The aim of the present study is to design and to prove the appropriateness of a facile information system for library managers since scientific approach to management would implicate the criteria of more objectivity and less subjectivity. The object motivation of this study is to develop a single but comprehensive model encompassing the information systems amenable to easy installation, reliable working and applicable, in no unequivocal terms, to real life situations. In order to harness the full utility of modern O.R. techniques to develop the information systems and to meet the future requirements of the changing library environment where computers would play vital role, the envisaged information system should be oriented to the computerised procedures.

Systems approach is applied in the development process of the information system which involves system analysis, literature search and utilization of the expertise of the practising library managers and academicians. A cursory recourse to literature has given an impetus to the idea of forming modules of the information system using the appropriate major components so that the system being developed would consist of modules representing the functional aspects of a library system.
The systems approach visualises the library as a system and warrants consideration of the behavioural aspects in terms of appropriate inputs to the system, technical manipulations and processings involved, and appropriate outputs emerging from the system. The behavioural aspects of a library can be by and large considered as those of four macro modules which in effect represent the major functions of the library, viz., circulation module, acquisition module, investment (budget) module and user module.

It is claimed that these four modules behave as if they are oriented in the direction of users' satisfaction and it becomes explicit that users' satisfaction seems to be the outcome of the service levels indicated by circulation module. But the circulation module is intrinsically related to acquisition module which in turn depends upon budget module. This kind of telescopic effect on the system visualisation instils a new dimension on the concept of effectiveness of library. Based on this concept, the factors that contribute to the users' satisfaction could turnout to be a good base for the envisaged information system, incorporating as system parameters that would measure the effectiveness. It is claimed that users' satisfaction culminates in "users' visits to the library" since, unless one has complete gratification over the library he will not be visiting it often.
Hence users' satisfaction interpreted in terms of users' visits, can be portrayed as a measure of effectiveness. Further, it has been argued that the frequency of users' visits is a function of circulation, acquisition and investments. Quantitatively this can be restated as

Users' visits to the Library = A function of number of circulations made, total collections, expenditure on macro documents, expenditure on periodicals.

The choice of five parameters as the system variables for the proposed information system has been further adjudicated by the opinions of practising librarians and academicians which are enumerated through survey techniques and are analysed quantitatively (by cluster analysis) and qualitatively (by ranking).

The behavioural equation thus formed is developed into a mathematical model (information system) by applying regression techniques using the data obtained from an experimental library. The data obtained are rationalised and improvised since the form and the pattern of the model are to be decided in the light of statistical appropriateness and physical reasonings. The final form of the model
which turns out to be a causal model, is

\[ Y = ax_1 + bx_2 + cx_3 + dx_4 + k \]

Where \( Y \) = average rate of users' visits to library, 
\( x_1 \) = average rate of loans made, 
\( x_2 \) = average stock of publications, 
\( x_3 \) = notional unit price of macro document, 
\( x_4 \) = notional unit price of periodicals.

\( a, b, c, d \) are the respective coefficients and \( k \) is the lumped parameter.

The model fitted is subjected to quality control tests. The RELIABILITY of the model is ensured by the multicollinearity test, the ADAPTABILITY is displayed by the small variation in the predictions as observed from the residual analysis and the WORKABILITY is demonstrated by the model itself when it has been subjected to a prediction test where it has not only shown its predicting power but also its ability to detect the inequalities corresponding to each parameter that accounts for the gross changes in the effectiveness level. Thus the causal model, which is an integrated representation of the information system in view, satisfies all the important features of 'RAW' (Reliability, Adaptability, Workability) which are essential for the stability of any system.