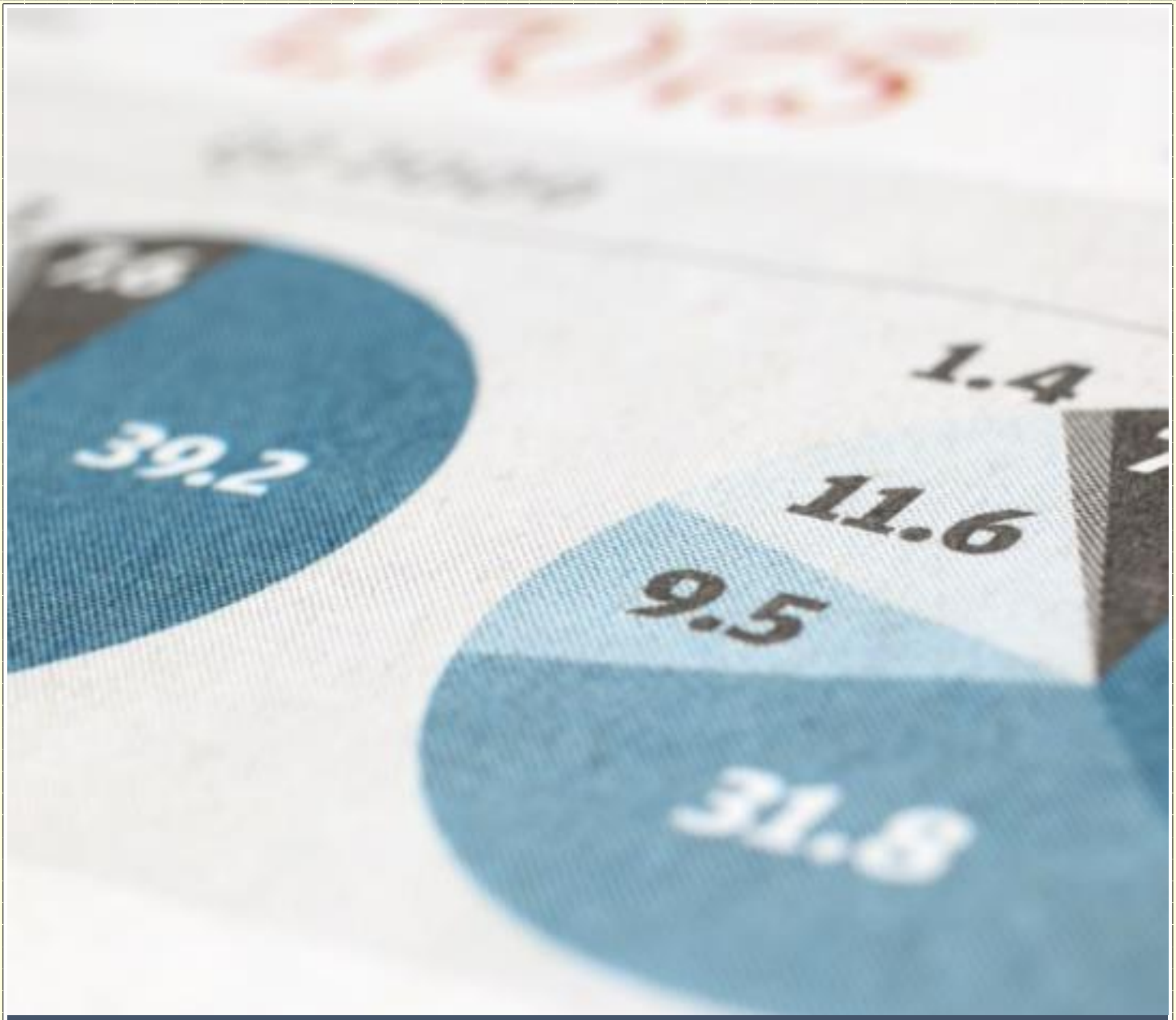

SAS®-A00-232 Certifications

By HadoopExam.com

Contents

About A00-232: SAS® Certified Professional: Advanced Programming Using SAS® 9.4 Questions and Answer for real exam: Include Projects/scenarios and MCQ

20+ Scenarios (Project) and 235+ Multiple choice (Standard) Questions and Answers for real exam

