CHECKLIST FOR PRODUCT DESIGN

SPECIAL PROJECT
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And to all my friends for their valuable comments.

CONTENTS

1. INTRODUCTION

In todays complex society a knowledge of computer based information system is important for a man to take decisions.

1.1 WHAT IS INFORMATION SYSTEM ?

An information system is a set of organized procedures which when executed provides information to support decision making.It can also be defined as a tangible or intangible entity which serves to reduce uncertainity of future event.

The need of computer based information system was due to the explosion of information input and the need to access and extract the required information, whwre as in manual system it can never be completely documented.

1.2 WHAT IS A CHECKLIST ?

Checklist is a guiding path and triggering mechnism for a designer,when placed with a problem situation. In these type of situation there is a need for the designer to think of new innovative solutions under various contraints,and also consider all the various design factors.Before the design is finalized a checklist would unable the designer to familiarise with varoous aspects of problem and identify the cause.

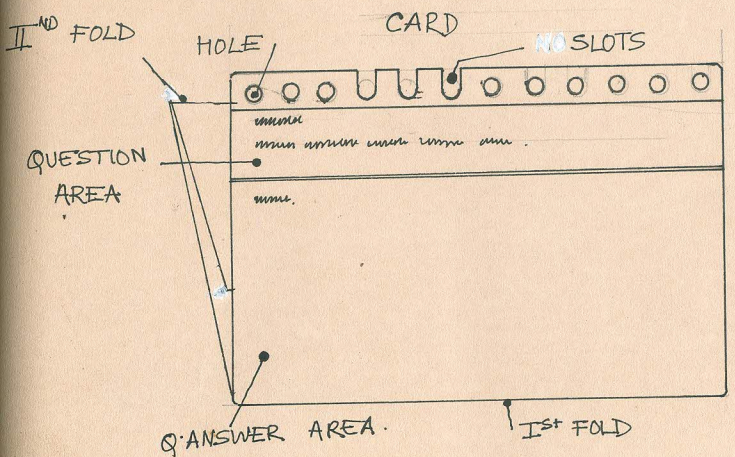
2. AIM

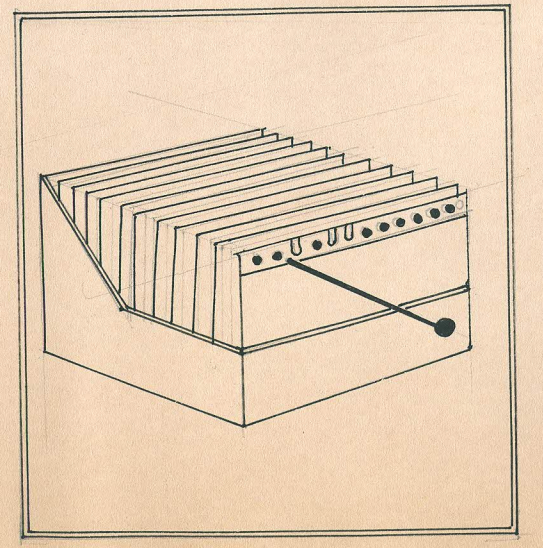
This project is aimed to provide a faster, easier and efficient way to pinpoint the problem situation and arrive at at solution.

The existing system available at our Department was Digital Equipment Corporation PDP-11, Microcomputer.

This computer system was used during the course of this project.

3. PREVIOUS WORK





3.1 METHODOLOGY

This project was based on the previous work taken up by Miss Indrani Sen,The collected information was categorized ,and the questions covered a range of products both consumer and industrial.

3.11 STORAGE

The questions were formatted and typed,and space for the answer and visuals were left for the designer to complete and stack them as a reference. This would help him to look at the problem situation more effectively and arrive at the solution

3.12 RETRIEVAL

The cards are arranged sequentially and stacked, these cards have punched holes on the top edge along with slots (ref:figures).

The required card is picked up by a circular sectional stick which is inserted thro the holes and only that card is picked up rest slips through the slots. After this the user answer's and fills the card with the required information.

