```
LIBNAME SAS_SQL '/home/debendra330/BATCH_202404/SESSION_7/A3.SAS_DATASET';
RUN;

/* SAS SQL programming for creating table */
/* SAS SQL programming for inserting values to the table */
================================================================
```

```
DATA STU_ENQ_202301;
INPUT STU_ID $ STU_NAME : $15. AGE GENDER $ EDUCATION $ DATE_OF_ENQ COURSE $;
INFORMAT DATE_OF_ENQ DDMMYY10.;
FORMAT DATE_OF_ENQ MMDDYY10.;
CARDS;
S1 AMAN 23 MALE BBA 02/11/2022 MPIDS
S2 SHIVANI 25 FEMALE BTECH 23/11/2022 ADA
S3 KARHIKIYEN 28 MALE MTECH 29/11/2022 MPIDS
;
RUN;
```

```
PROC PRINT;
RUN;

/* WE HAVE CREATE THE ABOVE DATASET IN BASE SAS */
/* WE WILL REPLICATE THE SAME TABLE IN SAS SQL */
```

```
PROC SQL;
CREATE TABLE STU_ENQ_202301_V1
(STU_ID CHAR(10),
STU_NAME CHAR(15),
AGE INT,
GENDER CHAR(10),
EDUCATION CHAR(10),
DATE_OF_ENQ DATE,
COURSE CHAR(10));
QUIT;
```

```
PROC SQL;
INSERT INTO STU_ENQ_202301_V1 VALUES ('S1', 'AMAN', 23, 'MALE', 'BBA', '02NOV2022'D, 'MPIDS');
INSERT INTO STU_ENQ_202301_V1 VALUES ('S2', 'SHIVANI', 25, 'FEMALE', 'BTECH', '23NOV2022'D, 'ADA');
INSERT INTO STU_ENQ_202301_V1 VALUES ('S3', 'KARTHIKIYEN', 28, 'MALE', 'MBA', '17NOV2022'D, 'MPIDS');
QUIT;
```

```
PROC SQL NUMBER;
SELECT * FROM STU_ENQ_202301_V1;
QUIT;

/* HOW TO DROP A TABLE */
```

```
PROC SQL;
DROP TABLE STU_ENQ_202301_V1;
QUIT;
```

```
PROC SQL NUMBER;
SELECT * FROM STU_ENQ_202301_V1;
QUIT;
```

```
PROC SQL;
CREATE TABLE STU_ENQ_202301_V1
(STU_ID CHAR(10),
STU_NAME CHAR(15),
AGE INT,
GENDER CHAR(10),
EDUCATION CHAR(10),
DATE_OF_ENQ DATE,
COURSE CHAR(10));
QUIT;
```

```
PROC SQL;
INSERT INTO STU_ENQ_202301_V1 VALUES ('S1', 'AMAN', 23, 'MALE', 'BBA', '02NOV2022'D, 'MPIDS');
INSERT INTO STU_ENQ_202301_V1 VALUES ('S2', 'SHIVANI', 25, 'FEMALE', 'BTECH', '23NOV2022'D, 'ADA');
```

```
INSERT INTO STU_ENQ_202301_V1 VALUES ('S3', 'KARTHIKIYEN', 28, 'MALE', 'MBA', '17NOV2022'D, 'MPIDS');
QUIT;

/* HOW TO DELETE A TABLE */

PROC SQL;
DELETE * FROM STU_ENQ_202301_V1;
QUIT;

PROC SQL;
SELECT * FROM STU_ENQ_202301_V1;
QUIT;

/* HOW TO TRUNCATE A TABLE */

PROC SQL NUMBER;
TRUNCATE TABLE STU_ENQ_202301_V1;
QUIT;

/* IN SAS SQL ENGINE, TRUNCATE KEYWORD DOES NOT GET RECOGNISED */

/* SAS SQL programming for creating a new table from an existing table */
================================================================

PROC PRINT DATA=SAS_SQL.MED_2024;
RUN;

/* TO CREATE A NEW TABLE FROM EXISTING TABLE */

PROC SQL;
CREATE TABLE MED_SELECT AS
SELECT CUSTOMER_ID, COMPANY, GENDER, AGE, STATE_CODE, SPENT_AMOUNT
FROM SAS_SQL.MED_2024;
QUIT;

/* SAS SQL programming with selecting observations */
============================================