SAS has changed the way it was previously conducting certification exam and now they have hybrid model for evaluating the candidate. To get certify for SAS A00-232 certification you have to now implement the actual code using SAS Browser based studio which is hosted on the Cloud as well as you need to answer approx. 15 standard multiple-choice question and answer. Hence, now memorizing the question and answer would not help, you literally write the code to pass this SAS Advanced certification. Since last 6-year HadoopExam is helping thousands of learners to become SAS expert by providing training material as well as certification preparation material. And to continue the same we are launching SAS Certified Professional Advanced Programming Scenario based question and answer where we are providing, step by step solution for each scenario and also help you get the answer to the question which are based on these scenarios. This is another practical SAS base advanced programming exam. At the same time using the scenarios, various coding challenges would be given and you have to write the SAS code and then to test your code you have to answer the multiple choice or short answer-based questions. Even for this exam SAS is going to check your code as well, and you have done the things which is asked in the exam or not. SAS uses some macro to evaluate your code as well as evaluator manually check the code. In a single scenario you would be given 1 or more questions. This exam launched since June-2019. Without having or doing any coding you cannot clear this certification exam, which make this credential more valuable than previously available. That's the reason we highly recommend you should prepare exam in order A00-215, A00-231 & A00-232 together. There are two sections in the exam as below.

Standard Questions: In this you would be asked following types of questions and you don't have to write any code.

- Multiple Choice Question
- Fill In the blank's questions
- Short answer questions
- Mapping questions etc

Scenario Based questions: In this coding challenges would be given. You have to implement those coding challenges and then answer series of the questions. In this you should also be able to execute macro to test your code. Please watch the below videos and FAQ to understand further.

Check Sample Scenario Question Paper

FAQ for SAS A00-232 Certification exam

Question-1: How to access SAS environment during the real exam A00-232?

Answer: You don't have to install SAS software on your desktop, instead SAS would be providing a connection to launch remote SAS environment. You need to check that there are two things provided as below.

- **Right Side**: Lab is provided (Open SAS tool to solve the given problem, keep 2/3 Window for this)
- **Left Side**: Questions and instructions (Keep it 1/3rd space for this, so you can read questions and answer anytime)

While working or solving a coding challenge you should resize the window as per your need. So that maximum screen is available to you.

Question-2: What kind of instructions are provided for the SAS A00-232 exam during real time?

Answer: You would see instructions as below

This exam will present series of programming projects. At the end of each project, you will invoke a macro that will assess your work (wow: kind of Immediate assessment). Name of the macro would be scoreit and perform following stuff.

- Reset the environment to a baseline configuration.
- Look for the SAS program. If it cannot locate it, it will produce an error and instruct you to check the name and location of your file.
- Run your program
- Evaluate your program by:
- **Checking the result:** This may be the values withing an output data (very similar stuff HadoopExam implemented using the short text-based question and answer) set, attributes of a data set, or system parameters such as values of macro variables.
- Examining the code that you wrote to verify that you solved the problem as described. These are broad-based checks that still provide you with flexibility in your chosen solution. For example, if the project asks you to create a dataset with an SQL query, do not solve the problem using DATA step.
- Then return a 3-digit response code to the SAS log that will indicate if you solved the project correctly. This code would be used internally to validate your results. You will transfer this value to your exam question, where it asks: What is the value of Response in the log?

Question-3: Is data library provided for the SAS A00-232 exam?

Answer: Yes, you would be provided with a data library which would be having name as cert (in HadoopExam practice questions, you would be populating such data library). In exam cert library would points to "c:\cert\input" it means you would be solving problem on the Windows env. When SAS env starts, you don't have to explicitly create it and this is write protected. If you need to save any dataset, use the Work library.

Question-4: Should I always keep score.sas file opened, during SAS A00-232 exam?

Answer: Yes, you would find this program in "c:\cert\programs" . As you would be running scoreit macro from this program to evaluate each project. To avoid recursion (macro calling same macro and lead to infinite loop) do not run the scoreit macro from within your project file.

Question-5: During real exam SAS documentation provided?

Answer: Yes, during your exam, you will have access to SAS documentation via Internet explorer, which would open SAS 9.4 documentation. Important points to remember

- Avoid wasting too much time on the documentation. Memorize as many common stuff as possible.
- Accessing documentation can cause lab computer respond slowly.
- Once you find the stuff your looking from documentation then close documentation window.

Question-6: Can you please let me know, what is the weightage or scoring pattern?

Answer: Usually programming question (coding challenge) each would have 3 points and you would be having 15 standard multiple-choice question each would be having 1 point.

Question-7: In the real exam timer will be provided?

Answer: Yes, the timer will be in the upper right corner of the screen and that would be in Count Down mode and tell you the remaining time for your exam.

Question-8: Can I see all the projects together in real exam?

Answer: Yes, you can walk through each one by one. You would be using Next button to transition from one project to another project.

Question-9: How the SAS A00-232 exam evaluated?

Answer: As you would be implementing the SAS code for given scenario, but the examiner is may or may not check your code. As well as there would be some macros provided which even you can use it to check the few basic scorings. For each scenario there 1 to 3 multiple choice or short answer-based questions would be asked. And you need to answer them correctly to score. Once you submit your solution evaluator would manually check the code you have provided. Because you would be explicitly asked to save the code in one of the file e.g. for each scenario create a one file to save the SAS code.

