UNIT 8   FORMS AND REPORTS DESIGN

8.0   INTRODUCTION

This unit deals with the interface of software with users. Usually, the interface is through forms and reports that are associated with the system. In this unit, we will study different aspects of designing Forms and Reports, as these are the key ingredients for successful systems. As the quality of a system greatly depends upon the quality of inputs and outputs, the process of designing forms and reports is very important.

The logical phase within the system development life cycle (SDLC) deals with the issues related to the design of system inputs and outputs (forms and reports) as shown in figure 8.1. Forms are used to collect data for the system and reports to deliver information to users. With forms, data can be entered into the database. With data entered in the database, it is possible to use a query language so as to generate reports

about the data. In this unit, we shall also look into the deliverables produced during the process of designing forms and reports. Formatting of forms and reports is also discussed as this serves as the building block for designing.

Forms and reports should be well conceived and attractive in design. In order to achieve this goal, we shall look into different criteria that are to be followed while designing forms and reports.

8.1 OBJECTIVES

After going through this unit, you should be able to:

- define Forms & Reports and their importance in real life;
- list the process of designing Forms & Reports ;
- know about Internal information, External information, Turnaround documents and differentiate between them;
- apply the general guidelines for formatting Forms and Reports; and
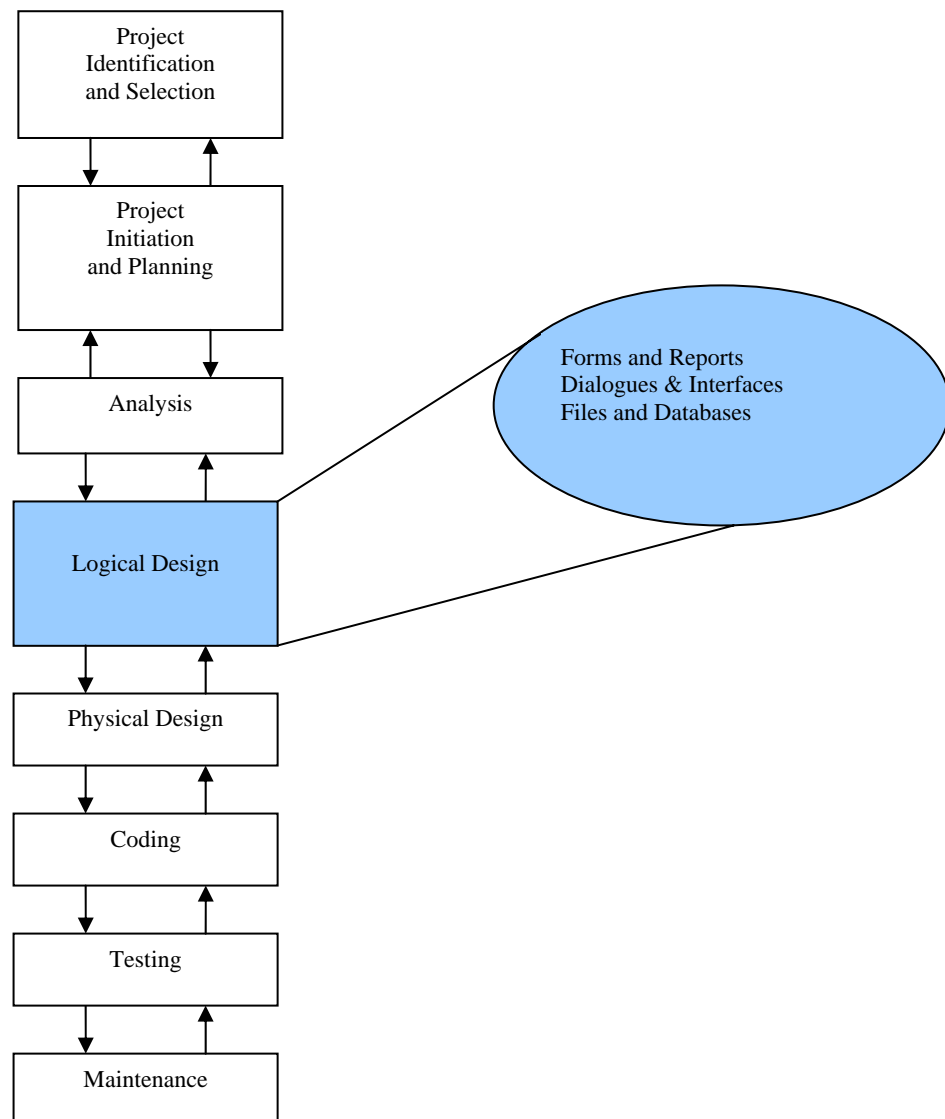- specify different criteria for designing Forms and Reports.

