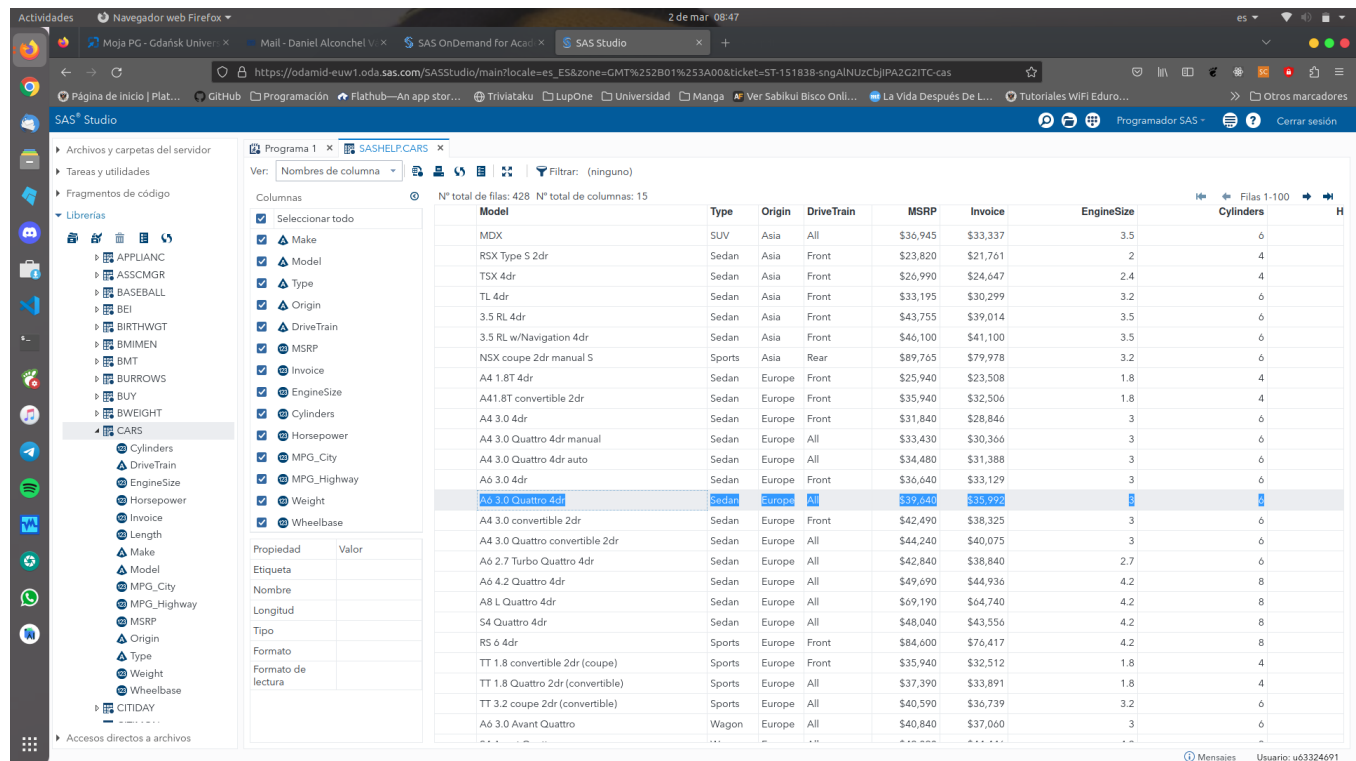


1. Intro to Statistical Analytics System

Daniel Alconchel Vázquez

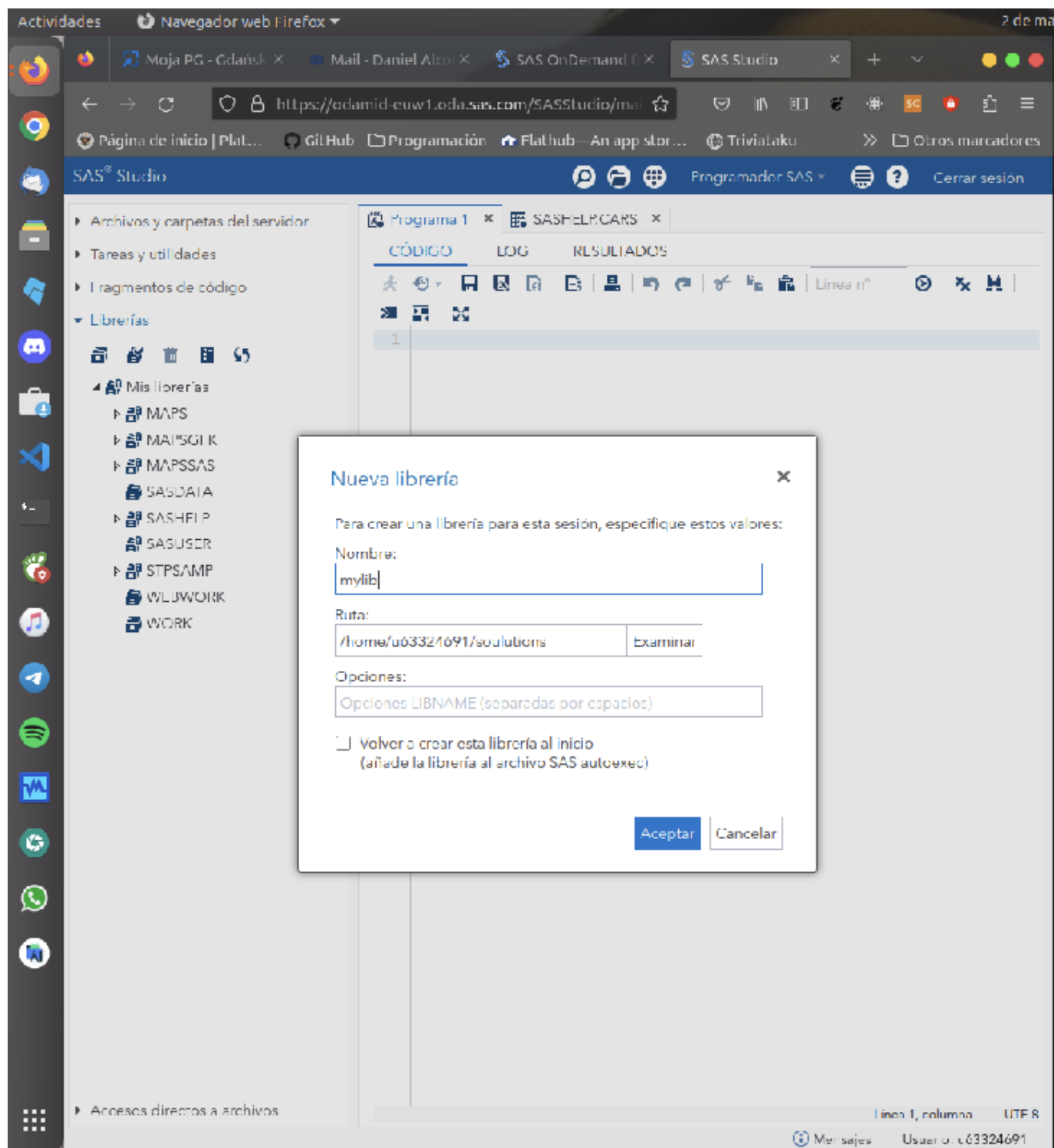
Exercise 1. Find library SASHELP and table CARS. Check what is the engine size of A6 3.0 Quattro 4dr.



SAS Studio interface showing the SASHELP.CARS table. The table displays car models with columns: Model, Type, Origin, DriveTrain, MSRP, Invoice, EngineSize, and Cylinders. The row for 'A6 3.0 Quattro 4dr' is highlighted, showing an EngineSize of 3 and 6 Cylinders.

Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders
MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6
RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2	4
TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4
TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6
3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6
3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6
NSX coupe 2dr manual 5	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6
A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4
A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4
A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3	6
A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3	6
A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3	6
A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3	6
A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35,992	3	6
A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38,325	3	6
A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	\$44,240	\$40,075	3	6
A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	\$42,840	\$38,840	2.7	6
A6 4.2 Quattro 4dr	Sedan	Europe	All	\$49,690	\$44,936	4.2	8
A8 L Quattro 4dr	Sedan	Europe	All	\$69,190	\$64,740	4.2	8
S4 Quattro 4dr	Sedan	Europe	All	\$48,040	\$43,556	4.2	8
RS 6 4dr	Sports	Europe	Front	\$84,600	\$76,417	4.2	8
TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	\$35,940	\$32,512	1.8	4
TT 1.8 Quattro 2dr (convertible)	Sports	Europe	All	\$37,390	\$33,891	1.8	4
TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	\$40,590	\$36,739	3.2	6
A6 3.0 Avant Quattro	Wagon	Europe	All	\$40,840	\$37,060	3	6

Exercise 2. Create library mylib assigned to the folder solutions (create it if it does not exist).





Exercise 3. Check attributes of the variable MODEL from SASHELP.CARS.

The type is *alfanum*.

Nombre de la columna	Tipo	Longitud	Formato	Formato de lectura	Etiqueta
MAKE	Alfanum	13			
MODEL	Alfanum	40			
TYPE	Alfanum	8			
ORIGIN	Alfanum	6			
DRIVETRAIN	Alfanum	5			
MSRP	Númerico	8	DOLLAR8.		
INVOICE	Númerico	8	DOLLAR8.		
ENGINE SIZE	Númerico	8			Engine Size (L)

Exercise 4. Read table sashelp.cars and create new table CarsVat, which contains variables from sashelp.cars and new variable InvoiceBrutto=1.23*Invoice.

```
data mylib.CarsVat;
set sashelp.cars;
InvoiceBrutto=1.23*Invoice;
run;
```

SAS Studio interface showing a data table with 16 columns and 428 rows. The columns are cylinders, horsepower, mpg_city, mpg_highway, weight, wheelbase, length, and invoicebrutto. The interface includes a left sidebar with navigation options and a top header with the SAS logo and user information.

cylinders	horsepower	mpg_city	mpg_highway	weight	wheelbase	length	invoicebrutto
6	265	17	23	4451	106	189	41004.51
4	200	24	31	2778	101	172	26766.03
4	200	22	29	3230	105	183	30315.81
6	270	20	28	3575	108	186	37267.77
6	225	18	24	3880	115	197	47987.22
6	225	18	24	3893	115	197	50553
6	290	17	24	3153	100	174	98372.94
4	170	22	31	3252	104	179	28914.84
4	170	23	30	3638	105	180	39982.38
6	220	20	28	3462	104	179	35480.58
6	220	17	26	3583	104	179	37350.18
6	220	18	25	3627	104	179	38607.24
6	220	20	27	3561	109	192	40748.67
6	220	18	25	3880	109	192	44270.16
6	220	20	27	3814	105	180	47139.75
6	220	18	25	4013	105	180	49292.25
6	250	18	25	3836	109	192	47773.2
8	300	17	24	4024	109	193	55271.28
8	330	17	24	4399	121	204	79630.2
8	340	14	20	3825	104	179	53573.88
8	450	15	22	4024	109	191	93992.91
4	180	20	28	3131	95	159	39989.76
4	225	20	28	2921	96	159	41685.93
6	250	21	29	3351	96	159	45188.97

Exercise 5. In mylib library create table PEOPLE with variables NAME, HEIGHT and WEIGHT. Add some example datalines. Then create data set BMITABLE, which contains variables from table PEOPLE and new variable BMI ($bmi = \text{weight} / ((\text{height} / 100) * *2)$). PUT in log:

- all variables and all observations (PDV vectors) from table BMITABLE.
- variables NAME and BMI

```
DATA mylib.PEOPLE;
  INPUT Name$ Height Weight;
  DATALINES;
  Daniel 184 92
  Laura 165 52
  Marta 157 47
run;
```

Actividades | Navegador web Firefox | 2 de mar 09:15

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Archivos y carpetas del servidor
Tareas y utilidades
Fragmentos de código
Librerías
Mis librerías