Question-10: I have experience with the SAS Studio, in the exam which interface would be provided?

Answer: In the real SAS A00-232 exam there would be three different interfaces provided as below and you can choose as per your comfort.

- SAS Studio
- SAS Display manager
- SAS Enterprise Guide

Question-11: In the real exam (A00-232) all questions are based on the scenarios?

Answer: No, this exam is a hybrid exam. Which include following two sections

- Standard Questions: In this you would be asked following types of questions and you don't have to write any code.
  - Multiple Choice Question
  - Fill In the blank's questions
  - Short answer questions
  - Mapping questions etc

- Scenario Based questions: In this coding challenges would be given. You have to implement those coding challenges and then answer series of the questions.

Question-12: Is there any difference between coding challenge and standard questions for the scoring for SAS advanced programming?

Answer: Yes, certainly. For coding challenges, you would be given more score then standard questions. However, in the real exam it would be clearly mentioned which questions are more weighted then other.

Question-13: Questions would be provided in any order?

Answer: Yes, coding challenges would be appearing first and then standard question.

Question-14: Is there any discount available for SAS certifications?

Answer: Generally, discounts are available and varies country by country. You can check SAS website for more detail. HadoopExam does not provide SAS exam voucher.

Question-15: Is there any difference if I appear for the SAS certifications from USA, China, France, Italy, UAE or Japan?

Answer: No, there is no difference in syllabus. It does not matter from which country you are appearing for the SAS exam. Usually you can choose your language in which you want to give the exam.

Question-16: What do you mean by short text-based questions answer?

Answer: This is recently introduced by SAS; in this you have to type in the answer in a text box provided. Sometime you may even have to complete the SAS program by entering the text.

Question-17: What are the interactive questions and answer?

Answer: You would be provided some work area and you have to complete the work assigned which can include something like below

- Use the drag and drop functionality to configure a user interface component.
- Use the drop-down lists, check boxes and radio buttons to configure user interface components.

- Complete the SAS program from given lines of the code
- Map the options from both the sides.

Question-18: What do you mean by scaling score?

Answer: On the SAS website this is the answer given

A scaled score converts the raw score (number of test questions answered correctly) to a consistent and standardized scale and is a common practice in certification programs to ensure that all forms of an exam have the same level of difficulty. With the complexity of practical testing and multiple case studies in the Predictive Modeling Using SAS Enterprise Miner exam, we use scaled scoring for this purpose. Which means that candidates taking the exam will have a consistent level of difficulty regardless of the set of exam questions presented.

Question-19: Do I need to consider the training provided by HadoopExam for this certification?

Answer: Yes, certainly you can consider and we are regularly upgrading our training material as well to accommodate the changes in the certification exam, for more detail always check this page(SAS All products), what is currently available.

Question-20: How can I check sample questions for Scenario and multiple-choice questions, answer. Which are similar to real exam?

Answer: Check this link for sample questions

- Sample Scenario based question and answer
- Sample Multiple choice questions and answer

Question-21: Should I buy single certifications exam or if I want access to more than one exam and training. What can I do?

Answer: Most of our learners are creating custom packages as per their need. You can check all the available SAS products on http://hadoopexam.com and then send an email to admin@hadoopexam.com or hadoopexam@gmail.com . And our team get back to you with discounted price. Other most popular option is getting the premium subscription and access all available material which is not limited SAS.

Question-22: Which all are the country in which SAS exam is conducted online?

Answer: You should consider SAS website for this detail. As of now we have seen learners from various countries like

North America, United Kingdom, Germany, India, Japan, Italy, China, UAE, Kuwait, Australia, Netherlands, Hong Kong , France, Austria, Canada, Ireland, Peru, New Zealand, Norway, Saudi Arabia, Singapore, Spain, Taiwan etc.

Question-23: Once I appear and clear the certification exam. Can I see my name in public repository of SAS certification?

Answer: Yes, you can see. And that is where company validate your credentials.

Syllabus for A00-232 SAS Certifications

Syllabus for A00-232 Certification: There are 12 main objectives and 62 sub-objectives, you need to have good experience and hands with all of this topic, which we would be covering in our certification preparation material as well.