Figure 8.1: Systems Development Life Cycle with Logical Design Phase Highlighted

8.2 FORMS

Like a form on paper that is used to fill out information with a pen or pencil, a Form in computer terminology identifies the data we want to collect. It also allows us to enter data into the database, display it for review and also print it for distribution. However, an electronic form has several important advantages over standard paper forms. These have the advantage of using a computer database and are more versatile and powerful than paper forms.

Examples of forms are Business forms, Electronic spread sheet, ATM transaction layout, etc.

Figure 8.2 shows a simple form that is used to collect employee details.

Figure 8.2: A Simple Form

8.2.1 Importance of Forms

The following are various advantages of Forms:

- A form provides an easy way to view data.
- Using forms, data can be entered easily. This saves time and prevents typographical errors.
- Forms present data in an attractive format with special fonts and other graphical effects such as colour and shading.
- Forms offer the most convenient layout for entering, changing and viewing records present in the database.
- An entry field in a form can present a list of valid values from which users can pick to fill out the field easily.

8.3 REPORTS

Analysing and presenting data are just as important as entering and sorting these out. Computer systems use reporting and query applications to retrieve the data that are available in the database and present it in a way that provides useful information, drives decision-making and supports business projects. A report presents data as meaningful information, which can be used and distributed.
A report is the information that is organized and formatted to fit the required specification. It is a passive document that contains only predefined data and is used solely for viewing and reading. Reports can be printed on paper, or these may be transferred to a computer file, a visual display screen, etc. Reports are the most

visible component of a working information system and hence they often form the basis for the users and management's final assessment of the systems value.

Examples of reports are: invoices, weekly sales summaries, mailing labels, pie chart, etc.

Figure 8.3 shows a simple report that displays the residence telephone numbers of all the employees in the organization.

EMPLOYEE RESIDENCE PHONE LIST				
S.No	LAST NAME	FIRST NAME	DESIGNATION	PHONE NUMBER
1	Verma	Ajay	Regional Manager	6522081
2	Gupta	Vinay	Branch Manager	6478017
3	Michael	Nancy	H.R Manager	6152430
4	Singh	Amar	Sales Executive	5769081

Figure 8.3: A Simple Report

8.3.1 Importance of Reports

The following are various advantages of Reports:

- We can organize and present data in groups.
- We can calculate running totals, group totals, grand totals, percentage of totals, etc.
- Within the body of Reports, we can include sub-forms, sub-reports and graphs.
- We can present data in an attractive format with pictures, special fonts and lines.
- We can create a design for a report and save it so that we can use it over and over again.

8.4 DIFFERENCES BETWEEN FORMS AND REPORTS

The following are some differences between Forms and Reports:

- Forms can be used for both input and output. Reports, on the other hand, are used for output, i.e., to convey information on a collection of items.
- Typically, forms contain data from only one record, or are at least based on one record such as data about one student, one customer, etc. A report, on the other hand is only for reading and viewing. So, it often contains data about multiple unrelated records in a computer file or database.
- Although we can also print forms and datasheets, reports give more control over how data are displayed and show greater flexibility in presenting summary information.

8.5 PROCESS OF DESIGNING FORMS AND REPORTS

Good quality business processes deliver the right information to the right people in the right format and at the right time. The design of forms and reports concentrates on this goal.

Designing of forms and reports is a user-focused activity that typically follows a prototyping approach. Before designing a form or a report, we should have a clear idea so as to what is the aim of the form or report and what information is to be collected from the user.

There are some useful questions related to the creation of all forms and reports, such as "who, what, when, where and how" which must be answered in order to design effective forms and reports.

WHO   Understanding who the actual users are, their skills and abilities, their education level, business background, etc., will greatly enhance the ability to create effective design.

