SET A **SAP ID: 70022100516** **ROLL NO.: A053**

SVKM's NMIMS

SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING, NAVI-MUMBAI

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Instructions:

1) All questions are compulsory.
2) You have to write SAS code and Run it in SAS studio. Submit the screenshot of code and output for all the questions in a PDF file.
3) If there are multiple steps involved in the code, run each step and take screenshot of output at each step.

Q. No.	CO/ BL	Statement of the question **Nishant Baruah – A053**	Marks
Q. 1	CO1 /6	Open SAS Studio and create a new program. Use the **DATA** step to create a dataset named **StudentData** with variables **StudentID**, **FirstName**, **LastName**, **Age**, and **Grade**. Enter data for at least 5 students. Use the **PRINT** procedure to display the dataset. **data StudentData;** **input StudentID FirstName $ LastName $ Age Grade;** **datalines;** **117 Siddhant Sawant 20 A+** **118 ABC DEF 20 A-** **119 DEF HIJ 20 B+** **120 KLM NOP 20 C** **121 XYZ ABC 20 D** **;** **run;** **proc print data=StudentData;** **run;** Obs | StudentID | FirstName | LastName | Age | Grade 1 | 117 | Siddhant | Sawant | 20 | . 2 | 118 | ABC | DEF | 20 | . 3 | 119 | DEF | HIJ | 20 | . 4 | 120 | KLM | NOP | 20 | . 5 | 121 | XYZ | ABC | 20 | .	(4)
Q. 2	CO1 /6	Create a dataset named **Employees** with variables **EmployeeID**, **FirstName**, **LastName**, **Salary**, and **YearsOfService**. Use the **DATA** step to create a new variable named	(4)

BonusEligible based on the following condition: Employees with more than 5 years of service and a salary greater than $50,000 are eligible for a bonus. Display the **Employees** dataset to verify the new variable.

```
data Employees;
        input EmployeeID FirstName $ LastName $ Salary YearsOfService;

        if YearsOfService > 5 and Salary > 50000 then
        BonusEligible = 1;
   else
        BonusEligible = 0;

   datalines;
1 ABC DEF 55000 6
2 XYZ ABC 48000 4
3 JOE HARY 60000 7
4 Mary KOM 52000 3
5 James BOND 49000 6
;
/* Display the Employees dataset */
proc print data=Employees;
run;
```

Obs	EmployeeID	FirstName	LastName	Salary	YearsOfService	BonusEligible
1	1	ABC	DEF	55000	6	1
2	2	XYZ	ABC	48000	4	0
3	3	JOE	HARY	60000	7	1
4	4	Mary	KOM	52000	3	0
5	5	James	BOND	49000	6	0

Q. 3 | CO1 /5 | (4)

Load the SASHELP.SHOP data. Use the **PRINT** procedure to display the dataset. Create a new dataset named **RecentPurchases** containing only purchases made after January 1, 2023. Display the first 5 rows of the **RecentPurchases** dataset.

```
/* Load the SASHELP.CARS data */
data Cars;
  set sashelp.cars;
run;

/* Display the original dataset using the PRINT procedure */
```

```
proc print data=Cars;
run;


data Cylinders;
 set Cars;
 if Cylinders > '5' then output Cylinders;
run;

/* Display the first 5 rows of the RecentPurchases dataset */
proc print data=Cylinders (obs=5);
run;
```

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway
1	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6	265	17	23
2	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6	270	20	28
3	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6	225	18	24
4	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	$46,100	$41,100	3.5	6	225	18	24
5	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	$89,765	$79,978	3.2	6	290	17	24

Q. 4 | CO1 /5 | (4)

Load the Sales data. Use PROC FORMAT to specify the salary range for each tier as shown in table. Print Sales table with formatting applied to birthdate (monyy7) and salary (tiers) column.

