***КУРСОВА РАБОТА ПО***

***СТАТИСТИЧЕСКИ СОФТУЕР***

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**Задача : Използваме произволно избран файл от произволно избрана библиотека от статистическия софтуер, с който работим.**

1. **Взимаме файл stpeuro от библиотеката stpsamples :**

**proc** **contents** data=stpsamp.stpeuro;

**run**; **/\* Виждаме съдържанието на избрания файл /**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**data** work.myeuro;

set stpsamp.stpeuro;

**run**; **/\* Записваме файла в work директорията /**

**proc** **sort** data=work.myeuro;

by id;

**run**; **/\* Сортираме данните от променливата id /**

**proc print** data=work.myeuro;

**run**;

1. **Взимаме файл stpsale от библиотеката stpsamples :**

**proc** **copy** in=stpsamp out=work;

select stpsale;

**run**;

**/\* Копираме файла от библиотеката stpsamples в библиотеката work /**

**proc** **means** data=stpsale;

**run**; **/\* Пресмятаме средното, стандартното отклонение,минимума,максимума /**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | |  | | --- | | **The Means proc means data=stpsale** | | | |  |  | | --- | --- | | |  | | --- | | **The MEANS Procedure** | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | **Variable** | **N** | **Mean** | **Std Dev** | **Minimum** | **Maximum** | | --- | --- | --- | --- | --- | --- | | |  | | --- | | pop | | quantity | | amount | | |  | | --- | | 66 | | 66 | | 66 | | |  | | --- | | 371772.73 | | 551.4545455 | | 12380.53 | | |  | | --- | | 331059.41 | | 269.0839836 | | 6176.29 | | |  | | --- | | 25000.00 | | 150.0000000 | | 3000.00 | | |  | | --- | | 932000.00 | | 895.0000000 | | 22375.00 | | | | | |

**proc** **means** data=stpsale mean median min max maxdec=**2**;

**run**; **/\* Пресмятаме средното , медианата , минимума и максимума , но без номер отпред и закръгляме до втори знак след десетичната запетая./**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | |  | | --- | | **The Means proc means data=stpsale** | | | |  |  | | --- | --- | | |  | | --- | | **The MEANS Procedure** | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | **Variable** | **Mean** | **Median** | **Minimum** | **Maximum** | | --- | --- | --- | --- | --- | | |  | | --- | | pop | | quantity | | amount | | |  | | --- | | 371772.73 | | 551.45 | | 12380.53 | | |  | | --- | | 292500.00 | | 662.50 | | 14750.00 | | |  | | --- | | 25000.00 | | 150.00 | | 3000.00 | | |  | | --- | | 932000.00 | | 895.00 | | 22375.00 | | | | | |

**proc** **freq** data=stpsale;

tables region citysize;

**run**; **/\* Пресмятаме честотните разпределения, кумулативна честота и кумулативен процент за променливите region и citysize /**

|  |  |
| --- | --- |
| |  | | --- | | **The FREQ Procedure** | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | **region** | **Frequency** | **Percent** | **Cumulative Frequency** | **Cumulative Percent** | | --- | --- | --- | --- | --- | | NC | 15 | 22.73 | 15 | 22.73 | | NE | 18 | 27.27 | 33 | 50.00 | | SO | 15 | 22.73 | 48 | 72.73 | | WE | 18 | 27.27 | 66 | 100.00 | | | | **citysize** | **Frequency** | **Percent** | **Cumulative Frequency** | **Cumulative Percent** | | --- | --- | --- | --- | --- | | L | 21 | 31.82 | 21 | 31.82 | | M | 24 | 36.36 | 45 | 68.18 | | S | 21 | 31.82 | 66 | 100.00 | | |

**proc** **freq** data=stpsale;

tables region citysize /nocum;

**run**; **/\* Пресмятаме честотните разпределения без кумулативните честота и процент за същите променливи /**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | |  | | --- | | **The Means proc means data=stpsale** | | | |  |  | | --- | --- | | |  | | --- | | **The FREQ Procedure** | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | | **region** | **Frequency** | **Percent** | | --- | --- | --- | | NC | 15 | 22.73 | | NE | 18 | 27.27 | | SO | 15 | 22.73 | | WE | 18 | 27.27 | | | | **citysize** | **Frequency** | **Percent** | | --- | --- | --- | | L | 21 | 31.82 | | M | 24 | 36.36 | | S | 21 | 31.82 | | | | |

1. **Създаваме таблица с име people в библиотеката work и две променливи EGN и size :**

**data** work.people;

input EGN $ size $;

datalines;

