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Roll no.: A053	SAP ID: 70022100516
Subject: BIVA	Set: C

Q1

Code:

```

*MT1.sas
CODE LOG RESULTS OUTPUT DATA
1 /* Q1 */
2 /* Loading the dataset */
3 data cars;
4   set sashelp.cars;
5 run;
6
7 /* New dataset named SUVs */
8 data SUVs;
9   set cars;
10  if Type = 'SUV';
11 run;
12
13 proc sort data=SUVs;
14   by descending Horsepower;
15 run;
16
17 proc print data=SUVs(obs=5);
18 run;

```

Output:

Table: WORK.CARS | View: Column names | Filter: (none)

Columns | Total rows: 428 Total columns: 15 | Rows 1-100

☒

Select all

☒

Make

☒

Model

☒

Type

☒

Origin

☒

DriveTrain

☒

MSRP

☒

Invoice

Property

Value

Label

Name

Length

	Make	Model	Type	Origin
1	Acura	MDX	SUV	Asia
2	Acura	RSX Type S 2dr	Sedan	Asia
3	Acura	TSX 4dr	Sedan	Asia
4	Acura	TL 4dr	Sedan	Asia
5	Acura	3.5 RL 4dr	Sedan	Asia
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia
7	Acura	NSX coupe 2dr manual S	Sports	Asia
8	Audi	A4 1.8T 4dr	Sedan	Europe
9	Audi	A41.8T convertible 2dr	Sedan	Europe
10	Audi	A4 3.0 4dr	Sedan	Europe
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe

SUV dataset is created.

CODE

LOG

RESULTS

OUTPUT DATA

Table:

WORK.SUVS

View:

Column names

Filter: (none)

Columns

Select all

Make

Model

Type

Origin

DriveTrain

MSRP

Invoice

Property

Value

Label

Name

Length

Total rows: 60

Total columns: 15

Rows 1-60

	Make	Model	Type	Origin	
1	Acura	MDX	SUV	Asia	
2	BMW	X3 3.0i	SUV	Europe	
3	BMW	X5 4.4i	SUV	Europe	
4	Buick	Rainier	SUV	USA	
5	Buick	Rendezvous CX	SUV	USA	
6	Cadillac	Escalade	SUV	USA	
7	Cadillac	SRX V8	SUV	USA	
8	Chevrolet	Suburban 1500 LT	SUV	USA	
9	Chevrolet	Tahoe LT	SUV	USA	
10	Chevrolet	TrailBlazer LT	SUV	USA	
11	Chevrolet	Tracker	SUV	USA	

Sorted by horsepower in Descending order.

Table:

WORK.SUVS

View:

Column names

Filter: (none)

Total rows: 60

Total columns: 15

Rows 1-60

Train	MSRP	Invoice	EngineSize	Cylinders	Horsepower
	\$56,665	\$49,865	4.5	8	340
	\$52,195	\$47,720	4.4	8	325
	\$46,265	\$40,534	6	8	325
	\$54,765	\$47,986	4.7	8	325
	\$46,995	\$43,523	4.6	8	320
	\$49,995	\$45,815	6	8	316
	\$41,475	\$36,494	6.8	10	310
	\$33,840	\$30,815	5.6	8	305
	\$42,915	\$39,443	4.6	8	302
	\$52,775	\$46,360	5.4	8	300
	\$52,795	\$48,377	5.3	8	295

First 5 rows.

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase	Ler
1	Porsche	Cayenne S	SUV	Europe	All	\$56,665	\$49,865	4.5	8	340	14	18	4950	112	
2	BMW	X5 4.4i	SUV	Europe	All	\$52,195	\$47,720	4.4	8	325	16	22	4824	111	
3	GMC	Yukon XL 2500 SLT	SUV	USA	All	\$46,265	\$40,534	6.0	8	325	13	17	6133	130	
4	Toyota	Land Cruiser	SUV	Asia	All	\$54,765	\$47,986	4.7	8	325	13	17	5390	112	
5	Cadillac	SRX V8	SUV	USA	Front	\$46,995	\$43,523	4.6	8	320	16	21	4302	116	