Salary	Value
0 to 49,999	Tier1
50,000 to 99,999	Tier2
100,000 to 250,000	Tier3

```
data Sales;
 input EmployeeID Birthdate date9. Salary;
 format Birthdate date9.;
 datalines;
1 01JAN1980 30000
2 15FEB1985 75000
4 10APR1975 90000
5 05MAY1988 125000
;

proc format;
 value salary_tiers
   low -< 49999 = 'Tier 1'
   50000 -< 95000 = 'Tier 2'
   100000 -< 250000 = 'Tier 3';
run;
```

```
data Sales_formatted;
 set Sales;
 Salary_tier = put(Salary, salary_tiers.);
run;

proc print data=Sales_formatted;
 format Birthdate monyy7. Salary_tier $20.;
run;
```

Obs	EmployeeID	Birthdate	Salary	Salary_tier
1	1	JAN1980	30000	Tier 1
2	2	FEB1985	75000	Tier 2
3	4	APR1975	90000	Tier 2
4	5	MAY1988	125000	Tier 3

Q. 5 | CO1 /5 | (4)

Load SASHELP.CARS data. Create a new dataset named **HighMileageCars** that includes only the cars from the **CARS** dataset where the Make is not in the list ('Chevrolet', 'Ford', 'Honda').

```
data Cars;
 set sashelp.cars;
run;


data HighMileageCars;
 set Cars;

 if Make ne 'Chevrolet' and Make ne 'Ford' and Make ne 'Honda' then output HighMileageCars;
run;

/* Display the HighMileageCars dataset */
proc print data=HighMileageCars;
run;
```

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase	Length
1	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6	265	17	23	4451	106	189
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4	200	24	31	2778	101	172
3	Acura	TSX 4dr	Sedan	Asia	Front	$26,990	$24,647	2.4	4	200	22	29	3230	105	183
4	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6	270	20	28	3575	108	186
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6	225	18	24	3880	115	197
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	$46,100	$41,100	3.5	6	225	18	24	3893	115	197
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	$89,765	$79,978	3.2	6	290	17	24	3153	100	174
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	$25,940	$23,508	1.8	4	170	22	31	3252	104	179
9	Audi	A41.8T convertible 2dr	Sedan	Europe	Front	$35,940	$32,506	1.8	4	170	23	30	3638	105	180
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	$31,840	$28,846	3.0	6	220	20	28	3462	104	179
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	$33,430	$30,366	3.0	6	220	17	26	3583	104	179
12	Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	$34,480	$31,388	3.0	6	220	18	25	3627	104	179
13	Audi	A6 3.0 4dr	Sedan	Europe	Front	$36,640	$33,129	3.0	6	220	20	27	3561	109	192
14	Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	$39,640	$35,992	3.0	6	220	18	25	3880	109	192
15	Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	$42,490	$38,325	3.0	6	220	20	27	3814	105	180
16	Audi	A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	$44,240	$40,075	3.0	6	220	18	25	4013	105	180
17	Audi	A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	$42,840	$38,840	2.7	6	250	18	25	3836	109	192
18	Audi	A6 4.2 Quattro 4dr	Sedan	Europe	All	$49,690	$44,936	4.2	8	300	17	24	4024	109	193
19	Audi	A8 L Quattro 4dr	Sedan	Europe	All	$69,190	$64,740	4.2	8	330	17	24	4399	121	204
20	Audi	S4 Quattro 4dr	Sedan	Europe	All	$48,040	$43,556	4.2	8	340	14	20	3825	104	179
21	Audi	RS 6 4dr	Sports	Europe	Front	$84,600	$76,417	4.2	8	450	15	22	4024	109	191
22	Audi	TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	$35,940	$32,512	1.8	4	180	20	28	3131	95	159
23	Audi	TT 1.8 Quattro 2dr (convertible)	Sports	Europe	All	$37,390	$33,891	1.8	4	225	20	28	2921	96	159
24	Audi	TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	$40,590	$36,739	3.2	6	250	21	29	3351	96	159
25	Audi	A6 3.0 Avant Quattro	Wagon	Europe	All	$40,840	$37,060	3.0	6	220	18	25	4035	109	192
26	Audi	S4 Avant Quattro	Wagon	Europe	All	$49,090	$44,446	4.2	8	340	15	21	3936	104	179
27	BMW	X3 3.0i	SUV	Europe	All	$37,000	$33,873	3.0	6	225	16	23	4023	110	180
28	BMW	X5 4.4i	SUV	Europe	All	$52,195	$47,720	4.4	8	325	16	22	4824	111	184