Accessing Data Using SQL

- **Generate detail reports by working with a single table, joining tables, or using set operators in SQL**
  - Use PROC SQL to perform SQL queries.
  - Select columns in a table with a SELECT statement and FROM clause.
  - Create a table from a query result set.
  - Create new calculated columns.
  - Assign an alias with the AS keyword.
  - Use case logic to select values for a column.
  - Retrieve rows that satisfy a condition with a WHERE clause.
  - Subset data by calculated columns with the CALCULATED keyword.
  - Join tables - inner joins, full joins (coalesce function), right joins, left joins, cross joins.
  - Combine tables using set operators - union, outer join, except, intersect.
  - Sort data with an ORDER BY clause.
  - Assign labels and formats to columns.
- **Generate summary reports by working with a single table, joining tables, or using set operators in the SQL.**
  - Summarize data across and down columns using summary functions (AVG, COUNT, MAX, MIN, SUM).
  - Group data using GROUP BY clause.
  - Filter grouped data using HAVING clause.
  - Eliminate duplicate values with the DISTINCT keyword.
- **Construct sub-queries and in-line views within an SQL procedure step.**
  - Subset data by using non-correlated subqueries.
  - Reference an in-line view with other views or tables (multiple tables).
- **Use special features of the SQL procedure.**
  - Use SAS data set options with PROC SQL (KEEP=, DROP=, RENAME=, OBS=).
  - Use PROC SQL invocation options (INOBS=, OUTOBS=. NOPRINT, NUMBER)
  - Use PROC SQL with the SAS Macro Facility to create macro variables with the INTO keyword.
  - Use SAS functions (SCAN, SUBSTR, LENGTH).
  - Access SAS system information by using DICTIONARY tables (members, tables,columns)

Macro Processing

- **Create and use user-defined and automatic macro variables within the SAS Macro Language.**
  - Define and use macro variables.
  - Use macro variable name delimiter. (.)
  - Use INTO clause of the SELECT statement in SQL.
  - Use the SYMPUTX routine in a DATA Step.
  - Control variable scope with:
    - %GLOBAL statement
    - %LOCAL statement
    - SYMPUTX scope parameter

Automate programs by defining and calling macros using the SAS Macro Language.

- Define a macro using the %MACRO and %MEND statements.
- Insert comments into macros.
- Pass Information into a macro using parameters.
- Generate SAS Code conditionally by using the %IF-%THEN-%ELSE macro statements or iterative %DO statements.

Use macro functions.

- Use macro character functions. (%SCAN, %SUBSTR, %INDEX, %UPCASE)
- Use macro quoting functions. (%NRSTR, %STR)
- Use macro evaluation functions. (%EVAL)
- Use %SYSFUNC to execute DATA step functions within the SAS Macro Language.

Debug macros

- Trace the flow of execution with the MLOGIC option.
- Examine the generated SAS statements with the MPRINT option.
- Examine macro variable resolution with the SYMBOLGEN option.
- Use the %PUT statement to print information to the log.

Create data-driven programs using SAS Macro Language.

- Create a series of macro variables.
- Create a macro variable containing a delimited list of values using PROC SQL.
- Use indirect reference to macro variables. (&&, etc)
- Generate repetitive macro calls using:
  - the %DO loop,
  - SQL query with SELECT INTO
  - DATA Step with DOSUBL or the EXECUTE routine function.

Advanced Techniques

- **Process data using 1 and 2 dimensional arrays.**
  - Define and use character arrays.
  - Define and use numeric arrays.
  - Create variables with arrays.
  - Reference arrays within a DO loop.
  - Specify the array dimension with the DIM function.
  - Define arrays as temporary arrays.
  - Load initial values for an array from a SAS data set.

Process data using hash objects

- **Declare hash and hash iterator objects**
  - Dataset argument
  - Ordered argument
  - Multidata argument
- **Use hash object methods**
  - definekey()

    - definedata()
    - definedone()
    - find()
    - add()
    - output()
- **Use hash iterator object methods**
    - first()
    - next()
    - last()
    - prev()
- Use hash objects as lookup tables.
- Use hash objects to create sorted data sets.
- Use hash iterator objects to access data in forward or reverse key order.

Use SAS utility procedures

- **Specify a template using the PICTURE statement within the FORMAT Procedure**
    - Specify templates for date, time, and datetime values using directives.
    - Specify templates for numeric values using digit selectors.
- **Create custom functions with the FCMP procedure**
    - Create character and numeric custom functions with single or multiple arguments.
    - Create custom functions based on conditional processing.
    - Use custom functions with the global option CMPLIB=.

Sample Scenario Questions

Scenario-1: **You have been given a data file named "he_data1.csv", please accomplish the following activity and provide the answer.**

- Load this file as fileref 'he_data'
- Create a temporary dataset named 'he_data1'
- Create another temporary sql table named 'he_data1_new' and with the additional column named "TOTAL_FEE" which provide the total fee by applying the 18% tax on the course fee.
- Create another table named "he_data2_new" for all the records which are having total fee reduced by $50 if total fee is more than $500.
- In each record add a constant end date "03/31/20"
- Now answer following questions

Question-1: What is the total fee in with the id=7 in dataset "he_data1_new"?