Q2

Code:

```
/* Q2 */
data cars;
  set sashelp.cars;
run;

data cars;
  set cars;
  if CityMPG > 25 and HighwayMPG > 30 then
    MileageCategory = 'High Mileage';
  else if (20 <= CityMPG <= 25) or (25 <= HighwayMPG <= 30) then
    MileageCategory = 'Moderate Mileage';
  else if CityMPG <= 20 or HighwayMPG < 25 then
    MileageCategory = 'Low Mileage';
run;

proc print data=cars(obs=10);
run;
```

Output:

Loading Dataset Sashelp.cars

Table: WORK.CARS View: Column names Filter: (none)

Columns: Select all Make Model Type Origin DriveTrain MSRP

Total rows: 428 Total columns: 15 Rows 1-100

	Make	Model	Type	Origin
1	Acura	MDX	SUV	Asia
2	Acura	RSX Type S 2dr	Sedan	Asia
3	Acura	TSX 4dr	Sedan	Asia
4	Acura	TL 4dr	Sedan	Asia
5	Acura	3.5 RL 4dr	Sedan	Asia
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia
7	Acura	NSX coupe 2dr manual S	Sports	Asia
8	Audi	A4 1.8T 4dr	Sedan	Europe
9	Audi	A41.8T convertible 2dr	Sedan	Europe
10	Audi	A4 3.0 4dr	Sedan	Europe
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe

New Variable MileageCategory according to the given conditions.

*MT1.sas

CODE LOG RESULTS OUTPUT DATA

Table: WORK.CARS View: Column names Filter: (none)

Columns: Select all Make Model Type Origin DriveTrain MSRP

Total rows: 428 Total columns: 18 Rows 1-100

	Length	CityMPG	HighwayMPG	MileageCategory
	189	.	.	Low Mileage
	172	.	.	Low Mileage
	183	.	.	Low Mileage
	186	.	.	Low Mileage
	197	.	.	Low Mileage
	197	.	.	Low Mileage
	174	.	.	Low Mileage
	179	.	.	Low Mileage
	180	.	.	Low Mileage
	179	.	.	Low Mileage
	179	.	.	Low Mileage

First 10 rows.

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	265	17	23	4451	106
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2.0	4	200	24	31	2778	101
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	200	22	29	3230	105
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	270	20	28	3575	108
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	225	18	24	3880	115
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	225	18	24	3893	115
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	290	17	24	3153	100
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	170	22	31	3252	104
9	Audi	A4 1.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	170	23	30	3638	105
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3.0	6	220	20	28	3462	104

Q3

Code:

```

39 /* Q3 */
40 data cars;
41 set sashelp.cars;
42 run;
43
44 /* Cars with Make starting with 'A' */
45 data cars_like_example;
46 set cars;
47 where Make like 'A%';
48 run;
49
50 proc print data=cars_like_example;
51 title 'Cars with Make starting with 'A' (LIKE operator)';
52 run;

```



```

54 /* Cars with Model ending with 'L' */
55 data cars_percent_example;
56 set cars;
57 where Model like '%L';
58 run;
59
60 proc print data=cars_percent_example;
61 title 'Cars with Model ending with 'L' (% operator)';
62 run;
63
64

```

```

65 /* Cars with Make containing exactly 3 characters */
66 data cars_percent_underscore_example;
67 set cars;
68 where length(Make) = 3;
69 run;
70
71 proc print data=cars_percent_underscore_example;
72 title 'Cars with Make containing exactly 3 characters (%_ operator)';
73 run;
74

```

Output:

Cars with Make starting with 'A' (LIKE operator)														
Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	265	17	23	4451	106
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2.0	4	200	24	31	2778	101
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	200	22	29	3230	105
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	270	20	28	3575	108
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	225	18	24	3880	115
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	225	18	24	3893	115
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	290	17	24	3153	100
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	170	22	31	3252	104
9	Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	170	23	30	3638	105
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3.0	6	220	20	28	3462	104