8502041254 small

8412100112 big

8602011223 big

4501021425 small

4612011425 small

9301145635 big

9407157570 small

8803142544 small

5212014556 big

9306047614 big

;

**run**;

85020412 small

84121001 big

86020112 big

45010214 small

46120114 small

93011456 big

94071575 small

88031425 small

52120145 big

93060476 big

**proc** **print** data=people;

**run**; **/\* Принтираме данните от направената таблица \*/**

| **Obs** | **EGN** | **size** |
| --- | --- | --- |
| 1 | 85020412 | small |
| 2 | 84121001 | big |
| 3 | 86020112 | big |
| 4 | 45010214 | small |
| 5 | 46120114 | small |
| 6 | 93011456 | big |
| 7 | 94071575 | small |
| 8 | 88031425 | small |
| 9 | 52120145 | big |
| 10 | 93060476 | big |

1. **Взимаме файла cars от библиотеката sashelp :**

goptions reset=all

**/\* Възстановяваме всички опции за графика на техните стойности по подразбиране\*/**

ftext='Times'

htext=**1.0**

ftitle='arial/bo'

htitle=**1.5**

colors=(orange);

title "Distribution of Cars horsepower";

**proc** **gchart** data=sashelp.Cars;

vbar horsepower; **/\* чертаем вертикална графика за количествената променлива horsepower с оранжев цвят и запълнена. \*/**

**run**;

**quit**;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | | **Distribution of Cars horsepower** | | | |  | | --- | | img0.png | | | |

ftext='Times'

htext=**1.0**

ftitle='arial/bo'

htitle=**1.5**

colors=(black);

title "Distribution of Cars cylinders";

pattern value=empty;

**proc** **gchart** data=sashelp.cars;

vbar cylinders; **/\* чертаем вертикална графика за количествената променлива cylinders с черен цвят и не запълнена. \*/**

**run**;

**quit**;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | | **Distribution of cars cylinders** | | | |  | | --- | | img0.png | | | |

title "Creating a Pie chart";

goptions colors=(red);

**proc** **gchart** data=sashelp.Cars;

pie mpg\_city; **/\* чертаем пай графика за количествената променлива mpg\_city в червен цвят. \*/**

**run**;

**quit**;

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | | **Creating a Pie chart** | | | |  | | --- | |  | | | |

title "Creating a Pie Chart";

goptions colors=(green);

**proc** **gchart** data=sashelp.cars;

pie3D enginesize; **/\* чертаем 3D пай графика за количествената променлива enginesize в зелен цвят. \*/**

**run**;

**quit**;

|  |  |  |  |  |  |
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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | | **Creating a Pie Chart** | | | |  | | --- | |  | | | |

goptions reset=all

ftext='Times'

htext=**1.0**

ftitle='arial/bo'

htitle=**1.5**

colors=(blue);

title "Distribution of Cars weight";

**proc** **gchart** data=sashelp.cars;

**hbar3D weight; /\* чертаем 3D вертикална графика за променливата weight в син цвят. \*/**

**run**;

**quit;**

|  |  |  |  |  |  |
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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | | **Distribution of Cars weight** | | | |  | | --- | | img0.png | | | |

title "Scatter Plot of weight by enginesize";

goptions colors=(blue);

**proc** **gplot** data=sashelp.cars;

plot weight \* enginesize ;

**run**; **/\* чертаем графика за променливите weight и enginesize , в която данните да са изобразени по подразбиране в син цвят. \*/**

|  |  |  |  |  |  |
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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | | **Scatter Plot of weight by enginesize** | | | |  | | --- | |  | | | |

title "Scatter Plot of weight by cylinders";

title2 h=**1.2** "Interpolation Methods";

goptions colors=(green);

symbol value=dot interpol=join width=**2**;

**proc** **gplot** data=sashelp.cars;

plot weight \* cylinders; **/\* чертаем графика за променливите weight и cylinders, в която данните да са свързани с чертичка с зелен цвят. \*/**

**run**;

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  | | --- | | **Scatter Plot of weight by cylinders** | | **Interpolation Methods** | | | |  | | --- | |  | | | |

**proc** **sort** data=sashelp.cars out=cars;

by horsepower;

**run**; **/\* сортираме данните по horsepower \*/**

title "Scatter Plot of Weight by enginesize";

goptions reset=all;

symbol value=dot;