PROC SQL;
SELECT TOP 100* FROM MED_SELECT;
QUIT;

PROC SQL OUTOBS=100 NUMBER;
SELECT * FROM MED_SELECT;
RUN;

/* SAS SQL programming with ADDING ROW NUMBERS */
/* SAS SQL programming for creating row numbers */
=====================================================

DATA MED_SELECT;
SET MED_SELECT;
ROW_NUMBER_BASE_SAS = _N_;
RUN;

/* IN SAS SQL */

PROC SQL;
CREATE TABLE MED_SELECT_V2 AS
SELECT CUSTOMER_ID, COMPANY, GENDER, AGE, STATE_CODE, SPENT_AMOUNT,
MONOTONIC() AS ROW_NUMBER
FROM MED_SELECT;
QUIT;

/* IN SAS SQL, WE USE MONOTONIC AS A FUNCTION TO CREATE ROW NUMBER */

/* SAS SQL programming with alias to table and column name */
============================================================

PROC SQL;
```

```
CREATE TABLE MED_SELECT AS
SELECT CUSTOMER_ID AS SUB_ID,
COMPANY AS BUSINESS,
GENDER, AGE,
STATE_CODE AS PROVINCE,
TOWN,
NO_OF_TRIPS AS VISITS,
SPENT_AMOUNT AS SPENT
FROM SAS_SQL.MED_2024;
QUIT;
```

```
PROC SQL;
SELECT A.* FROM MED_SELECT AS A;
QUIT;

/* SAS SQL programming with expressions */
==================================================
```

```
PROC SQL NUMBER;
CREATE TABLE MED_SELECT AS
SELECT CUSTOMER_ID AS SUB_ID,
COMPANY AS BUSINESS,
GENDER, AGE,
STATE_CODE AS PROVINCE,
TOWN,
NO_OF_TRIPS AS VISITS,
SPENT_AMOUNT AS SPENT,
(SPENT_AMOUNT/NO_OF_TRIPS) AS SPENT_PER_VISIT FORMAT DOLLAR10.
FROM SAS_SQL.MED_2024;
QUIT;
```

```
DATA PROD_SALES_IND_JAP;
INFILE CARDS DSD DLM='09'X;
INPUT PROD $ COUNTRY $ YEAR UNITS PRICE DISCOUNT;
CARDS;
APPLE   INDIA   2020    842 69666   0.12
DELL    INDIA   2020    433 74822   0.19
LENOVO  INDIA   2020    544 51341   0.05
HP  INDIA   2020    637 72770   0.08
APPLE   INDIA   2021    192 71234   0.12
DELL    INDIA   2021    633 69882   0.18
LENOVO  INDIA   2021    747 58402   0.17
HP  INDIA   2021    360 93302   0.1
APPLE   INDIA   2022    468 71386   0.13
DELL    INDIA   2022    119 98183   0.19
LENOVO  INDIA   2022    198 63677   0.17
HP  INDIA   2022    695 61525   0.15
APPLE   JAPAN   2020    550 77538   0.07
DELL    JAPAN   2020    619 99061   0.09
LENOVO  JAPAN   2020    862 56718   0.13
HP  JAPAN   2020    124 85239   0.08
APPLE   JAPAN   2021    223 85034   0.17
DELL    JAPAN   2021    187 69487   0.14
LENOVO  JAPAN   2021    142 91583   0.05
HP  JAPAN   2021    727 84795   0.06
APPLE   JAPAN   2022    708 75792   0.14
DELL    JAPAN   2022    180 53272   0.14
LENOVO  JAPAN   2022    358 62726   0.09
HP  JAPAN   2022    335 71560   0.17
;
RUN;
```

```
PROC PRINT DATA=PROD_SALES_IND_JAP;
RUN;
```

```
PROC SQL;
SELECT *,
(PRICE - (PRICE*DISCOUNT)) as SELLING_PRICE FORMAT=DOLLAR10.,
(UNITS * CALCULATED SELLING_PRICE) AS TOTAL_SALES FORMAT=DOLLAR10.