Cars with Model ending with 'L' (% operator)														
Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase
1	Ford	F-150 Regular Cab XL	Truck	USA	Rear	\$22,010	\$19,490	4.6	8	231	15	19	4788	126
2	Nissan	Murano SL	Wagon	Asia	Rear	\$28,739	\$27,300	3.5	6	245	20	25	3801	111
3	Oldsmobile	Silhouette GL	Sedan	USA	Front	\$28,790	\$26,120	3.4	6	185	19	26	3948	120
4	Volkswagen	Jetta GL	Wagon	Europe	Front	\$19,005	\$17,427	2.0	4	115	24	30	3034	99

Cars with Make containing exactly 3 characters (%_operator)														
Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase
1	BMW	X3 3.0i	SUV	Europe	All	\$37,000	\$33,873	3.0	6	225	16	23	4023	110
2	BMW	X5 4.4i	SUV	Europe	All	\$52,195	\$47,720	4.4	8	325	16	22	4824	111
3	BMW	325i 4dr	Sedan	Europe	Rear	\$28,495	\$26,155	2.5	6	184	20	29	3219	107
4	BMW	325Ci 2dr	Sedan	Europe	Rear	\$30,795	\$28,245	2.5	6	184	20	29	3197	107
5	BMW	325Ci convertible 2dr	Sedan	Europe	Rear	\$37,995	\$34,800	2.5	6	184	19	27	3560	107
6	BMW	325xi 4dr	Sedan	Europe	All	\$30,245	\$27,745	2.5	6	184	19	27	3461	107
7	BMW	330i 4dr	Sedan	Europe	Rear	\$35,495	\$32,525	3.0	6	225	20	30	3285	107
8	BMW	330Ci 2dr	Sedan	Europe	Rear	\$36,995	\$33,890	3.0	6	225	20	30	3285	107
9	BMW	330xi 4dr	Sedan	Europe	All	\$37,245	\$34,115	3.0	6	225	20	29	3483	107
10	BMW	525i 4dr	Sedan	Europe	Rear	\$39,995	\$36,620	2.5	6	184	19	28	3428	114
11	BMW	330Ci convertible 2dr	Sedan	Europe	Rear	\$44,295	\$40,530	3.0	6	225	19	28	3616	107
12	BMW	530i 4dr	Sedan	Europe	Rear	\$44,995	\$41,170	3.0	6	225	20	30	3472	114
13	BMW	545iA 4dr	Sedan	Europe	Rear	\$54,995	\$50,270	4.4	8	325	18	26	3814	114

Q4 Code:

Case1:


```
/* Q4 */
```

```
data sashelp.cars;  
title1 'The First Line';  
title2 'The Second Line';  
proc print data=sashelp.cars;  
run;
```

```
title2 'The Next Line';  
proc print data=sashelp.cars;  
run;
```

```
footnote1 'Cars Dataset';  
footnote2 'SUVs ';  
footnote3 'Confidential';  
proc print data=sashelp.cars;  
run;
```

Case2:

```
footnote1 'Cars Dataset';  
footnote2 'SUVs ';  
footnote3 'Confidential';  
proc print data=sashelp.cars;  
run;
```

```
footnote3 'Sedans';  
proc print data=sashelp.cars;  
run;
```

Case3:

Cars Dataset
SUVs
Confidential

Here we have two titles and three footnotes.

Case 2:

► Table of Contents

419	Volvo	S60 2.5 4dr	Sedan	Europe	All	\$31,745	\$29,916	2.5	5	208	20	27	3903
420	Volvo	S60 T5 4dr	Sedan	Europe	Front	\$34,845	\$32,902	2.3	5	247	20	28	3766
421	Volvo	S60 R 4dr	Sedan	Europe	All	\$37,560	\$35,382	2.5	5	300	18	25	3571
422	Volvo	S80 2.9 4dr	Sedan	Europe	Front	\$37,730	\$35,542	2.9	6	208	20	28	3576
423	Volvo	S80 2.5T 4dr	Sedan	Europe	All	\$37,885	\$35,688	2.5	5	194	20	27	3691
424	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	\$40,565	\$38,203	2.4	5	197	21	28	3450
425	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	\$42,565	\$40,083	2.3	5	242	20	26	3450
426	Volvo	S80 T6 4dr	Sedan	Europe	Front	\$45,210	\$42,573	2.9	6	268	19	26	3653
427	Volvo	V40	Wagon	Europe	Front	\$26,135	\$24,641	1.9	4	170	22	29	2822
428	Volvo	XC70	Wagon	Europe	All	\$35,145	\$33,112	2.5	5	208	20	27	3823