WHAT   We need to have a clear understanding of what is the purpose of the form or report and what task will the users be performing and what information is required so as to successfully complete the given task.

WHEN   Knowing when exactly the form or report is needed and used will help to set up time limits so that the form or report can be made available to the users within that time frame.

WHERE   Where will the users be using this form or report (i.e., will the users have access to on-line systems or will they be using them in the field)?

HOW   How many people will be using this form or report, i.e., if the form or report is to be used by a single person, then it will be simple in design but if a large number of people are going to use it, then the design will have to go through a more extensive requirements collection and usability assessment process.

After having answered all the above questions, we would have collected all the initial requirements. The next step is to refine this information into an initial prototype. Structuring and refining the requirements are completed without interacting with the end users, although we may need to occasionally contact users in order to clarify some issues that might have been overlooked during analysis.

Once the initial prototype is ready, we should ask the users to review and evaluate the prototype. After the review, the design may be accepted by the users. Or at times the users may ask for certain changes to be made. In case changes are to be made then the construction-evaluation-refinement cycle will have to be repeated until the design is accepted.

The next step in the Design process is to Design, Validate and Test the outputs using some combination of the following tools:

a) Layout tools   (Ex.: Hand sketches, printer/display layout charts or CASE)

b) Prototyping tools   (Ex.: Spreadsheet, PC, DBMS, 4GL)
c) Code generating tools   (Ex.: Report writer)

The initial prototype may be constructed in numerous environments. For example, a CASE tool or the standard development tools that are used within the organization be used. Usually, initial prototype are mock screens that can be produced using word processor, computer graphics design package, or electronic spreadsheet. Mock screens are not the working modules or systems.

Tools for designing forms and reports are rapidly evolving and now a days Online graphical tools for designing forms and reports are very much in use in most professional development organizations.

Check Your Progress 1

1. Define Form and Report. Also, differentiate between them.

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2. List the advantages of using Forms and Reports.

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3. Describe the process of designing Forms and Reports.

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4. State True or False for the following:

    a)   A form is a type of layout that typically lists and summarizes data from several unrelated data base records.
    b)   A report is a type of output that typically lists data associated with one data base record.
    c)   Within reports, we can include sub-forms and sub-reports.

8.6   DELIVERABLES AND OUTCOMES

Each phase in the System Development Life Cycle (SDLC) helps in the construction of the system. As we move from one phase to another, each phase produces some deliverables (measurable result or output of a process) that will be used in the later phases or activity. While designing forms and reports, design specifications are the major deliverables and these serve as inputs to the system implementation phase.

8.7   DESIGN SPECIFICATIONS

Design specifications which are major deliverables while designing forms and reports have the following three sections:

*   Narrative overview
*   Sample design
*   Testing and usability assessment.

8.7.1   Narrative Overview

This contains the general overview of the characteristics of actual users of the form or report, task, the system that will be used and the environment factors in which the form or report will be used. The main purpose of Narrative overview is to provide information in detail to the people who will develop the final form or report, regarding the main aim of the form, who the actual users of the form will be, and how it will be used, so that they can make appropriate implementation decisions.

8.7.2   Sample Design

The sample design of the form may be hand-drawn using a coding sheet or it may be developed using CASE or standard development tools. If the sample design is done using actual development tools, then the form can be thoroughly tested and assessed.

8.7.3 Testing and Usability Assessment

This section provides information required for testing and usability assessment. While testing, it is important to use realistic or reasonable data and demonstrate all controls.

8.8   TYPES OF INFORMATION

The main purpose of any form or report is to convey certain information to the user. Information can be classified according to their distribution inside or outside the organization and the people who read and use them as follows:

- Internal information,
- External information, and
- Turnaround information.

8.8.1 Internal Information

Internal information is the information that is collected, generated or consumed within an organization. That is, this information is intended only for the internal system owners and system users within an organization.

Internal information either supports day to day business operations or management monitoring and decision making, e.g., Detailed summary or exception information printed on hard copy reports for internal business use. Internal information can also consists of simple informational reports summarizing daily activities within the organization.

The following are three sub classes of internal information:

- **Detailed reports:** These reports present information with little or no filtering or restrictions.

  Ex.: Detailed listing of all customer accounts, orders or products in inventory. The example in figure 8.4 shows a listing of all purchase orders that were generated on a particular date. The P.O. No. Indicates the product order number.