Answer: 531

Question-2: What is the total fee for the Python course

Answer: 540

Question-3: How can you add "MaxEndDate" variable in each observation having value as 03/31/20, (you need to select the expression which you can add in select clause from below)

A. '31Mar2020'd as MaxEndDate format=mmddyy8.
B. CONSTANT '31Mar2020'd as MaxEndDate informat=mmddyy8.
C. var '31Mar2020'd as MaxEndDate format=mmddyy8.
D. NEW COLUMN '31Mar2020'd as MaxEndDate format=mmddyy8.
Answer: D

Explanation: You can use a separate FORMAT statement for each column.

'31Mar2020'd as MaxEndDate format=mmddyy8.
associates the format MMDDYY8. with the COULUMN MaxEndDate as example 03/31/20 (8 character including 2 '/')

Solution:

```
*Create a File Reference for the csv file;
FILENAME he_data '/folders/myfolders/he_sas/he_data1.csv';
run;

* Import the fileref as SAS data set;
PROC IMPORT DATAFILE=he_data DBMS=CSV out=work.he_data1 replace;
RUN;

* Calculate total fee by applying 18% Taxes;
```

```
PROC SQL;
        CREATE TABLE work.he_data1_new AS SELECT * , (CourseFee*18)/100 +CourseFee as
                TotalFee FROM work.he_data1;
QUIT;

PROC SQL;
        SELECT * FROM work.he_data1_new;
QUIT;

* now apply the logic to readuce the fee by 50, if total fee is more than 500;
PROC SQL;
        CREATE TABLE work.he_data2_new AS SELECT * ,
                ((CourseFee*18)/100 +CourseFee)-50 as TotalFee , '31Mar2020'd as MaxEndDate
                format=mmddyy8. FROM work.he_data1 WHERE  (CourseFee*18)/100 +CourseFee
>500;
QUIT;

* Print the SAS Dataset and find the answer for second question;
PROC SQL;
        SELECT * FROM work.he_data2_new;
QUIT;

*find the total fee for the Python course;
PROC SQL;
        SELECT * FROM work.he_data2_new where CourseName='Python';
QUIT;
```

Scenario-2: **You have been given a data file named "he_data2.csv", please accomplish the following activity and provide the answer.**

- Load this file as fileref 'he_data'
- Create a temporary dataset named 'he_data2'
- Write SQL query which can select all the records from the table which would be conducted in Mumbai.
- Calculate the total fee collected from each location and while showing the result sort the output in descending order of the total fee.
- Select all the location where total collected fee is more than $4500.
- Now answer couple of question below.

Question-4: How many total trainings would be conducted in Mumbai?

Answer:9

Question-5: What is the total fee collected across all the trainings for 'NewYork' location?

Answer: 7200

Question-6: In how many locations, institute is collecting total fee more than 4500?

Answer: 9

Question-7: Which of the option you can use to list all the columns, when * (Aestrisk) is used in select statement?

A. columns

B. feedback

C. allcolumns

D. description

Ans : B
Exp : When you use the * column and you wanted to debug that what exact query is passed to the SQL processor. You can use feedback option as below. Feedback option also resolves the macros variables and places the parenthesis around expressions to show the order of evaluations.

```
Proc sql feedback;
        Select * from work.he_table;
Quit;
```

```
*Create a File Reference for the csv file;
FILENAME he_data '/folders/myfolders/he_sas2/he_data2.csv';
run;

* Import the fileref as SAS data set;
PROC IMPORT DATAFILE=he_data DBMS=CSV out=work.he_data2 replace;
RUN;

* filtering all the records which are having location as mumbai;
PROC SQL;
SELECT * FROM work.he_data2 where Location='Mumbai';
QUIT;

* count the total number of records where location is Mumbai;
PROC SQL;
SELECT count(*) FROM work.he_data2 where Location='Mumbai';
QUIT;


* calculate the total fee collected for each locatoion;
PROC SQL;
SELECT LOCATION , SUM(COURSEFEE) AS TOTALFEE FROM work.he_data2  GROUP BY LOCATION
order by TOTALFEE DESC;
```

```
QUIT;

* filter all the records where total collected fee is more that 4500 for specific location;
PROC SQL;
SELECT LOCATION , SUM(COURSEFEE) AS TOTALFEE FROM work.he_data2  GROUP BY LOCATION
HAVING SUM(COURSEFEE) > 4500 ;
QUIT;

*check the feedback option;
PROC SQL feedback;
SELECT * FROM work.he_data2 ;
QUIT;
```

Scenario-3: **You have been given a data file named "he_data3.csv", please accomplish the following activity and provide the answer.**

- Load this file as fileref 'he_data'
- Create a temporary dataset named 'he_data3'
- Using the SQL proc find all the distinct course name, if course name has different case then they must be considered as different course like Scala and SCALA both should be consider different course name.
- Count all the distinct combination of CourseName and location, consider case should be ignored like SCALA and scala is same thing.
- Count all the distinct combination of CourseName and location where fee is more than $600, consider case should be ignored like SCALA and scala is same thing.
- Now to test your program please answer following questions.

