
PIE CHARTS

- Example to demonstrate the use of pie charts in SAS. We can't make pie chart for raw data, we either need to summarize or group the data to make a pie chart.

```
proc sql;
  create table r as select route, sum(revcargo) as rev from sasuser.cargorev group by route;
quit;

titlel height=5 pct font='georgia' 'market share of routes';
proc gchart data=r;
  pie route/sumvar=rev
  noheading
  woutline=1
  slice=arrow value=arrow percent=arrow coutline=arrow;
run;
quit;
```

market share of routes

Route2
52544
4.62%

Route3
400270
35.16%

Route1
191050
16.78%

Route6
120989
10.63%

Route5
31640
2.78%
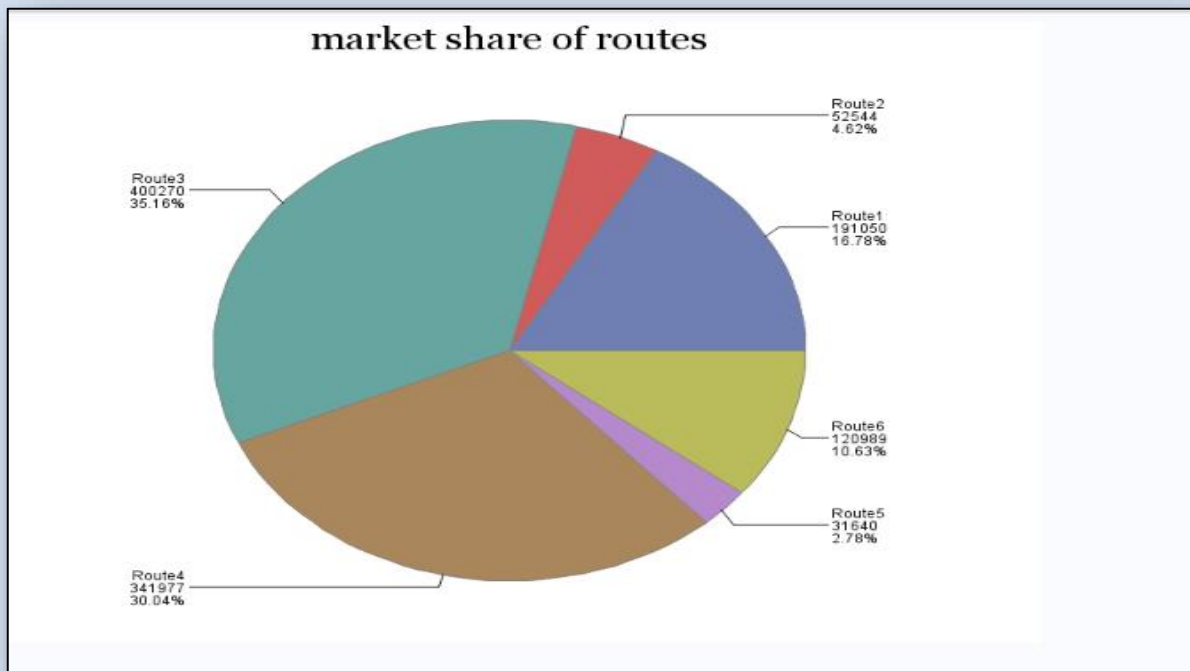
Route4
341977
30.04%

- For the 3-D view of the same pie chart. We can write the below code.

```
proc sql;
  create table r as select route, sum(revcargo) as rev from sasuser.cargorev group by route;
quit;

  titlel height=5 pct font='georgia' 'market share of routes';
proc gchart data=r;
pie3d route/sumvar=rev
noheading
woutline=1
slice=arrow value=arrow percent=arrow coutline=arrow;
run;
quit;
```