- **Summary reports:** These reports categorize information for managers who do not want to wade through details. The data in summary reports are categorized and summarized to indicate trends and potential problems. We can also include charts and graphs in the summary report so that it clearly summarizes trends at a glance.

  Ex.: Report that summarizes the months and years total sales by product types and category.

  The example in figure 8.5 summarizes the Sales details for a given month by product type and category.

- **Exception reports:** These reports filter data before they are presented to the manager as information, i.e., these reports include exceptions to some conditions or standards.

  Ex.: A report that identifies items, which are low in stock.
  The example in figure 8.6 depicts the identification of dealers who have to pay the dues.

T H E   P H I L I P S   S T O R E

Products ordered on 1-1-2003

P.O. No	PRODUCT CODE	DESCRIPTION OF GOODS	QUANTITY	RATE	AMOUNT
33473	W-37	Washing Machine	2	10,000	20,000
	T-40	21'' Colour TV	4	15,000	60,000
	R-77	Refrigerator (200ltr)	5	10,000	50,000
33475	A-339	Audio Player	7	2,000	14,000
33479	W-37	Washing Machine	5	10,000	50,000
	O-677	Microwave Oven	5	15,000	75,000
	T-40	21'' Colour TV	3	15,000	45,000

Return To Summary   **Close**

Figure 8.4: A Detailed Report

T H E   P H I L I P S   S T O R E

Summary Of Washing Machines Sold For The Month Of Jan 2003

PRODUCT CODE	DESCRIPTION OF GOODS	TARGETED SALE	ACTUAL SALE	VARIATION
W-37	Automatic (Top Loading)	30	25	-5
W-38	Automatic (Front Loading)	40	60	+20
W-39	Semi-Automatic (Top loading)	45	50	+15

View additional Reports   **Close**

Figure 8.5: A Summary Report

T H E   P H I L I P S   S T O R E

Outstanding Report For The Year 2002

DEALER CODE	DEALER NAME	AREA CODE	TOTAL OUTSTANDING
222315	M.V.Electronics	213	1,00,000.00
349751	E.Kay Electronics	221	2,00,000.00
293199	Mohan Store	773	50,000.00
198752	N.N.Appliances	299	3,00,000.00
		Total	6,50,000.00

Return To Summary	Close

Figure 8.6: Exception Report

8.8.2   External Information

External information refers to the information collected from or created for
customers, suppliers, competitors, regulatory agencies, etc. outside the organization.

T H E   P H I L I P S   S T O R E

12-13 K.G. MARG,   BANGALORE , KARNATAKA
PHONE : 2297261-64, FAX 2297265

INVOICE

To,   DATE :23/05/03
Mr.Satyananda   INVOICE NO : 71006
20, Indira Nagar
Bangalore

S.NO.	DESCRIPTION	UNIT RATE	QUANTITY	TOTAL (Rs.)
1	Electric Lamp	100.00	02	200.00
2	Electric Pump	200.00	02	400.00
3	Motor	2000.00	01	2,000.00
4	Socket	100.00	04	400.00
			Sub Total	3,000.00
			10% S.Tax	300.00
			Total	3,300.00

Total in words: Rupees three thousand and three hundred only

Figure 8.7: An example of External Information

Examples of external information are: Invoices account statements, Product
documentation, Purchase orders, Mailing labels, etc.

Figure 8.7 shows an invoice of a store that sells products manufactured by the Philips Company.

8.8.3 Turnaround Documents

There will be several instances where the information output is again used as input to obtain new information. The document that consists of such information is called Turnaround document. These begin as external information delivered to an external customer as an output, but ultimately return (in part or in whole) as internal information to provide new information as an input to an information system. For example, warranty card or acknowledge slip. This form has pre-printed system generated information that a customer must verify and return to the organization. The customer also adds new information (Ex.: Name, Address, etc.), which serves as input to the customer tracking system.

Figure 8.8 shows a simple acknowledgement card which is sent by a university to the student and the student in turn checks the information and sends a part of the document back to the university.