Question-10: How many distinct courses are conducted?

Answer: 48

Question-11: How many distinct courses are conducted at each location and how many totals such cases?

Answer: 100

Question-12: How many distinct courses are conducted at each location, having course fee more than $600 and how many totals such cases?

Answer: 60

Solution:

```
*Create a File Reference for the csv file;
FILENAME he_data '/folders/myfolders/he_sas2/he_data3.csv';
run;
```

```
* Import the fileref as SAS data set;
PROC IMPORT DATAFILE=he_data DBMS=CSV out=work.he_data3 replace;
RUN;

* select all distinct courses conducted;
PROC SQL;
SELECT distinct coursename FROM work.he_data3;
QUIT;

* select all distinct courses count;
PROC SQL;
select count(*) AS DISTINCT_COURSES from (
SELECT distinct coursename FROM work.he_data3);
QUIT;


* select all distinct course and location combinations count;
PROC SQL;
select count(*) AS COUNT_COURSES from (
SELECT distinct coursename , location FROM work.he_data3);
QUIT;

* select all distinct course and location combinations count, but we need to ignore case sensitivity;
PROC SQL;
select count(*) AS COUNT_COURSES_IGNORE_CASE from (
SELECT distinct UPPER(coursename) , UPPER (location)  FROM work.he_data3);
QUIT;



* select all distinct course and location combinations where fee is more than $600;
PROC SQL;
select count(*) as COURSE_COUNT_600 from (
SELECT distinct UPPER(coursename) , UPPER(location) FROM work.he_data3 where COURSEFEE >
600);
QUIT;
```

Sample Standard Multiple-Choice Questions & Answer

Question 1: Which of the following statement(s) in the DATASETS procedure alters the name of a SAS data set stored in a SAS data library?

1. RENAME statement only
2. CHANGE statement only
3. MODIFY and RENAME statements
4. MODIFY and CHANGE statements

Correct Answer 2

Explanation: The CHANGE Statement

Renames one or more SAS files in the same SAS library.

CHANGE statement changes names by the order that the old-names occur in the directory listing, not in the order that you list the changes in the CHANGE statement.

If the old-name SAS file does not exist in the SAS library, PROC DATASETS stops processing the RUN group containing the CHANGE statement and issues an error message. To override this behavior, use the NOWARN option in the PROC DATASETS statement.

If you change the name of a data set that has an index, the index continues to correspond to the data set.

RENAME Statement

Renames variables in the SAS data set specified in the MODIFY statement.

The CHANGE statement changes names by the order that the old-names occur in the directory listing, not in the order that you list the changes in the CHANGE statement.

If the old-name SAS file does not exist in the SAS library, PROC DATASETS stops processing the RUN group containing the CHANGE statement and issues an error message. To override this behavior, use the NOWARN option in the PROC DATASETS statement.

If you change the name of a data set that has an index, the index continues to correspond to the data set.

MODIFY Statement

Changes the attributes of a SAS file and, through the use of subordinate statements, the attributes of variables in the SAS file.

```
proc datasets lib=...

change alpha=omega

;
```

Question 2 : The following SAS program is submitted:

```
(insert statement here)

%let development = ontime;

proc print data = sasuser.highway;

   title "For &dept";

   title2 "This project was completed &development";

run;
```

Which one of the following statements completes the above and resolves titlel to "For research&development"?

1. %let dept = %str(research&development);
2. %let dept = %str(research%&development);
3. %let dept = %nrstr(research&development);

4. %let dept = %nrstr(research%&development);

Correct Answer 3 :

Exp : %STR and %NRSTR Functions

Mask special characters and mnemonic operators in constant text at macro compilation.

If a special character or mnemonic affects the way the macro processor constructs macro program statements, you must mask the item during macro compilation (or during the compilation of a macro program statement in open code) by using either the %STR or %NRSTR macro quoting functions.

%NRSTR also masks the following characters:

& %

percent sign before a quotation mark - for example, %' or %", percent sign with quotation mark

EXAMPLE: %let percent=%str(Jim%'s office);

percent sign before a parenthesis - for example, %(or %) two percent signs (%%):

EXAMPLE: %let x=%str(20%%);

character string with the comment symbols /* or --> %STR with each character

EXAMPLE: %str(/) %str(*) comment-text %str(*)%str(/)

%nrstr() mask macro triggers such as %, $ and &

Question 3: Which one of the following programs contains a syntax error?