Cars Dataset
SUVs
Sedans

Here I changed the footnote3 to Sedans. Therefore, it overwrites the previous footnote3.

Case3:

► Table of Contents

The Second Line													
Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	265	17	23	4451
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2.0	4	200	24	31	2778
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	200	22	29	3230
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	270	20	28	3575
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	225	18	24	3880
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	225	18	24	3893
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	290	17	24	3153
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	170	22	31	3252
9	Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	170	23	30	3638
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3.0	6	220	20	28	3462

► Table of Contents

419	Volvo	S60 2.5 4dr	Sedan	Europe	All	\$31,745	\$29,916	2.5	5	208	20	27	3903
420	Volvo	S60 T5 4dr	Sedan	Europe	Front	\$34,845	\$32,902	2.3	5	247	20	28	3766
421	Volvo	S60 R 4dr	Sedan	Europe	All	\$37,560	\$35,382	2.5	5	300	18	25	3571
422	Volvo	S80 2.9 4dr	Sedan	Europe	Front	\$37,730	\$35,542	2.9	6	208	20	28	3576
423	Volvo	S80 2.5T 4dr	Sedan	Europe	All	\$37,885	\$35,688	2.5	5	194	20	27	3691
424	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	\$40,565	\$38,203	2.4	5	197	21	28	3450
425	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	\$42,565	\$40,083	2.3	5	242	20	26	3450
426	Volvo	S80 T6 4dr	Sedan	Europe	Front	\$45,210	\$42,573	2.9	6	268	19	26	3653
427	Volvo	V40	Wagon	Europe	Front	\$26,135	\$24,641	1.9	4	170	22	29	2822
428	Volvo	XC70	Wagon	Europe	All	\$35,145	\$33,112	2.5	5	208	20	27	3823

Cars Dataset

Sedans

In this case I have cancelled the title1 and the footnote2.

Q5

Code:

```

102 /* Q5 */
103 /* Creating Table: */
104 data event_attendance;
105 format EventDate RegistrationDate date9.;
106 input EventID $ EventName $ EventDate : date9. AttendeeID $
107 RegistrationDate : date9.;
108 datalines;
109 E01 EventA 03JAN2024 A001 15DEC2023
110 E01 EventA 01JAN2024 A002 16DEC2023
111 E02 EventB 15FEB2024 A003 01FEB2024
112 E02 EventA 15FEB2024 A004 03FEB2024
113 E03 EventC 20MAR2024 A005 15MAR2024
114 E03 EventC 22MAR2024 A006 18MAR2024
115 E04 EventZ 25APR2024 A007 01APR2024
116 E04 EventD 25APR2024 A008 02APR2024
117 E05 EventD 30MAY2024 A009 20MAY2024
118 E05 EventE 30MAY2024 A010 22MAY2024
119 ;
120 run;
```

```

123 data event_attendance;
124 set WORK.EVENT_ATTENDANCE;
125 DaysToEvent = EventDate - RegistrationDate;
126 if DaysToEvent >= 30 then RegistrationCategory = 'Early
127 Registrant';
128 else if DaysToEvent >= 15 and DaysToEvent < 30 then
129 RegistrationCategory = 'Standard Registrant';
130 else RegistrationCategory = 'Late Registrant';
131
132 proc means data=event_attendance noprint;
133 class RegistrationCategory;
134 var DaysToEvent;
135 output out=mean_days(drop=_type_ _freq_) mean=AvgDaysToEvent;
136 run;

137
138
139 proc sort data=mean_days;
140 by EVENTNAME AvgDaysToEvent;
141 run;
142 proc print data=mean_days;
143 run;
144
145
146
147

