

Application Interface for executing a batch of SAS[®] Programs and Checking Logs

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ABSTRACT

The most convenient way to execute multiple SAS[®] programs of interest is by running them together in a batch. Usually, a programmer would think, 'what better way than to create a "batch file" (.bat) for this purpose?' This is definitely the right solution. But, programmers do not usually stop at a batch run. They might also have to check the log files generated - either manually or by using a SAS macro. Since, these two are routine tasks which are performed manually in our clinical domain, what if we combine both these operations in one application - an application which, with just a few clicks, can carry out all the above activities? To serve this purpose, I have created a simple application - EzeeApp. In this paper, we shall see what EzeeApp is; learn how to use it and how beneficial it is to a SAS programmer.

INTRODUCTION

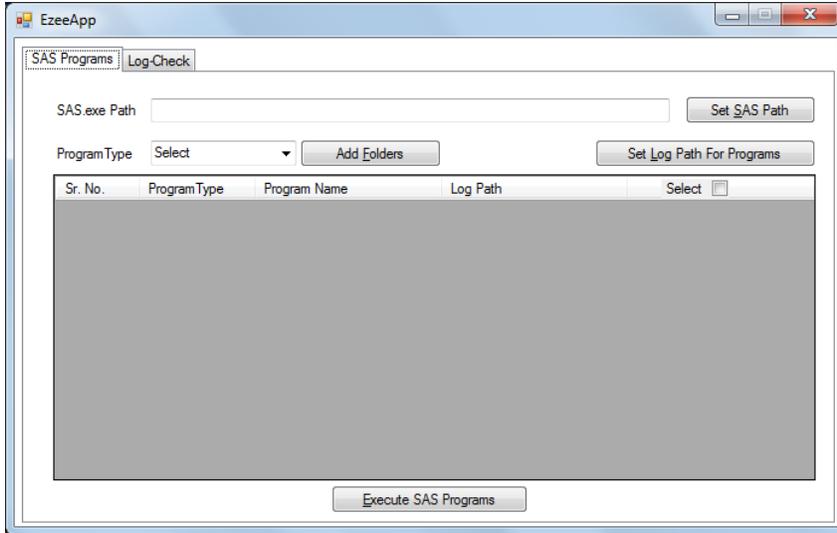
As SAS[®] programmers, we have always created batch files to execute multiple SAS programs. While creating a batch file, many aspects should be taken care of - the study (folder) paths need to be specified properly, program names need to be written down carefully and then this file has to be run with a UNIX command in SAS or by double clicking the batch file, etc. Moreover, the spellings of the study path and programs need to be checked thoroughly to prevent failure of the batch-run. Also, while writing down program names in a batch file, some programs may be accidentally missed out by us. The above process, though faster than manually executing each program, becomes time consuming when we have to execute a multitude of programs. The creation of batch file is a process which comes with a baggage of above mentioned risks. After carefully considering the above points, I would like to propose 'EzeeApp'- a simple application designed to carry out batch runs and checking logs.

EzeeApp has a very user friendly interface which requires minimal text inputs from the users. It is designed in such a way that it considerably reduces the efforts required by a programmer. For executing multiple SAS programs, EzeeApp requires very few inputs from the user like - SAS.exe path, location of the folder of interest (where SAS programs are located), output location for the log files that will be created after the SAS programs are run, etc. The actual SAS programs need to be selected by the user only by clicking the required check boxes against the list of SAS programs. As a result, any spelling mistakes are ruled out completely. On the basis of these bare-minimum inputs, a batch file is created and executed by EzeeApp.

The above mentioned process of executing multiple SAS programs is one aspect of EzeeApp. The other aspect in the application is a "Log-Check" utility. After a batch file is executed, user has an option to check the log files generated by batch run process. Here too, by providing few simple inputs such as setting the SAS.exe path, log folder path, results folder path/name, etc., the in-built Log-Check functionality would scan through the given folder locations for '.log' files. If any undesirable text such as 'error', 'warning', 'uninitialized', 'w.d' etc. is found in any of the log files, then the results would be populated in Microsoft[®] Excel file. Hence, by using EzeeApp, a user can become carefree about either the batch runs or checking logs and also save a lot of time and effort. In this paper we shall see how the above processes are carried out in detail and how EzeeApp can make a programmer's life easier.

