

GETTING TO KNOW THE SAS SYSTEM

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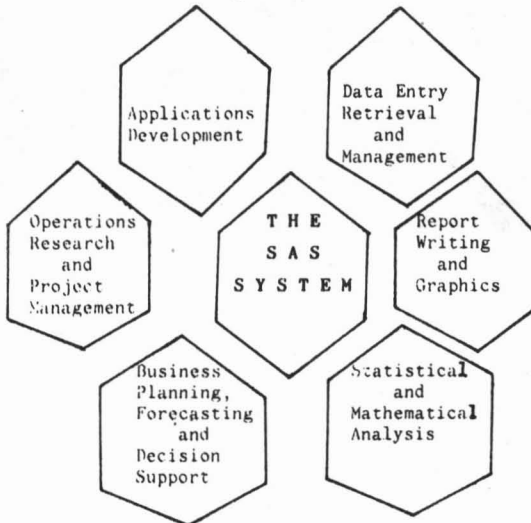
1.0 WHAT IS THE SAS SYSTEM?

Firstly, you may ask, what is SAS? SAS stands for Statistical Application System. So, what is a SAS System? Basically, the SAS system is a software system for data analysis and report writing. However, as you will soon find out, the power of the SAS System is not only limited to these two capabilities.

A software system is a group of computer programs that work together. The SAS System has powerful software tools which work together to enable you to have total control over data management analysis and presentation .

The SAS System is fully compatible across mainframe, mini and personal computer. It was designed for anyone regardless of experience and field. It is most useful to anyone who needs to translate data into a meaningful information, for example, the lecturer who needs a quick way to manage students' results or the engineer who needs to monitor projects.

The SAS System has more than 125 flexible application - built in programs called procedures. These built - in applications are grouped into logical modular components as shown in the diagram below:-



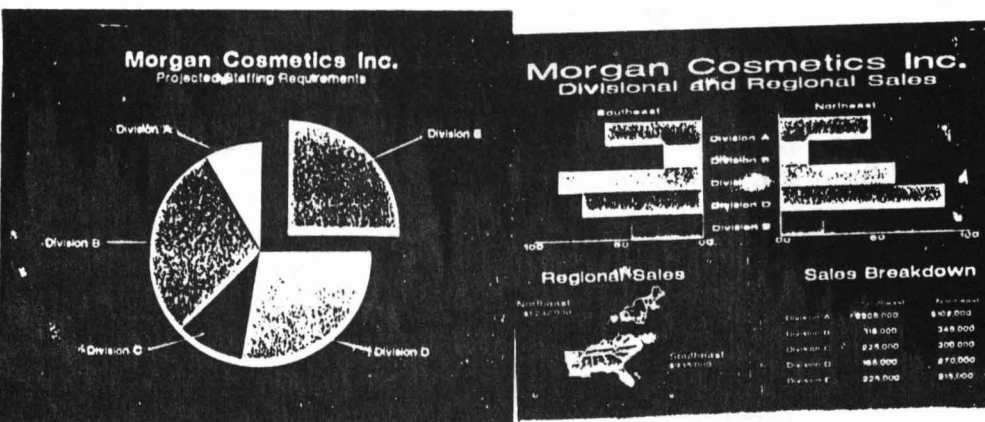
(Note : Extracted from The Power of Choice : An Introduction to the SAS System, SAS Institute Inc.)

In the following, we shall discuss these capabilities.

1.1 Report Writing and Graphics

The heart of the SAS System called the base SAS module enables you to manipulate data, produce graphs and charts, perform basic statistical analysis and produce reports.

The SAS System helps to organize data from external file. Besides that, you can create your own SAS data sets. Once you have analyzed your data, you can present them in ways that clearly communicate the significance of your findings. You can report them in simple printed form or in spectacular full - colour graphics. The SAS System can create contour, two - and three dimensional plot, bar, pie, star, block charts, etc. You can also produce titles, footnotes and display different kinds of graph on a single page.



1.2 Statistical and Mathematical Analysis

The SAS System has powerful statistical capabilities. It is SAS/STAT software include functions for performing linear and non-linear regression analysis, analysis of variance (ANOVA), multivariate analysis (MANOVA), common factor and component analysis, discriminant analysis, linear modelling and etc. Besides that, it also has an interactive matrix programming language for advanced mathematical, engineering and statistical needs.

