Paper 214-2009

Why SAS® certification is helpful in enhancing your career as an analyst and SAS® programmer?

Murphy Choy, SAS® programmer, Singapore

Abstract

Many people do not believe in the usefulness of IT certification. There have been many such certifications which failed to provide employers with information on the level of competence of the programmers. This lack of faith in IT certification resulted in many people ignoring them. However, in this paper, the usefulness of SAS certification is explained in terms of its effectiveness in enhancing your position both as an analyst and a SAS programmer by following the career progress of a young graduate to be a competent analyst and SAS programmer.

Keyword: Certified Base SAS® Programmer, Certified Advanced SAS® Programmer, SAS® e-learning, Syntax.

Introduction

Many undergraduates from mathematical, computer science or statistical background would have some exposure to programming languages. However, even though the school provides them with some basics in programming languages, there are no bench marks to determine their skills in the programming languages that they claimed to have expertise on. The problem is further compounded by the fact that most companies do not recognized IT certifications as useful bench marks and tend to view individuals with such certifications as incompetent programmers who are using a paper qualification to justify their skills. The purpose of this paper is to demonstrate the usefulness of the SAS certification exams in advancing your skills in SAS® in a short period of time and how to show your SAS certifications are testaments to your skills in SAS®.

Background

My bachelor degree from my college was in statistics. Unlike most SAS® programmers who only came into contact with SAS® in their working life, I am fortunate to have learnt some fundamentals of the language in my college days. Unfortunately, as SAS® is not a freeware and not easily affordable by students, most of the students were unable to practice with SAS® on a regular basis as the computer laboratories are often filled with students doing practical programming lessons. Instead, most of my schoolmates including me were programming using R as our main language. When I first got a job as an analyst in a shipping company, I recognized the limitations of R in modeling with big datasets especially in the customer exploration projects where cluster analysis is very common. This arouses my interest in SAS® as a superior alternative to R in handling bigger datasets. When I was asked to join a small analytics firm which uses SAS® heavily, I took up the opportunity and move over as a statistician.

Beginning of SAS® programming

Due to my prior exposure to SAS® programming, I was quite confident in using SAS® to do modeling work such as logistic regression, ARIMA, sampling, regression, various statistical tests and ANOVA. I started reading up on using SAS® to do various different modeling and obtaining the results that I needed. However, my experience in college with SAS® will not be sufficient and certainly did not prepare me well enough for my work which came as a rude shock.

Difficulties encountered in work

When I first started work at my new work place, my first task was to read a 6 gigabyte comma separated value file into a SAS® dataset. This is a simple task at first glance. However, when I started converting the dataset, the system stopped my program from running. I panicked and tried to read the dataset again which ended in failure. After consulting with my superior, he suggested reading the file as a permanent dataset. I was pretty shocked then to

realize that there are actually 2 types of SAS® datasets. I am quite sure that most SAS® programmers would be aware of this. However, to people using R, the datasets in R are not permanent as they are loaded into the memory. Thus it has never occurred to me that there are different types of datasets in SAS®. Most fortunately, a quick search on Google immediately churned out information on creation of permanent SAS® datasets.

More troubles started when I have to use various loops and functions which are not known to me at that point of time. Things got so bad that I have to write thousands of lines to get the dataset which I need for modeling purposes. There were errors and other kinds of data problems which I have to handle and my woefully limited knowledge of SAS® makes it even more difficult in handling the data jobs assign to me.

To improve my SAS® programming skills, I started reading up on SAS® and the various syntax and commands in SAS®.

Training and practicing

I started with the UCLA SAS® training website which provided me with videos and tutorials on learning SAS®. It is helpful in improving my SAS® skills. However, the material did not touch on the finesse of using certain syntax structures and SAS® shortcuts to do programming efficiently. The materials were very focused on the statistical modeling aspect of the SAS® programming language. To overcome this, I started learning SAS® using the SAS® e-learning facilities which were prepared for individuals planning for SAS® certification exams.

The SAS® e-learning modules have very detailed instructions on the various syntax and functions in SAS®. The logical flow of SAS® is also illustrated with excellent animations which enhanced my understanding of the working of SAS®. This understanding vastly improved my programming abilities as I begin to understand the flow of the program and write codes which are more efficient. The e-learning facilities also highlighted some of the more unusual functions which are rarely used but can be quite handy for certain circumstances. The lessons on SAS® macro further enlightened me on the various possibilities in optimizing the codes.