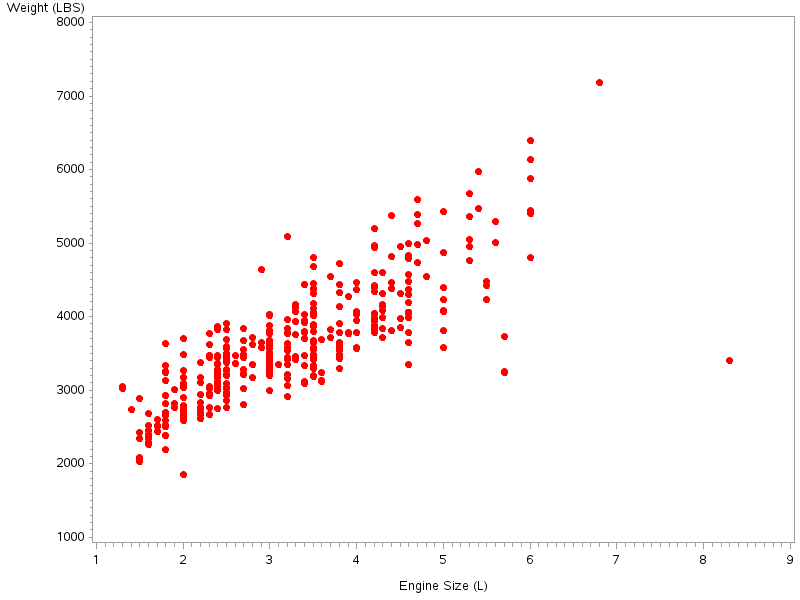
goptions colors=(red);

**proc** **gplot** data=sashelp.cars;

plot weight \* enginesize;

**run**;

**quit**; **/\* чертаем графика за променливите weight и enginesize, в която данните са показани с удебелена точка и не са свързани помежду си с червен цвят. \*/**



title "Scatter Plot of invoice by cylinders";

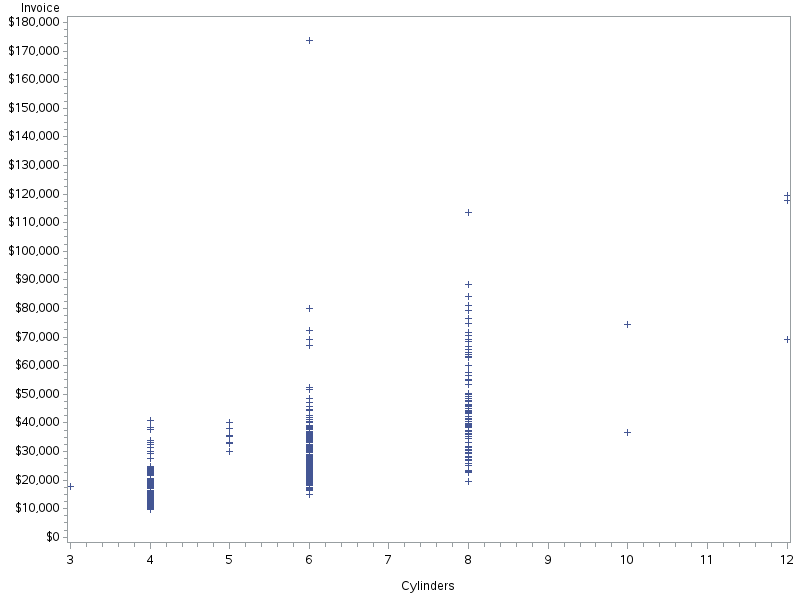
goptions reset=all;

**proc** **gplot** data=sashelp.cars;

plot invoice \* cylinders;

**run**;

**quit**; **/\* чертаем графика за променливите invoice и cylinders, в която данните са изобразени по подразбиране в син цвят. \*/**



goptions reset=all;

title "Scatter Plot of Weight by invoice";

title2 h=**2.2** " Interpolation methods";

symbol value=dot interpol=join;

goptions colors=(black);

**proc** **gplot** data=sashelp.cars;

plot weight \* invoice;

**run**;

**quit**; **/\* чертаем графика с променливите weight и invoice в която данните са показани с удебелена точка и свързани помежду си с тънка линия в черен цвят.\*/**

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  | | --- | | **Scatter Plot of Weight by invoice** | | **Interpolation methods** | | | |  | | --- | | img0.png | | | |

title "Scatter Plot of wheelbase by mpg\_highway";

title2 h=**1.2** "Interpolation Methods";

goptions colors=(red);

symbol value=dot interpol=join width=**2**;

**proc** **gplot** data=cars;

plot wheelbase \* mpg\_highway;

**run**; **/\* чертаем графика за променливите weight и horsepower, в която данните са показани с удебелена точка и свързани помежду си с дебела линия в червен цвят. \*/**

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  | | --- | | **Scatter Plot of wheelbase by mpg\_highway** | | **Interpolation Methods** | | | |  | | --- | |  | | | |