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3.2 ANALYSIS

3.21 DEMERITS OF EXISTING SYSTEM:

i. Handling of cards.

ii. Replacement of new cards.

iii. No order, priority in filing and presenting the the information.

iv. Hand written answers.

v. Rewording of the questions not possible

3.22 MERITS OF EXISTING SYSTEM:

i. Universal application.

ii. Visuals can be incorporated as a part of the answers.

iii. Can be marketed as a unit/kit for industrial design

iv. Easily Transpotable.

4. OBJECTIVES

This project is the extension of the previous project, here a attempt is made to make the Questions of different design factor into a permanentaly stored computer based information.

4.1 Questions to be stored on a Disc as a permentaly record.

4.2 Access to required information should be simple, for the designer.

4.3 Easy to operate the program, i.e interaction between the user and the system should be natural.

4.4 Response to the questions by the user should be spontaneous, as in case of conversational process.

4.5 Eliminate paper work, intial preparation and doubt in mind for the designer.

4.6 To provide a permenat personal reference copy for the designer.

4.7 Updating the existing question bank, to expose the designer to new problem areas.

5. DISCUSSION

5.1. Storage Devices: The information are stored on a secondary storage device (floppy disc) which is cheaper and easy to handle than the primary memory, secondly the quantity of information stored is limited and if large quatity of information has to be processed, it becomes difficult. The secondary storage devices store the information off-line, and do not interfere with the computer main operation.

5.2. Sequential files: In sequential files the information are stored sequentially with a gap between each information.

5.3. Processing of sequential files: Processing or access is done on specific key which is defined in the program logic

5.4. Updating of files: The sequential files cannot be updated on a mother file, but we have to create a new file i.e copy the mother file and insert the new information in to the new file.

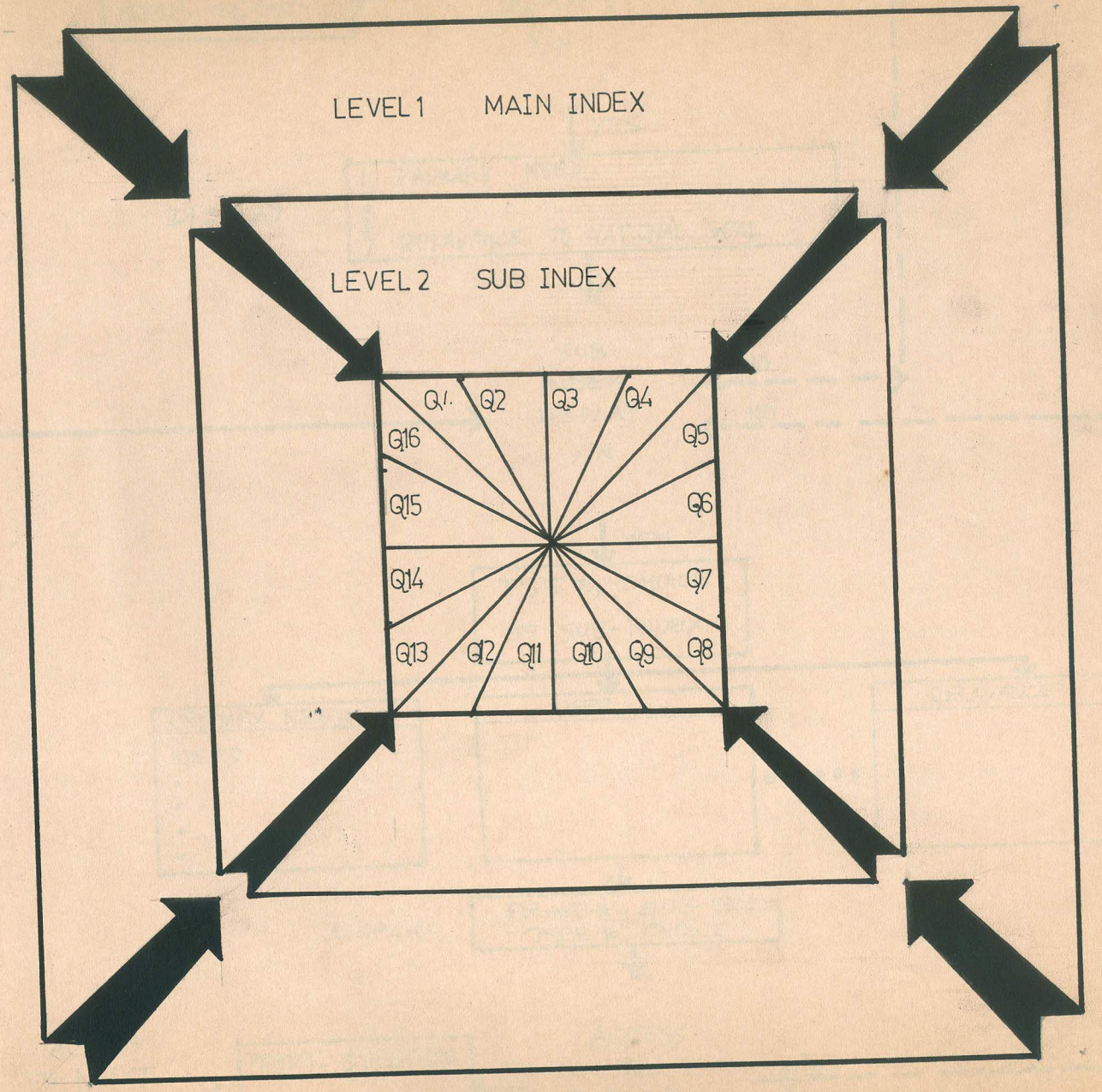
5.5 Retrieval of sequential files: The files are retrieved through a program logic of what in - formation is to be retrieved .This is acheved by nested DO statements.