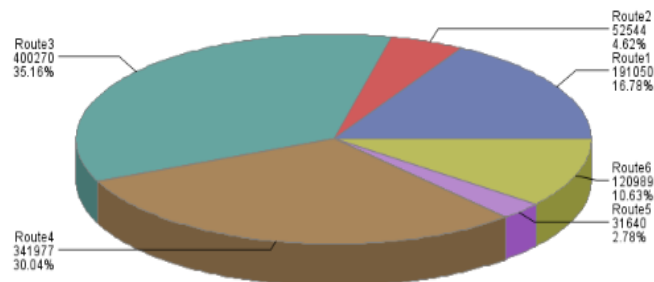
market share of routes

- Using the explode option.

```
proc sql;
  create table r as select route, sum(revcargo) as rev from sasuser.cargorev group by route;
  quit;

  title1 height=5 pct font='georgia' 'market share of routes';
proc gchart data=r;
  pie3d route/sumvar=rev
  noheading
  woutline=1
  slice=arrow value=arrow percent=arrow coutline=arrow explode="Route2";
  run;
  quit;
```
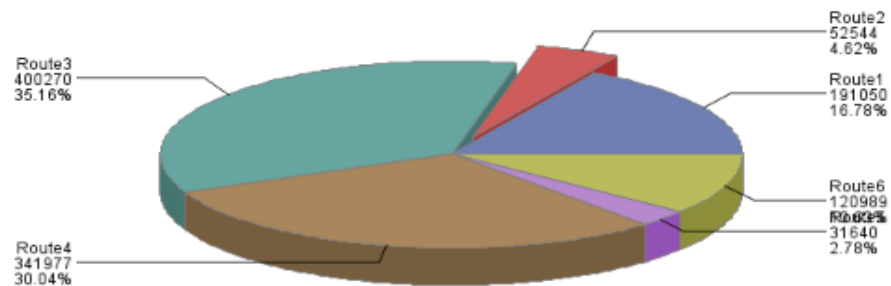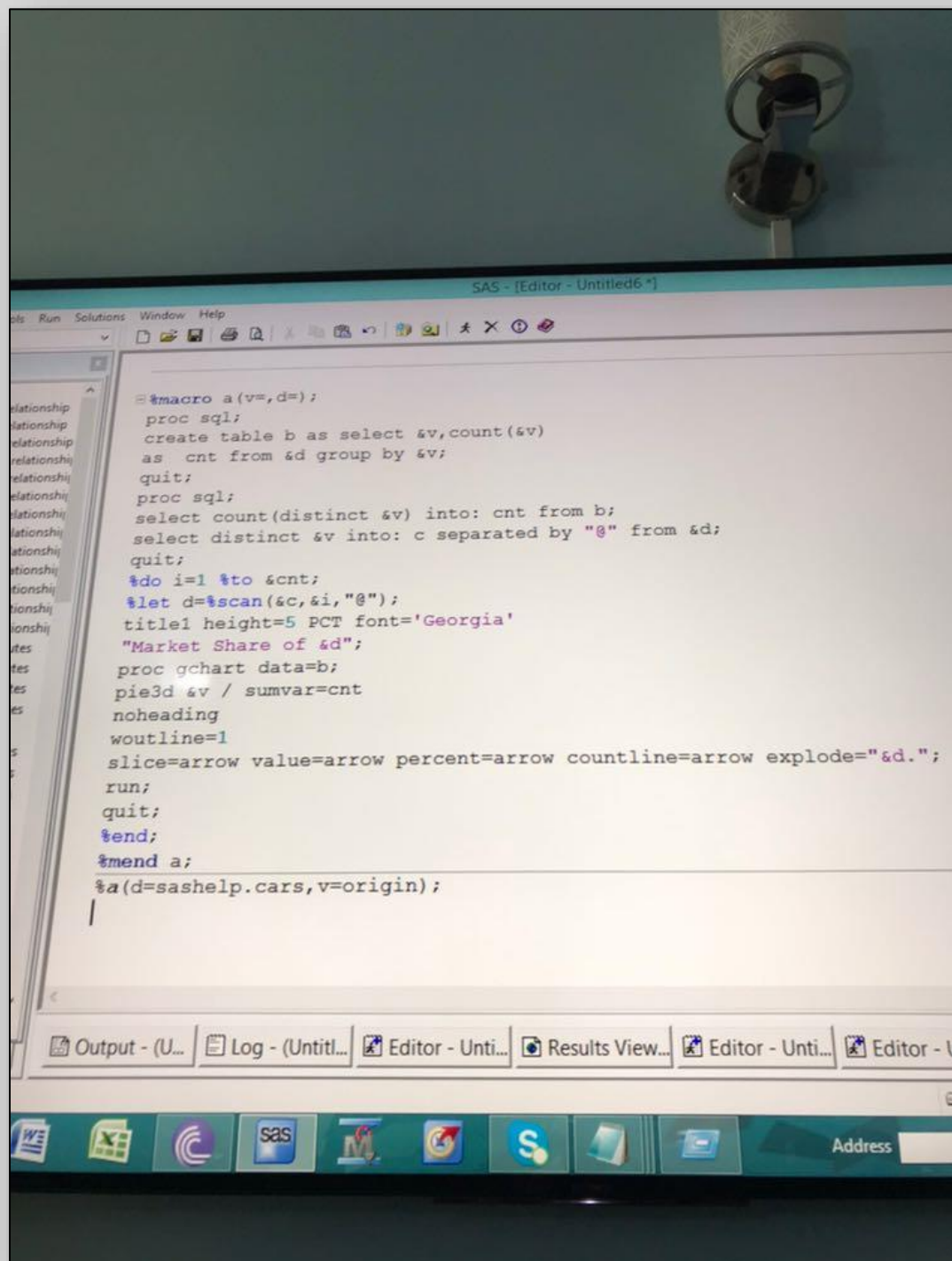