However, just learning from the modules may have enhanced my raw programming skills but I am not entirely convinced of my understanding of the SAS® programming language. As the SAS® e-learning modules are designed for certifications, I decided to take the certification exams as a way to test my knowledge of the SAS® programming language.

SAS® Certification Exams

Before I took the SAS® certification exams, I took the mock examinations available as an e-learning module. I was surprised at the difficulty level of the exams and was thoroughly demoralized by pathetic score that I received from the mock examination. However, the mock examination served as an excellent platform for me to understand the SAS® programming language area that I am weak in and provides me a form of additional guidance to improve my SAS® knowledge so as to prepare for the exam.

After some more additional reading up on the e-learning materials and practicing my SAS® skills, I took both the base SAS® certification and the advanced SAS® certification. I was able to pass both exams just barely 4 months after starting my SAS® e-learning modules.

Career Progress

While my SAS® certifications did not help me in finding a job in my little Island home, the knowledge that I have gained from my examinations has helped me tremendously in my career. I am able to program far more efficiently than I was previously. At the same time, I start writing macros that are modularized to help me with my work. Within a period of 4 – 5 months, I was able to write so many automated codes that most of the analyses were generated with a few clicks of the mouse. I was also to create models which are otherwise unavailable in Base SAS® using just simple data steps manipulations and transpositions. After I changed my job to a senior risk analyst/ SAS®

programmer, my new company recognized my skills in SAS[®] and I was given a variety of tasks and roles with respect to SAS[®] programming and administration. Many of these roles would not have been possible without in depth knowledge of SAS[®].

SAS[®] programmer

After I changed my job to a senior risk analyst/ SAS[®] programmer, I was asked to start writing documentations for the macros in my company and in charge of updating and improving them. It was a very interesting project that I undertook. The macro was written in SAS[®] syntax that was designed for mainframe usage. Most current SAS[®] programmers would not understand the code without some detail work which involves quite detail searches on Google. However, in the e-learning materials, there were sections which mention about codes which are designed for Z/OS. These little pieces of information helped me a lot in understanding the main structure of the codes. Once I understood the code, I was able to reconstruct the same piece of code with 2 procedures and 1 single data step. In total, the codes was reduced from 1800 plus lines to 150 lines. I also wrote a detailed usage documentation which highlights the various components in the macro and includes designing the code in a way that the inputs are declared before compilations making usage for non programmers much simpler.

SAS[®] trainer

As my company did not have a formal training program for SAS[®], I was tasked with the project to develop SAS[®] training materials for my fellow colleagues to help them improve their SAS[®] programming skills. I quickly whipped up training materials similar to the SAS[®] e-learning material but customized to risk management for the team. The SAS[®] e-learning training material gave me much inspiration on what are the most important aspects of SAS[®] and how to deliver them in a simple and understandable form. The materials developed have been applied to some of the new analysts and the results are encouraging.

As most SAS[®] training materials are focused on the programming aspect, I was also tasked to develop a training material that is based on credit risk management training material but with relevant SAS[®] programming section embedded so as to enhance the learning experience for risk analysts who frequently use SAS[®] in their daily work.

SAS[®] administrator

Given the good grasp of SAS[®] knowledge, I am also made the SAS[®] server administrator. To facilitate reporting on server usage, I needed to develop a simple macro that captures information from the server and acts as a monitoring tool for usage on the Windows based server. The SAS[®] knowledge that I have gained from the E-learning material were further enhanced by the many readings in SGF and SUGI proceedings. Using relevant materials from SUGI and SGF, I was able to construct a simple macro that monitors user activities on the server. The macro is used to monitor various activities on the server such as log in time, memory usage, CPU time usage, IO processes and other system readings.

Conclusions

The SAS[®] certification exams have certainly helped me a lot in equipping me with the right knowledge in using SAS[®]. While the e-learning modules have enhanced my knowledge, it is ultimately the SAS[®] certification exams that have given me the confidence and deep understanding of SAS[®] which greatly enhances my career as an analyst and SAS[®] programmer.