6. METHODOLOGY

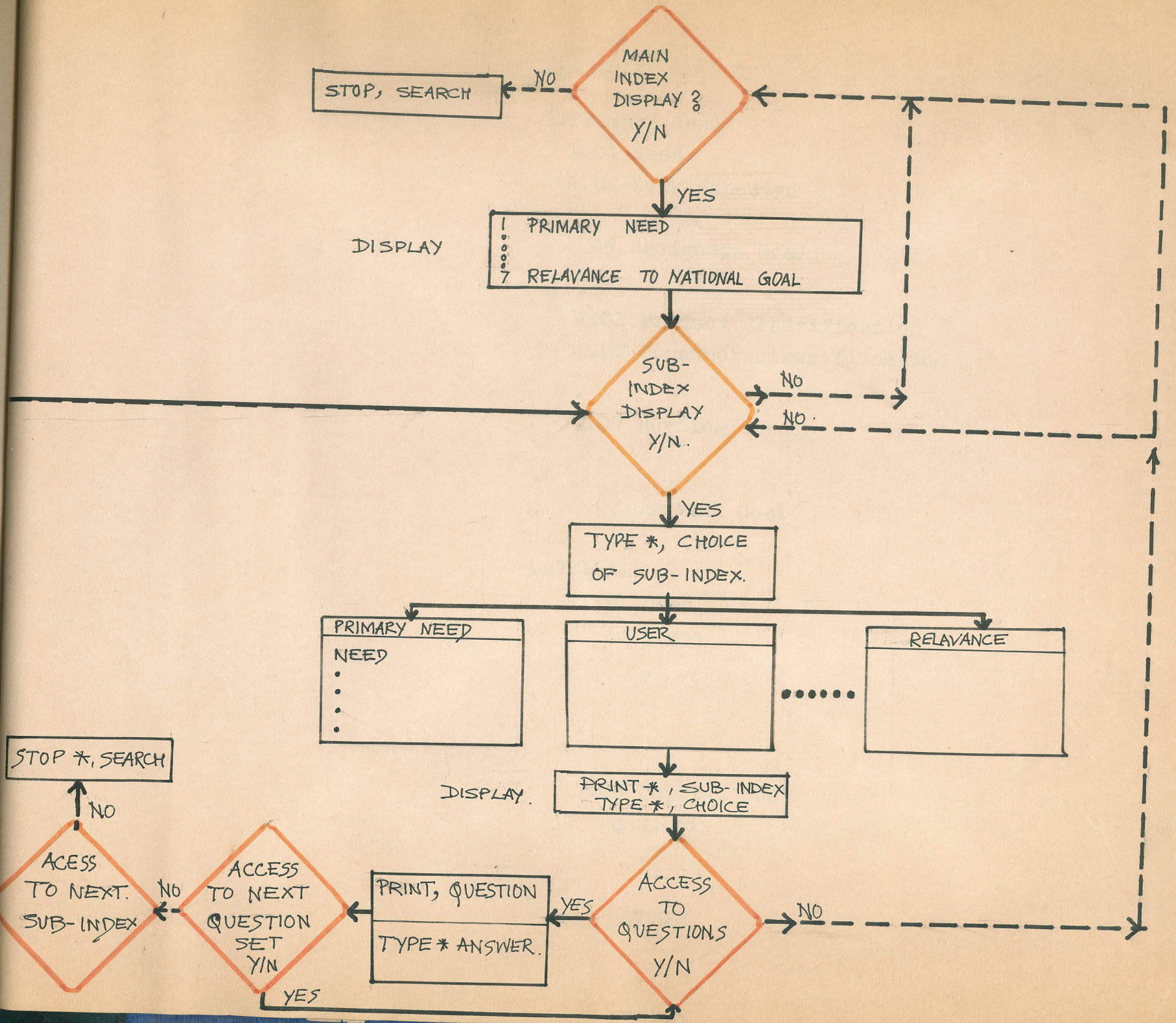
6.1 The Mother files are created by the basic computer command EDIT/CREATE (File.specification). (File.specification:It is the name given for the Data file with the extension).The Checklist in- formation are classified in to three levels as shown in the Fig:

LEVEL:1

1. Primary Need
2. User
3. Product Enviroment
4. Production Tool
5. Manufacturing Capablity
6. Distribution Network
7. Relavance to National Development



SCHEMATIC DIAGRAM OF STORED INFORMATION
LEVEL AND ACCESS


MAIN INDEX DISPLAY ? Y/N
NO
STOP, SEARCH
YES
DISPLAY
1 PRIMARY NEED
7 RELAVANCE TO NATIONAL GOAL
SUB-INDEX DISPLAY Y/N.
NO
NO
YES
TYPE *, CHOICE OF SUB-INDEX.
PRIMARY NEED
NEED
USER
RELAVANCE
DISPLAY.
PRINT *, SUB-INDEX TYPE *, CHOICE
ACCESS TO QUESTIONS Y/N
YES
NO
PRINT, QUESTION
TYPE * ANSWER.
ACCESS TO NEXT QUESTION SET Y/N
NO
YES
ACESS TO NEXT SUB-INDEX
NO
STOP *, SEARCH

LEVEL II

1.Primary Need
  1.01 Need
  1.02 Work Expected
  .
  .
  1.05 Designers Goal

2. User
  2.01 Product Classification
  2.02 Consumer classifi cation
  .
  .
  2.07 Buying trends
.
.
. 7.03 Capital Cost

LEVEL III

  1.01 Need
    Q 1.011
      .
      .
  .
  .
  7.03 Capital Cost
    Q 7.011
      .
      .
    Q7.033

6.3 Analysis

6.31. Merits of this system:

i. Easy to access.

ii. Access to latest information.

iii. Minimum knowledge of computer required.

iv. Personal reference copy for the user.

v. Rewording of questions possible.

vi. Team members in a group of designer can get the present status.

6.32. Demerits of this system:

i. Visual for the answer is not possible.

ii. Access to the computer facility not available to all.

7. FUTURE DEVELOPMENT

- Use of electronic pens on the screen for visuals while answering the questions.
- Network of computers can be connected for transfer of new information between the designer.
- Specialized checklist based for a particular product evolved through years.
- Storing the various decisions taken by the past designers on a particular problem, correlating and extrapolating to achive a better design decision.

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