EZEEAPP DESIGN AND FUNCTIONALITY

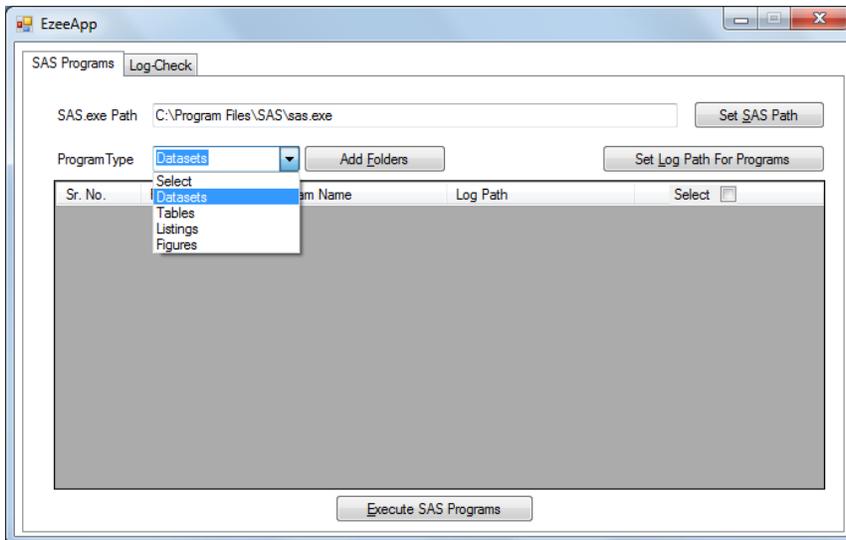
EzeeApp is a simple application designed to improve the efficiency of SAS programmers. Keeping that in mind, the application interface has been divided into two tabs – SAS Programs and Log-Check



Display 1: EzeeApp Interface Design

SAS PROGRAMS

In this tab, the first step is to set the SAS.exe path which is the user's local SAS.exe path. Following this, the program type is selected from a drop-down menu. This takes the value of either 'Datasets', 'Listings', 'Tables' or 'Figures'.

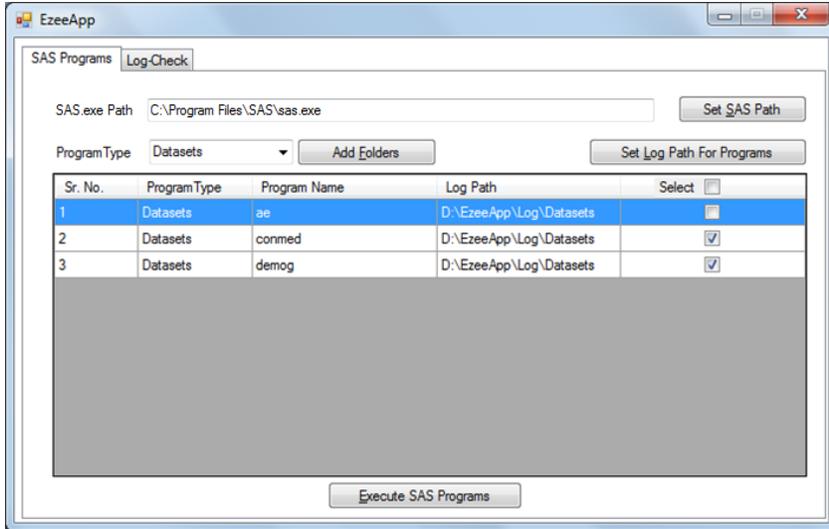


Display 2: 'Program Type' Drop-down Values

Once the 'Program Type' has been selected, next step is to click on the 'Add Folders' button and select the folders in which SAS programs reside. This will make all the '.sas' programs appear in the grey box in the interface from a particular folder at a time.

The user can select all programs displayed, for batch run, by simply clicking on the 'Select' check-box (Please note that only the selected programs shall be considered by the application for batch run process).

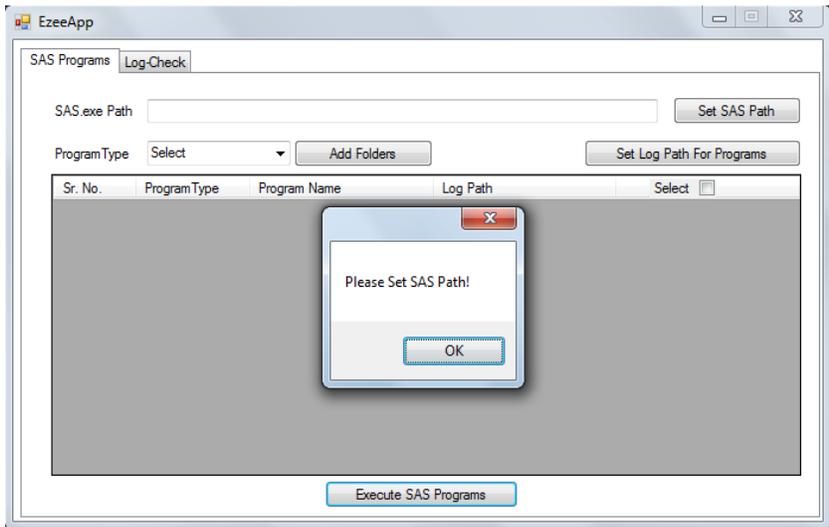
If the user wishes to deselect some of the unwanted programs then same can be done by unchecking the check-box present in front of the program path. Similarly, the user can add multiple program types by repeating the above procedure.