FROM PROD_SALES_IND_JAP;
```

```
QUIT;

/* WE USE CALCULATED KEYWORD TO USE CALCULATED FIELD NAMES INSTEAD OF GIVING THE EXPRESSION */

/* SAS SQL programming with where clause (Operators and Operands) */
======================================================================
```

```
PROC SQL;
SELECT CUSTOMER_ID, COMPANY, GENDER, AGE, STATE_CODE, SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY = 'APPOLO';
QUIT;

/* OPERAND- COMPANY */
/* OPERATOR- EQUAL TO SIGN */
/* CONDITIONAL VALUE- APPOLO */

/* TYPES OF OPERATORS */

/* 1. LOGICAL OPERATOR - AND, OR, IN, NOT IN */
/* 2. COMPARISION OPERATOR - >, <, >=, <=, =, <>, GE, GT, LE, LT, EQ */
/* 3. SPECIAL OPERATOR - LIKE, BETWEEEN */
/* 4. ARITHMETIC OPERATOS - +, -, *, /, % */

/* 1. LOGICAL OPERATOR */
```

```
PROC SQL;
SELECT CUSTOMER_ID, COMPANY, GENDER, AGE, STATE_CODE, SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY = 'APPOLO' AND GENDER='Female';
QUIT;
```

```
PROC SQL;
SELECT CUSTOMER_ID, COMPANY, GENDER, AGE, STATE_CODE, SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY = 'APPOLO' OR GENDER='Female';
QUIT;
```

```
PROC SQL;
SELECT CUSTOMER_ID, COMPANY, GENDER, AGE, STATE_CODE, SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY IN ('APPOLO', 'CIPLA', 'GENO') ;
QUIT;
```

```
PROC SQL;
SELECT CUSTOMER_ID, COMPANY, GENDER, AGE, STATE_CODE, SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY NOT IN ('APPOLO', 'CIPLA', 'GENO') ;
QUIT;

/* 2. COMPARISON OPERATOR */
```

```
PROC SQL;
SELECT
CUSTOMER_ID,
COMPANY,
GENDER,
AGE,
STATE_CODE,
SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY EQ 'APPOLO';
QUIT;
```

```
PROC SQL;
SELECT
CUSTOMER_ID,
COMPANY,
GENDER,
AGE,
```

```
STATE_CODE,
SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY EQ 'APPOLO' AND SPENT_AMOUNT GT 1000;
QUIT;

PROC SQL;
SELECT
CUSTOMER_ID,
COMPANY,
GENDER,
AGE,
STATE_CODE,
SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY EQ 'APPOLO' AND SPENT_AMOUNT LT 100;
QUIT;

/* 3. SPECIAL OPERATOR */

PROC SQL;
SELECT
CUSTOMER_ID,
COMPANY,
GENDER,
AGE,
STATE_CODE,
SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE COMPANY = 'APPOLO' AND AGE BETWEEN 30 AND 50;
QUIT;

PROC SQL;
SELECT
CUSTOMER_ID,
COMPANY,
GENDER,
AGE,
TOWN,
STATE_CODE,
SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE TOWN LIKE 'K%';
QUIT;

PROC SQL;
SELECT
CUSTOMER_ID,
COMPANY,
GENDER,
AGE,
TOWN,
STATE_CODE,
SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE TOWN LIKE '%K%';
QUIT;

PROC SQL;
SELECT
CUSTOMER_ID,
COMPANY,
GENDER,
AGE,
TOWN,
STATE_CODE,
SPENT_AMOUNT
FROM SAS_SQL.MED_2024
WHERE TOWN LIKE 'K_____';
QUIT;
```

```
/* 4. ARITHMETIC OPERATOR */

DATA PROD_SALES;
INPUT PROD $ JAN FEB MAR APR MAY JUN;
CARDS;
APPLE 80 50 90 30 80 90
DELL 70 90 20 67 58 90
LENOVO 90 78 40 50 78 12
HP 20 90 80 90 90 78
;
RUN;

PROC PRINT DATA=PROD_SALES;
RUN;

PROC SQL;
SELECT *,
(JAN+FEB+MAR) AS QTR1_SALES,
(APR+MAY+JUN) AS QTR2_SALES,
((CALCULATED QTR1_SALES/CALCULATED QTR2_SALES)-1) AS SALES_VARIANCE FORMAT=PERCENT5.2
FROM PROD_SALES;
QUIT;

/* SAS SQL programming with case and when statement */
/* SAS SQL programming with NESTED case and when statement */
=====================================================================

PROC SQL;
SELECT * FROM MED_SELECT;
QUIT;