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OUTPUT
Command ***

Mascara Water Resistance Test

Step 2 Variable PCTY Entered R-square = 0.91008445 C(p) = 2.00000000

DF Sum of Squares Mean Square F Prob>F
Regression 2 750.81987213 375.40993607 490.90 0.0001
Error 97 74.18032787 0.76474585
Total 99 825.00000000

Variable Parameter Standard Type III Sum of Squares F Prob>F
Estimate Error Sum of Squares
INTERCEPT -1.13934428 0.23126864 18.58086246 24.27 0.0001
PCTY 22.95081967 1.97933179 102.81987213 134.45 0.0001
PCTZ 21.31147541 1.77036818 110.81987213 144.91 0.0001

Bounds on condition number: 2.04918. 8.198721
-----
All variables in the model are sig

```

```

OUTPUT
Command ***

Dye/ Research:
Styling Mousse vs. Hair Spray

DISCRIMINANT ANALYSIS LINEAR DISCRIMINANT FUNCTION

Constant = +.6 X' COV X + ln PRIOR Coefficient Vector = COV X

PRODUCT
mousse spray

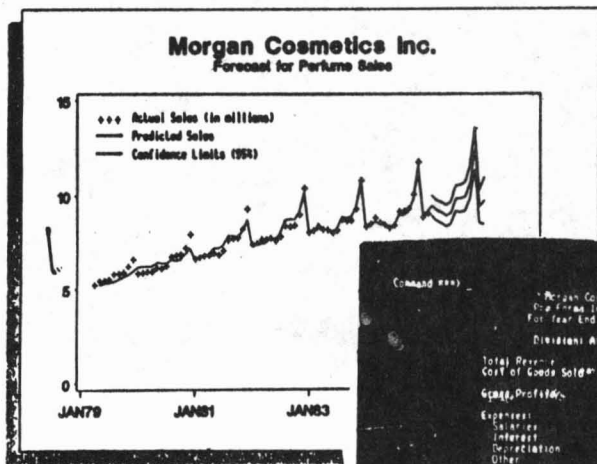
Constant -76.3730728 -85.40025902
AGECAT 4.4889550939 4.8951498835
FAMSIZE 1.0251504198 1.6491508379
EDUC 26.861723848 27.326470114
INCOME -46.98823888 -48.18257747
ACTLEVEL 1.2428805088 .8171889033

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1.3 Business Planning, Forecasting and Decision Support

The main objective of analysing data and reporting them is for forecasting, making plans and decisions for the future. Whether we want to project next semester students' performance in an examination, next year company's profit or forecast market growth, the SAS System can help to bring the future into sharper view.

The SAS System can perform any kind of time series analysis, from exponential smoothing to sophisticated multivariate statespace. Besides, you can design your own econometric and planning models and then adjust them for seasonal variations or interventions. In addition, analysts can produce financial reports such as loan amortization tables and depreciation tables. There's even a tool for building full-screen electronic spreadsheets.



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Command ***                               Procedure Output
Morgan Cosmetics Inc.
On-line Income Statement
For Year Ending June 30, 1986
Division: All Region: All

Total Revenue                815,321,943
Cost of Goods Sold**         45,435,568
Gross Profit**               769,886,375

Expenses:
Salaries                     21,886,255
Interest                     8,471,564
Depreciation                 5,259,836
Other                        4,678,934
-----
Total Expenses                45,596,364

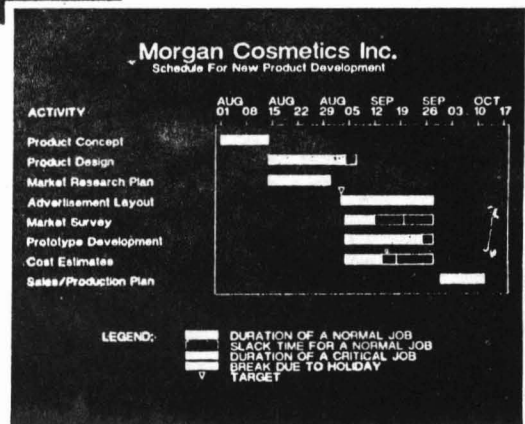
Income Before Taxes          724,289,991
Taxes                        7,451,296
-----
Income After Taxes           716,838,695
-----
Based on Forecasted Sales for Current Products
    
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1.4 Operation Research and Project Management

Research and projects need to be completed on time and target. Through the SAS System you can make decision based on through understanding of time, manpower, structural and resource constraints. The SAS/OR software helps you to plan and schedule complex projects, solve assignment problems, determine cost effective distribution and etc.