Display 3: Selected SAS programs list

The steps mentioned in the above are mandatory and if the user does not carry out even a single step, EzeeApp shall notify the user accordingly.

Example: If the 'Set SAS Path' field is not populated and 'Program Type' setting is attempted, then the below message pops up on screen.



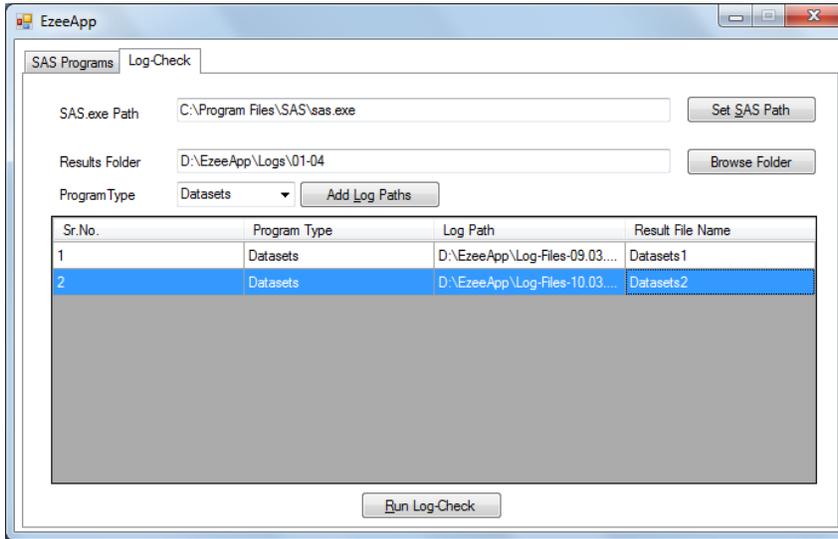
Display 4: Pop-up window if user does not select/enter any mandatory fields

Once all the above steps are completed, EzeeApp is ready for the batch file operation. Execution of the batch can be carried out by clicking on the 'Execute SAS Programs' button.

LOG-CHECK

Now we proceed to the 'Log-Check'. If the user performs a batch run prior to 'Log-Check' then the 'Set SAS Path' field will already be populated. If the user wants only a log check to be performed without a batch run, then the SAS path would need to be supplied by clicking on the 'Set SAS Path'.

The next field is the 'Log-Check result folder'. This folder will have a compiled version of all the undesired 'errors', 'warnings', 'uninitialized', 'w.d', etc. messages from a folder after execution of Log-Check. To specify which log folders are to be checked, we proceed in a way similar to the batch file.



Display 5: All details entered into the Log-check tab

The user, having selected the required log files, can still update the log paths of the programs entered. This can be done by selecting a row (log path) from the list and editing the log path. Alternatively, the user can also use "CTRL+A" keys to select all the programs and change all paths at once.

When the user is satisfied with all the information entered, he/she can click on the "Run Log-Check" button for initiating the process.

Once the log check is performed, the results of 'Log-Check' shall be compiled in a single 'Microsoft Excel' file. Example of a log-check result file would be as below-

1	Program name	Messages	Resolution
2	DEMOG.SAS	uninitialized	Variable not found in source dataset. Data issue.
3	AE.SAS	repeats of BY values	Needs to be checked
4	CONMED.SAS	w.d	Needs to be checked

Display 6: Microsoft Excel file showing the errors/warnings, etc.

One look at the excel file and the user can come to know whether the logs are error free or not and if not then what errors they contain. The last column 'Resolution' can be used by reviewer to add comments such as message is valid or data issue or actual issue. Excel file also gives the flexibility of using filters based on program name or message, as required.

CONCLUSION

Applications make our life easy. This paper is an attempt to standardize a process which is routinely used by SAS programmers. The prime objective of increasing efficiency and decreasing efforts in a fool proof manner is met via this application interface. As we have seen above, EzeeApp is a simple interface designed to cut short the manual work done by programmers. The intention behind developing such application is solely to minimize the time and effort consumption and negate all procedural errors. Such an application can surely make a difference in a programmer's day-to-day life.

EzeeApp has been created using the .NET framework. '.NET framework' is not an exclusive framework to develop such applications and one may use Java or any other platform of comfort to create one of their own. All applications may have a different look, design or sub-functionality. Each can be as fancy and flashy or as simple and sweet. The basic requirement is - they should be able to create and execute a batch file.

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CONTACT INFORMATION

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