A Generic Survey Analysis System  
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Introduction
This paper describes a Survey Analysis System that has been developed using a set of strict requirements. The system is designed for use with a wide range of Surveys. It can be altered quickly and easily to suit many different questionnaire designs and the analysis sections can be altered to suit the Survey.

System Description and Demonstration
The Survey Analysis System has been written with SAS/AF® Software using The SAS System under Microsoft Windows Release 6.10 and 6.11. The initial requirement for the System was as follows:

1. A maximum of 12 days programming  
2. Users need to be able to change the programs used in the System  
3. The System needs to be very user-friendly  
4. Two Users would need to use the System at the same time  
5. The System would need to be adaptable for other questionnaires

All five objectives were achieved and the system is demonstrated and discussed in view of these requirements.

The Main Menu of the System shows that users can:

a) enter data  
b) merge data with other files  
c) view and modify data  
d) analyse data  
e) create text and graphic reports  
f) backup questionnaire data  
g) analyse questionnaire response  
h) view text and graphic reports

The System is installed on local disks, and data entered locally on each users C: drive. When enough data has been put into the System, the user Uploads the data to a Server and then analyses and produces reports from the server data.

The Data Take On Screen is an FSEDIT of the questionnaire data:

Names and Addresses are looked up from a secondary SAS data files and various consistency checks are made at this point.

The 15 screen FSEDIT is designed to match the paper questionnaire almost exactly and users move from “page” to “page” using function keys.

As this is an FSEDIT screen, it can be adapted very quickly and easily to accommodate different questionnaire designs.

Once enough data has been entered, it is uploaded to the server and appended to the server data file. This is achieved through the upload facility:
Users can see how many observations their local file has and how many are currently on the server. The Upload button enables the data transfer and the figures then change appropriately.

A further button appears to prompt the user to delete the local data.

During the duration of the data entry, data is uploaded from time to time and users can merge the server data file with other data files for the generation of text and graphic reports.

A major requirement of the System is that the reporting programs could be changed. The programs which merge and analyse the data can also be changed by the User. The formats that are used to create many of the reports may need altering and the System takes all these requirements into account. The formats are called bandings in the following screen:

The Creation screen allows the user to edit any of the data merging programs. The user clicks on a program name and then on the Edit button. Users can change any of the programs - but must have some SAS programming experience!

Users can run one of the programs or all together. Running all the programs is usually quite a long process. A survey would usually generate numerous text and graphical reports and these can take several hours to produce.

Questionnaire respondents are analysed in terms of inter and intra question consistency. It is common for the individual responses of a survey to undergo some kind of testing to see if the questionnaire has been completed correctly. For example, a question can only be given a yes or no response. When required to "tick one answer only", the System needs to check if every response has only one answer ticked.

The next screen produces "Exception Reports", which document the inconsistencies in questionnaire responses. An exception report with details of inconsistencies would cause the user of the system to go back to the respondent and try to obtain a correct response.

Each Key represents a questionnaire response and the screen allows the user to run an exception report for that one respondent, or run a series of reports, or run all respondents reports. Reports can be viewed or printed.

This screen is used to validate the questionnaire data and is used continuously until every respondent passes every test that the System requires.

The Data Modification screen allows users to see both local, server and other data files for checking purposes:

Data can be backed up from the server location and this screen could be amended to allow users to choose any location:
Users can also create an ASCII file from the data for use in other packages.

Reports can be viewed and both text and graphics reports are seen and printed through Viewers:

**The Graphic Report Viewer:**

Graphics can be exported to Word or other packages by using the Word button. This invokes Word and shows the graph as a BMP in Word.

**The Text Report Viewer:**

Again, reports can be viewed, printed or taken to another package, in this case Excel. The user sees the data in an Excel spreadsheet without any borders.

Finally, response counts and other summary measures of the questionnaire response are available:

These reports give the User details on how many questionnaires have been returned, how many responses are in the correct category, etc.

**Conclusion**

The Survey Analysis System, produced using SAS/AF Software was created in 12 days by one SAS programmer from our team. The use of Frame Technology and SCL Lists made the programming fast and effective. The System has proved to be reasonably generic and has been used in a variety of situations. While not a multi-user system it has shown that a simple, careful design can achieve in a few days what some software packages would take weeks and months to program.

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