1. proc sql;
   select product.*, cost.unitcost, sales .quantity
   from product p, cost c, sales s
   where p.item = c.item and p.item = s.item;
quit;
2. proc sql;
   select product.*, cost.unitcost, sales.quantity
   from product, cost,
   sales where product.item = cost.item and product.item = sales.item;
quit;
3. proc sql;
   select p.*, c.unitcost, s.quantity
   from product as p, cost as c, sales as s

```
   where p.item = c.item and p.item = s.item;
quit;
4.          proc sql;
   select p.*, c.unitcost, s.quantity
   from product, cost, sales
   where product.item = cost.item and product.item = sales.item;
quit;
```

Correct Answer: 3

Exp : In option 3, there are reference to c.unitcost and s.quantity of which c and s are not defined anywhere in the code.

If anything refered as a refrence then it has to be first defined.

```
proc sql;

  create table all(drop=tmpid) as

 select * from

    one, two(rename=(id=tmpid))

   where one.id=two.tmpid;

quit;
```

The SQL procedure implements Structured Query Language (SQL) for SAS. SQL is a standardized, widely used language that retrieves data from and updates data in tables and the views that are based on those tables.

The SAS SQL procedure enables you to

retrieve and manipulate data that is stored in tables or views.

create tables, views, and indexes on columns in tables.

create SAS macro variables that contain values from rows in a query's result.

add or modify the data values in a table's columns or insert and delete rows. You can also modify the table itself by adding, modifying, or dropping columns.

send DBMS-specific SQL statements to a database management system (DBMS) and retrieve DBMS data.

Question 4: Given the following SAS data sets ONE and TWO:

ONE

NUM COUNTRY

1 CANADA

2 FRANCE

3 GERMANY

4 BELGIUM

5 JAPAN

TWO

NUM CITY

3 BERLIN

5 TOKYO

The following SAS program is submitted:

```
proc sql;
   select country from one
   where not exists (select * from two where one.num = two.num);
quit;
```

Which one of the following reports is generated?

1. COUNTRY

GERMANY JAPAN

2. COUNTRY

FRANCE BELGIUM

3. COUNTRY

CANADA FRANCE BELGIUM

4. COUNTRY

CANADA FRANCE GERMANY

Correct Answer : 3

Exp : EXISTS condition

Tests if a subquery returns one or more rows.

The EXISTS condition is an operator whose right operand is a subquery. The result of an EXISTS condition is true if the subquery resolves to at least one row. The result of a NOT EXISTS condition is true if the subquery evaluates to zero rows. For example, the following query subsets PROCLIB.PAYROLL (which is shown in Creating a Table from a Query's Result) based on the criteria in the subquery. If the value for

STAFF.IDNUM is on the same row as the value CT in PROCLIB.STAFF (which is shown in Joining Two Tables), then the matching IDNUM in PROCLIB.PAYROLL is included in the output. Thus, the query returns all the employees from PROCLIB.PAYROLL who live in CT.

```
proc sql;
  select *
from proclib.payroll p
where exists (select *
    from proclib.staff s
    where p.idnumber=s.idnum
      and state='CT');
```

Question 5: Which of the clauses in the PROC SQL program below is written incorrectly?

```
proc sql;
  select style sqm kitchen
 from choice.houses
 where sqm ge 300;
```

1. SELECT
2. FROM
3. WHERE
4. both 1 and 3

Correct Answer: 1

The SELECT clause in the program is written incorrectly. Columns that are listed in the clause must be separated by commas, not just blanks.

Question 6: How many statements does the program below contain?

```
proc sql;
  select grapes,oranges,
 grapes + oranges as sumsales
 from sales.produce
 order by sumsales;
```

1. 2
2. 3
3. 4
4. 5

Correct Answer: 1

Explanation: There are two statements, the PROC SQL statement and the SELECT statement. The SELECT statement contains three clauses.

Question-7: The variable attributes of SAS data sets ONE and TWO are shown below:

ONE

Variable Type Len Pos

2 sales Num 8 8

1 year Num 8 0

TWO

Variable Type Len Pos

2 budget Num 8 8

3 sales Char 8 16

1 year Num 8 0

Data set ONE contains 100 observations. Data set TWO contains 50 observations. Both data sets are sorted by the variable YEAR. The following SAS program is submitted:

```
data three;
   merge one two;
   by year;
run;
```

Question-8: Which one of the following is the result of the program execution?

1. No messages are written to the SAS log.
2. ERROR and WARNING messages are written to the SAS log.
3. Data set THREE is created with two variables and 50 observations.
4. Data set THREE is created with three variables and 100 observations.

Correct Answer : 2

Exp : Any variables that have the same name in multiple data sets in the merge statement must also have the same type.

Otherwise error and warning message would come out!

Question-9: Which clause below specifies that the two tables Produce and Hardware be queried?