PROC SQL;
SELECT *,
CASE
WHEN AGE >=60 THEN 'OLD-AGE'
WHEN AGE >=50 THEN 'MID-OLD-AGE'
WHEN AGE >=40 THEN 'MID-AGE'
WHEN AGE >=30 THEN 'MID-YOUNG-AGE'
ELSE 'YOUNG-AGE'
END AS AGE_BUCKET,
CASE
WHEN VISITS >= 30 THEN 'LOYAL'
WHEN VISITS >= 10 THEN 'REGULAR'
ELSE 'CASUAL'
END AS VISIT_BUCKET,
CASE
WHEN SPENT >= 1000 THEN 'PREMIER'
WHEN SPENT >= 500 THEN 'ADVANCE'
ELSE 'RETAIL'
END AS SPENT_BUCKET
FROM MED_SELECT;
QUIT;

DATA PROD_SALES;
INFILE CARDS DSD DLM='09'X;
INPUT PROD $ CITY : $20. PRICE UNITS;
CARDS;
APPLE   BANGALORE   36000   838
APPLE   DELHI   49000   836
APPLE   BHUBANESWAR 44000   555
APPLE   MUMBAI  32000   841
APPLE   CHENNAI 38000   767
DELL    BANGALORE   49000   535
DELL    DELHI   35000   183
DELL    BHUBANESWAR 48000   729
DELL    MUMBAI  45000   557
DELL    CHENNAI 31000   490
HP  BANGALORE   43000   596
```

```
HP  DELHI   33000   136
HP  BHUBANESWAR 48000   691
HP  MUMBAI  39000   309
HP  CHENNAI 48000   312
;
RUN;

PROC PRINT DATA=PROD_SALES;
RUN;

/* PRODUCT='APPLE' AND CITY='BANGALORE' THEN .30 DISCOUNT ON PRICE */
/* PRODUCT='APPLE' AND CITY='MUMBAI' THEN .20 DISCOUNT ON PRICE */
/* PRODUCT='DELL' AND CITY='DELHI' THEN .20 DISCOUNT ON PRICE */
/* PRODUCT='DELL' AND CITY='CHENNAI' THEN .10 DISCOUNT ON PRICE */
/* PRODUCT='HP' AND CITY='BHUBANESWAR' THEN .30 DISCOUNT ON PRICE */
/* PRODUCT='HP' AND CITY='BANGALORE' THEN .10 DISCOUNT ON PRICE */

PROC SQL NUMBER;
SELECT *,
CASE
        WHEN PROD='APPLE' THEN
        CASE
                WHEN CITY='BANGALORE' THEN 0.30*PRICE
                WHEN CITY='MUMBAI' THEN 0.20*PRICE
                ELSE 0
        END
        WHEN PROD='DELL' THEN
        CASE
                WHEN CITY='DELHI' THEN 0.20*PRICE
                WHEN CITY='CHENNAI' THEN 0.10*PRICE
                ELSE 0
        END
        WHEN PROD='HP' THEN
        CASE
                WHEN CITY='BHUBANESHWAR' THEN 0.30*PRICE
                WHEN CITY='BANGALORE' THEN 0.10*PRICE
                ELSE 0
        END
END AS DISCOUNT,
(PRICE - CALCULATED DISCOUNT) AS SELLING_PRICE,
UNITS * CALCULATED SELLING_PRICE AS SALES
FROM PROD_SALES;
QUIT;

/* SAS SQL programming for summarizing data */
/* SAS SQL programming with where and having clause */
/* SAS SQL programming and sequence of clauses */
============================================================

PROC SQL;
SELECT COUNT(*) AS SUBS,
COUNT(CUSTOMER_ID) AS SUBS2,
COUNT(CONTACT_PREF) AS SUBS3
FROM SAS_SQL.MED_2024;
QUIT;

PROC SQL;
SELECT COUNT(CUSTOMER_ID) AS SUBS,
MEAN(AGE) AS AVG_AGE,
SUM(NO_OF_TRIPS) AS VISITS,
SUM(SPENT_AMOUNT) AS TOTAL_SPENT
FROM SAS_SQL.MED_2024;
QUIT;

PROC SQL;
SELECT STATE_CODE, COMPANY, COUNT(CUSTOMER_ID) AS SUBS,
MEAN(AGE) AS AVG_AGE,
SUM(NO_OF_TRIPS) AS VISITS,
SUM(SPENT_AMOUNT) AS TOTAL_SPENT
FROM SAS_SQL.MED_2024
```

```
GROUP BY STATE_CODE, COMPANY;
QUIT;
```

```
PROC SQL;
SELECT STATE_CODE, COMPANY, COUNT(CUSTOMER_ID) AS SUBS,
MEAN(AGE) AS AVG_AGE,
SUM(NO_OF_TRIPS) AS VISITS,
SUM(SPENT_AMOUNT) AS TOTAL_SPENT
FROM SAS_SQL.MED_2024
WHERE COMPANY IN ('APPOLO', 'CIPLA', 'GENO')
GROUP BY STATE_CODE, COMPANY;
QUIT;
```

```
PROC SQL;
SELECT STATE_CODE, COMPANY, COUNT(CUSTOMER_ID) AS SUBS,
MEAN(AGE) AS AVG_AGE,
SUM(NO_OF_TRIPS) AS VISITS,
SUM(SPENT_AMOUNT) AS TOTAL_SPENT
FROM SAS_SQL.MED_2024
```