334	Toyota	Matrix XR	Wagon	Asia	Front	$16,695	$15,156	1.8	4	130	29
335	Volkswagen	Touareg V6	SUV	Europe	All	$35,515	$32,243	3.2	6	220	15
336	Volkswagen	Golf GLS 4dr	Sedan	Europe	Front	$18,715	$17,478	2.0	4	115	24
337	Volkswagen	GTI 1.8T 2dr hatch	Sedan	Europe	Front	$19,825	$18,109	1.8	4	180	24
338	Volkswagen	Jetta GLS TDI 4dr	Sedan	Europe	Front	$21,055	$19,638	1.9	4	100	38
339	Volkswagen	New Beetle GLS 1.8T 2dr	Sedan	Europe	Front	$21,055	$19,638	1.8	4	150	24
340	Volkswagen	Jetta GLI VR6 4dr	Sedan	Europe	Front	$23,785	$21,686	2.8	6	200	21
341	Volkswagen	New Beetle GLS convertible 2dr	Sedan	Europe	Front	$23,215	$21,689	2.0	4	115	24
342	Volkswagen	Passat GLS 4dr	Sedan	Europe	Front	$23,955	$21,898	1.8	4	170	22
343	Volkswagen	Passat GLX V6 4MOTION 4dr	Sedan	Europe	Front	$33,180	$30,583	2.8	6	190	19
344	Volkswagen	Passat W8 4MOTION 4dr	Sedan	Europe	Front	$39,235	$36,052	4.0	8	270	18
345	Volkswagen	Phaeton 4dr	Sedan	Europe	Front	$65,000	$59,912	4.2	8	335	16
346	Volkswagen	Phaeton W12 4dr	Sedan	Europe	Front	$75,000	$69,130	6.0	12	420	12
347	Volkswagen	Jetta GL	Wagon	Europe	Front	$19,005	$17,427	2.0	4	115	24
348	Volkswagen	Passat GLS 1.8T	Wagon	Europe	Front	$24,955	$22,801	1.8	4	170	22
349	Volkswagen	Passat W8	Wagon	Europe	Front	$40,235	$36,956	4.0	8	270	18
350	Volvo	XC90 T6	SUV	Europe	All	$41,250	$38,851	2.9	6	268	15
351	Volvo	S40 4dr	Sedan	Europe	Front	$25,135	$23,701	1.9	4	170	22
352	Volvo	S60 2.5 4dr	Sedan	Europe	All	$31,745	$29,916	2.5	5	208	20
353	Volvo	S60 T5 4dr	Sedan	Europe	Front	$34,845	$32,902	2.3	5	247	20
354	Volvo	S60 R 4dr	Sedan	Europe	All	$37,560	$35,382	2.5	5	300	18
355	Volvo	S80 2.9 4dr	Sedan	Europe	Front	$37,730	$35,542	2.9	6	208	20
356	Volvo	S80 2.5T 4dr	Sedan	Europe	All	$37,885	$35,688	2.5	5	194	20
357	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	$40,565	$38,203	2.4	5	197	21
358	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	$42,565	$40,083	2.3	5	242	20
359	Volvo	S80 T6 4dr	Sedan	Europe	Front	$45,210	$42,573	2.9	6	268	19
360	Volvo	V40	Wagon	Europe	Front	$26,135	$24,641	1.9	4	170	22
361	Volvo	XC70	Wagon	Europe	All	$35,145	$33,112	2.5	5	208	20