```

Output:

Creating the dataset

Table: WORK.EVENT_ATTENDANCE

View: Column names

Filter: (none)

Columns

Total rows: 10 Total columns: 5

Rows 1-10

☒

Select all

☒

EventDate

☒

RegistrationDate

☒

EventID

☒

EventName

☒

AttendeeID

Property

Value

Label

Name

Length

	EventDate	RegistrationDate	EventID	EventName	AttendeeID	
1	03JAN2024	15DEC2023	E01	EventA	A001	
2	01JAN2024	16DEC2023	E01	EventA	A002	
3	15FEB2024	01FEB2024	E02	EventB	A003	
4	15FEB2024	03FEB2024	E02	EventA	A004	
5	20MAR2024	15MAR2024	E03	EventC	A005	
6	22MAR2024	18MAR2024	E03	EventC	A006	
7	25APR2024	01APR2024	E04	EventZ	A007	
8	25APR2024	02APR2024	E04	EventD	A008	
9	30MAY2024	20MAY2024	E05	EventD	A009	
10	30MAY2024	22MAY2024	E05	EventE	A010	

Part1

CODELOGRESULTSOUTPUT DATA

Table: WORK.EVENT_ATTENDANCEView: Column namesFilter: (none)

Columns

Select all

EventDate

RegistrationDate

EventID

EventName

AttendeeID

Property

Label

Name

Length

Total rows: 10

Total columns: 5

Rows 1-10

	EventDate	RegistrationDate	EventID	EventName	AttendeeID
1	03JAN2024	15DEC2023	E01	EventA	A001
2	01JAN2024	16DEC2023	E01	EventA	A002
3	15FEB2024	01FEB2024	E02	EventB	A003
4	15FEB2024	03FEB2024	E02	EventA	A004
5	20MAR2024	15MAR2024	E03	EventC	A005
6	22MAR2024	18MAR2024	E03	EventC	A006
7	25APR2024	01APR2024	E04	EventZ	A007
8	25APR2024	02APR2024	E04	EventD	A008
9	30MAY2024	20MAY2024	E05	EventD	A009
10	30MAY2024	22MAY2024	E05	EventE	A010

Part2

Total rows: 10

Total columns: 5

Rows 1-10

	EventDate	RegistrationDate	EventID	EventName	AttendeeID
1	03JAN2024	15DEC2023	E01	EventA	A001
2	01JAN2024	16DEC2023	E01	EventA	A002
3	15FEB2024	01FEB2024	E02	EventB	A003
4	15FEB2024	03FEB2024	E02	EventA	A004
5	20MAR2024	15MAR2024	E03	EventC	A005
6	22MAR2024	18MAR2024	E03	EventC	A006
7	25APR2024	01APR2024	E04	EventZ	A007
8	25APR2024	02APR2024	E04	EventD	A008
9	30MAY2024	20MAY2024	E05	EventD	A009
10	30MAY2024	22MAY2024	E05	EventE	A010

Part3

Table: WORKEVENT_ATTENDEE

view: Column names

Filter: (none)

Columns

Total rows: 10 Total columns: 5

Rows 1-10

☒ Select all

☒ EventDate

☒ RegistrationDate

☒ EventID

☒ EventName

☒ AttendeeID

Property	Value
Label	
Name	
Length	

	EventDate	RegistrationDate	EventID	EventName	AttendeeID
1	03JAN2024	15DEC2023	E01	EventA	A001
2	01JAN2024	16DEC2023	E01	EventA	A002
3	15FEB2024	01FEB2024	E02	EventB	A003
4	15FEB2024	03FEB2024	E02	EventA	A004
5	20MAR2024	15MAR2024	E03	EventC	A005
6	22MAR2024	18MAR2024	E03	EventC	A006
7	25APR2024	01APR2024	E04	EventZ	A007
8	25APR2024	02APR2024	E04	EventD	A008
9	30MAY2024	20MAY2024	E05	EventD	A009
10	30MAY2024	22MAY2024	E05	EventE	A010