market share of routes

Route3
400270
35.16%

Route2
52544
4.62%

Route1
191050
16.78%

Route6
120989
Route5
31640
2.78%

Route4
341977
30.04%

- The below program shows the SAS macro used to represent the market share of the continents.

```sas
%macro a (v=,d=);
  proc sql;
  create table b as select &v,count(&v)
  as  cnt from &d group by &v;
  quit;
  proc sql;
  select count(distinct &v) into: cnt from b;
  select distinct &v into: c separated by "@" from &d;
  quit;
  %do i=1 %to &cnt;
  %let d=%scan(&c,&i,"@");
  title1 height=5 PCT font='Georgia'
  "Market Share of &d";
  proc gchart data=b;
  pie3d &v / sumvar=cnt
  noheading
  woutline=1
  slice=arrow value=arrow percent=arrow countline=arrow explode="&d.";
  run;
  quit;
  %end;
%mend a;
%a(d=sashelp.cars,v=origin);
```

File   Edit   View   Tools   Run   Solutions   Window   Help

```sas
proc sql;
  create table b as select membertype,count(membertype)
    as cnt from sasuser.frequentflyers group by membertype;
quit;

%macro a(v=,d=);
proc sql;
  select count(distinct membertype) into: cnt from b;
  select distinct membertype into: c separated by "@" from &d;
quit;
%do i=1 %to &cnt;
%let d=%scan(&c,&i,"@");
title1 height=5 PCT font='Georgia'
'Market Share of routes';
proc gchart data=b;
pie membertype / sumvar=cnt
noheading
woutline=1
slice=arrow value=arrow percent=arrow co
run;
quit;
%end;
%mend a;
%a;
```

Repla[ce]

| Find text: | memb| |
| Replace with: | conduent |

☐ Match whole word only
☐ Match case
☐ Regular expression search

Find in: Find in code and comments

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Address

Market Share of Europe

Asia
158
36.92%

Europe
123
28.74%

USA
147
34.35%

Market Share of USA

C:\Users\amit

Address

Market Share of USA

Asia
158
36.92%

Europe
123
28.74%

USA
147
34.35%

C:\Users\amit

Address

Market Share of USA

Origin
As ia
Europe
USA

Market Share of Asia

Asia
158
36.92%

Europe
123
28.74%

USA
147
34.35%

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C:\Users\amit

Address