Both tables are located in a library to which the libref Sales has been assigned.

1. select sales.produce sales.hardware

2. from sales.produce sales.hardware

3. from sales.produce,sales.hardware

4. where sales.produce, sales.hardware

Correct Answer: 3

Exp : SELECT and FROM Clauses

The following simple SELECT statement is sufficient to produce a useful result:

```
select Name
  from sql.countries;
```

The SELECT statement must contain a SELECT clause and a FROM clause, both of which are required in a PROC SQL query. This SELECT statement contains the following:

a SELECT clause that lists the Name column

a FROM clause that lists the table in which the Name column resides

In the FROM clause, you list the names of the tables to be queried, separated by commas.

Question 10: Given the following SAS statement:

%let idcode = Prod567;

Which one of the following statements stores the value 567 in the macro variable CODENUM?

1. %let codenum = substr(&idcode,length(&idcode)-2);
2. %let codenum = substr(&idcode,length(&idcode)-3);
3. %let codenum = %substr(&idcode,%length(&idcode)-2);
4. %let codenum = %substr(&idcode,%length(&idcode)-3);

Correct Answer : 3

Exp : retrieve the substring from the 5 th position

If you use an undeclared variable, it will be assigned a default length of 8 when the SUBSTR function is compiled.

When you use the SUBSTR function on the left side of an assignment statement, SAS replaces the value of variable with the expression on the right side. SUBSTR replaces length characters starting at the character that you specify in position.

Examples

SAS Statements Results

a='KIDNAP';

substr(a,1,3)='CAT';

put a;

CATNAP

b=a;

substr(b,4)='TY';

put b;

CATTY

In a DATA step, if the SUBSTR (right of =) function returns a value to a variable that has not previously been assigned a length, then that variable is given the length of the first argument.

The SUBSTR function returns a portion of an expression that you specify in string. The portion begins with the character that you specify by position, and is the number of characters that you specify in length.

date='06MAY98';

month=substr(date,3,3);

year=substr(date,6,2);

put @1 month @5 year;

MAY 98

Question 11: What happens if you use a GROUP BY clause in a PROC SQL step without a summary function?

1. The step does not execute.
2. The first numeric column is summed by default.
3. The GROUP BY clause is changed to an ORDER BY clause.
4. The step executes but does not group or sort data.

Correct Answer : 3

Exp : GROUP BY Clause

The GROUP BY clause enables you to break query results into subsets of rows. When you use the GROUP BY clause, you use an aggregate function in the SELECT clause or a HAVING clause to instruct PROC SQL how to group the data. For details about aggregate functions, see Summarizing Data. PROC SQL

calculates the aggregate function separately for each group. When you do not use an aggregate function, PROC SQL treats the GROUP BY clause as if it were an ORDER BY clause, and any aggregate functions are applied to the entire table.

The following query uses the SUM function to list the total population of each continent. The GROUP BY clause groups the countries by continent, and the ORDER BY clause puts the continents in alphabetical order:

```
select Continent, sum(Population)
  from sql.countries
  group by Continent
  order by Continent;
```

The GROUP BY clause is used in queries that include one or more summary functions. If you specify a GROUP BY clause in a query that does not contain a summary function, your clause is changed to an ORDER BY clause.

Question 12: If you specify a CREATE TABLE statement in your PROC SQL step,

1. the results of the query are displayed, and a new table is created.

2. a new table is created, but it does not contain any summarization that was specified in the PROC SQL step.

3. a new table is created, but no report is displayed.

4. results are grouped by the value of the summarized column.

Correct Answer: 3

Explanation: Creating a Table without Rows

[1] The first form of the CREATE TABLE statement creates tables that automatically map SQL data types to tables that are supported by SAS. Use this form when you want to create a new table with columns that are not present in existing tables. It is also useful if you are running SQL statements from an SQL application in another SQL-based database.

[2] The second form uses a LIKE clause to create a table that has the same column names and column attributes as another table. To drop any columns in the new table, you can specify the DROP= data set option in the CREATE TABLE statement. The specified columns are dropped when the table is created. Indexes are not copied to the new table.

Both of these forms create a table without rows. You can use an INSERT statement to add rows. Use an ALTER TABLE statement to modify column attributes or to add or drop columns.

Creating a Table from a Query Expression

[3] The third form of the CREATE TABLE statement stores the results of any query-expression in a table and does not display the output. It is a convenient way to create temporary tables that are subsets or supersets of other tables.

When you use this form, a table is physically created as the statement is executed. The newly created table does not reflect subsequent changes in the underlying tables (in the query-expression). If you want to continually access the most current data, then create a view from the query expression instead of a table

The CREATE TABLE statement enables you to store your results in a SAS table instead of displaying the query results as a report.