Accesos directos a archivos

*Programa 1 x SASHELP.CARS x

CÓDIGO LOG RESULTADOS DATOS DE SALIDA

Errores, avisos y notas

Errores

Avisos

Notas (2)

```

1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69      DATA mylib.PEOPLE;
70      INPUT Name$ Height Weight;
71      DATALINES;

NOTE: The data set MYLIB.PEOPLE has 3 observations and 3 variables.
NOTE: DATA statement ha utilizado (tiempo de proceso total):
      real time           0.02 seconds
      user cpu time       0.01 seconds
      system cpu time     0.00 seconds
      memory              669.18k
      OS Memory          20900.00k
      Timestamp           02/03/2023 08:15:03 a.m.
      Step Count          42      Switch Count   2
      Page Faults         0
      Page Reclaims       151
      Page Swaps           0
      Voluntary Context Switches 43
      Involuntary Context Switches 0
      Block Input Operations
      Block Output Operations 264

75      run;
76
77      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
87

```

Mensajes: 4 | Usuario: u63324691

Actividades | Navegador web Firefox | 2 de mar 09:15

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*Programa 1 x SASHELP.CARS x

CÓDIGO LOG RESULTADOS DATOS DE SALIDA

Tabla: MYLIB.PEOPLE | Ver: Nombres de columna | Filtrar: (ninguno)

Columnas

Nº total de filas: 3 | Nº total de columnas: 3

	Name	Height	Weight
1	Daniel	184	92
2	Laura	165	52
3	Marta	157	47

Propiedad | Valor

Etiqueta

Nombre

Longitud

Tipo

Formato

Formato de lectura

Mensajes: 4 | Usuario: u63324691

```

data mylib.BMITABLE;
set mylib.people;
bmi=(weight/(height/100)**2);
run;

```

Actividades | Navegador web Firefox | 2 de mar 09:19

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SAS® Studio

Archivos y carpetas del servidor | Tareas y utilidades | Fragmentos de código | Librerías | Mis librerías

*Programa 1 x | SASHELP.CARS x

CÓDIGO | LOG | RESULTADOS | DATOS DE SALIDA

Errores, avisos y notas

Errores

Avisos

Notas (3)

```

1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69      data mylib.BMITABLE;
70      set mylib.people;
71      bmi=(weight/(height/100)**2);
72      run;

NOTE: There were 3 observations read from the data set MYLIB.PEOPLE.
NOTE: The data set MYLIB.BMITABLE has 3 observations and 4 variables.
NOTE: DATA statement ha utilizado (Tiempo de proceso total):
      real time          0.01 seconds
      user cpu time      0.00 seconds
      system cpu time    0.01 seconds
      memory            947.12k
      OS Memory         21416.00k
      Timestamp         02/03/2023 08:19:35 a.m.
      Step Count        53  Switch Count   2
      Page Faults       0
      Page Reclaims     190
      Page Swaps        0
      Voluntary Context Switches 29
      Involuntary Context Switches 0
      Block Input Operations 0
      Block Output Operations 264

73
74      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
84

```

Accesos directos a archivos

Mensajes: 6 | Usuario: u63324691

Actividades | Navegador web Firefox | 2 de mar 09:19

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SAS® Studio

Archivos y carpetas del servidor | Tareas y utilidades | Fragmentos de código | Librerías | Mis librerías

*Programa 1 x | SASHELP.CARS x

CÓDIGO | LOG | RESULTADOS | DATOS DE SALIDA

Tabla: MYLIB.BMITABLE | Ver: Nombres de columna | Filtrar: (ninguno)

Columnas

Selecccionar todo

Nombre

Height

Weight

bmi

Nº total de filas: 3 | Nº total de columnas: 4

	Name	Height	Weight	bmi
1	Daniel	184	92	27.173913043
2	Laura	165	52	19.100091827
3	Marta	157	47	19.067710658

Propiedad | Valor

Etiqueta

Nombre

Longitud

Tipo

Formato

Formato de lectura

Accesos directos a archivos

Mensajes: 6 | Usuario: u63324691

We can edit the variables we want to see using this interface or addind `put name bmi;` before `run` to the code.