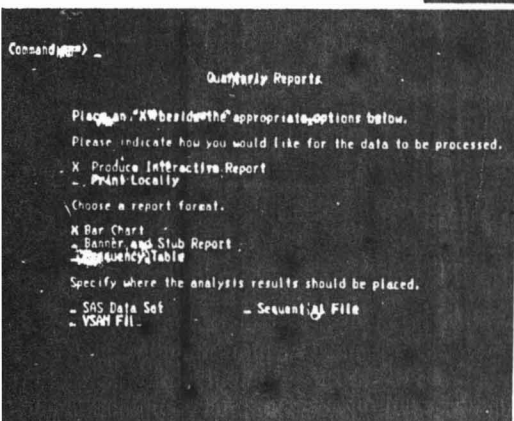
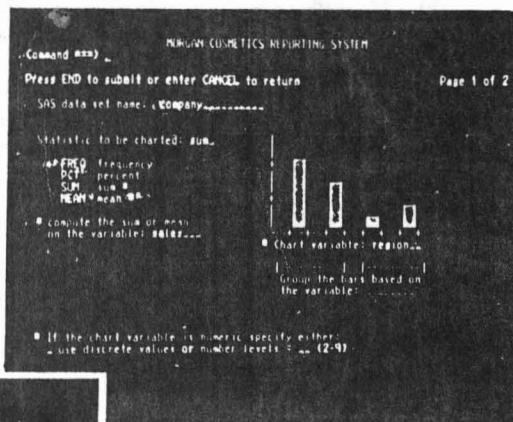
MORGAN COSMETICS INC.
Optimal Shipments from Factories to Stores

START	FINISH	COST	MINIMUM FLOW	MAXIMUM FLOW	SUPPLY	DEMAND	OPTIMAL FLOW
FACTORY1	DISTR1	8.31	.	.	7000	.	900
FACTORY1	DISTR2	0.43	1800	.	.	.	5100
FACTORY2	DISTR1	7.76	.	.	8000	.	2300
FACTORY2	DISTR2	7.76	1500	2000	.	.	2000
FACTORY2	STORE3	8.43	1500	4000	.	4500	4000
DISTR1	STORE1	0.42	.	.	.	.	0
DISTR1	STORE2	9.37	400	1900	.	3000	400
DISTR1	STORE3	9.58	.	.	.	.	2500
DISTR2	STORE1	7.48	.	.	.	.	4500
DISTR2	STORE2	0.38	.	.	.	.	2600



1.5 Application Development

The SAS System has interactive development tools which allow you to tailor application for user at any experience level. You can create a simple program or complex programs for sophisticated applications. The SAS System has design menus and fill in the blank screens which enable user who knows nothing about data processing to conduct data analysis, produce report and prepare stunning graphic presentation.



2.0 SAS INSTITUTE INC.

No one knows the SAS System better than SAS Institute. Since 1976, SAS Institute Inc. has delivered superior software for various fields. The Institute is headquartered in Cary, North Carolina. It has subsidiaries in West Germany, United Kingdom, France, Denmark, Sweden, Norway, Italy, Australia, New Zealand, Singapore, Hong Kong, Japan and Malaysia and it has distributors in Saudi Arabia, Spain, Peru, Puerto Rico, Israel, Colombia, Venezuela, Brazil, Finland, Mexico and Uruguay.

SAS Institute Sdn. Bhd. in Malaysia is located at Lot 28.3, 28th. FLOOR, MENARA MAYBANK, KUALA LUMPUR.

2.1 Application In Malaysia

The SAS System is very useful in research, business, government, medicine, manufacturing and education. Bank Negara, Standard Chartered, Chung Kiew Bank to name a few are some of the banks in Malaysia which has installed the SAS System.

In the manufacturing division, using the SAS System are National Semi-Conductor, Advance Micro-Devices Sdn. Bhd. and others.

Higher educational institutes, i.e. Universiti Malaya, Universiti Sains Malaysia, Universiti Kebangsaan Malaysia, Universiti Pertanian Malaysia, Universiti Teknologi Malaysia and Institute Teknologi MARA have installed the SAS System and introduce SAS as a course for their students.

CONCLUSION

The SAS System is a powerful statistical system that enables you to manage data effectively and to produce them in simple forms or in complex sophisticated full-colour graphics. It enables you to make plans, decision and forecast your findings. It can be used for any application in any field-medicine, education, business, research, etc. It can also be used by anyone-new computer user who knows nothing about data management or seasoned pro. Lastly, it can be used in any environment, from PC to mini-computer and mainframe. Remember the SAS System does more than just analyzing data and producing reports. You can perform advanced statistical and mathematical analysis, create your own programs and design them to suit your particular need.

Get to know SAS better and see what it can do for you!

BILBLOGRAPHY

1. *THE SAS SYSTEM : Your Software Solution, SAS Institute Inc., U.S.A.; 1987.*
2. *THE POWER OF CHOICE : An introduction to the SAS System. SAS Institute Inc., U.S.A.; 1987.*
3. *DATAPRO REPORTS ON MARKETING INFORMATION SYSTEMS : SAS System for Personal Computer, SAS Institute Inc., 1988.*
4. *SAS Introductory Guide., Third Edition., SAS Institute Inc., 1985.*

NOTE: *All pictures are extracted from THE SAS SYSTEM : Your Software Solution, SAS Institute Inc., U.S.A.; 1987.*