ABC UNIVERSITY

STUDENT REGISTRATION ACKNOWLEDGEMENT CARD

URGENT : Return the duly signed Card within 10 days to the above mentioned address

ROLL NUMBER   : 45323450

COURSE ENROLLED   : MCA

STUDENT NAME   : XYZ

ADDRESS   : ABC NAGAR,
                                       NEW DELHI

✂--

NOTE : This card will ensure
- Your roll number is correct and you will mention this number for future correspondence.
- Your courses are correctly mentioned.
- Your address is correct so that in future all communications can be sent to this address.

Figure 8.8: Turnaround Document

8.9 GENERAL FORMATTING GUIDELINES

Proper formatting of forms and reports is very much essential. But, unfortunately, a definitive set of rules for delivering every type of information to users is yet to be defined and these rules are continuously evolving along with the rapid changes in

technology. However, certain guidelines are available which are to be considered while formatting information. One of the most important thing to keep in mind while designing usable forms and reports is that there should be active interaction with the users. If the appearance of forms or reports is awkward to use or confusing, the users will be dissatisfied even if the rest of the system performs well. Formatting of forms and reports influences individual task performance and perceptions of usability.

The following are general guidelines for the design of Forms and Reports, which make the Form, or Report more acceptable:

- Meaningful titles,
- Meaningful information,
- Balanced layout, and
- Easy navigation.

8.9.1 Meaningful Titles

The form or report should contain title that is clear and specific. It should clearly describe the content and use of form or report. It should also include the date on which the form or report was generated. Page heading formats should be consistent throughout the system. For example, the date should always appear in the same place. Column headings should clearly indicate the contents of the columns and should be separated from the body using extra blank lines, horizontal rule etc.

8.9.2 Meaningful Information

Only the information that is relevant and needed by the user should be displayed on the form or report. Information should be provided in such a manner that the user could use it without any modification. All the information irrelevant to the intent of the form or report should not be displayed.

8.9.3 Balanced Layout

The information should be balanced on the screen or page, i.e., the display should not be too crowded and not too spread out. When deciding where to put individual fields on the form or report, we should see that the form or report is easy to understand and to use. The most important information should be placed where they are easiest to find (generally, at the beginning). The different fields should be separated by means of extra spaces whenever possible so that a subsequent field expansion will not necessarily force to redesign the entire layout. All related information should be grouped together wherever possible. For example, name, street address and city/state/pin code can be grouped together. Appropriate line spacing greatly enhances the readability of a form or report. We should insert extra blank lines to indicate where headers end and the body of information begins, where one multi-line detail ends and the next begins, where one group of items end and another begins, etc.

8.9.4 Easy Navigation

It should be possible for the user to easily move forward and backward through the contents of form or report. At any instance, it should be possible for the user to know where exactly s/he is (e.g., Page 2 of 3). The user should be notified when s/he is on the last page of a multi-page sequence. The user must be able to exit or quit the report or form easily.

Check Your Progress 2

1. What do you mean by internal information, external information and turnaround document?

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2. List the general formatting guidelines.

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3. What are the different sections of design specifications?

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4. State True or False for the following:

    a) Balance is a way to draw attention to or away from data in output.
    b) Turnaround documents are produced for people outside the organization, but ultimately return as input to the internal system.
    c) Narrative overview contains the general guidelines for formatting forms and reports.

8.10   GUIDELINES FOR DISPLAYING CONTENTS

The way the form or a report appears to the human eye has a lot of impact on the user and by following specific guidelines for highlighting information such as using colour to display text, and presenting numeric tables and lists, we can make the form or report more presentable.

8.10.1   Highlighting Information

Highlighting the information will enhance the appearance of the output. However, highlighting should be used sparingly to draw the user to or away from certain information and to group together related information. Highlighting of information can be carried out using different methods such as using blinking and audible tones, colour difference, intensity difference, font and size differences, underlining, etc. Highlighting methods should be selected and consistently used based upon the level of importance of the emphasized information.

Highlighting will be very useful in situations such as the following:

- Notifying users of errors in data entry or processing;
- Drawing attention to high priority messages; and
- Providing warnings to users in situations like unusual data values or an unavailable device.

8.10.2   Using Colour

Colour influences the usability of the system. Use of appropriate colours while designing has several advantages which are given below:

- Soothes or strikes the eye;
- Emphasizes the logical organization of information;
- Draws attention to warnings;
- Evokes more emotional reactions; and
- Use of colours in graphs and charts helps in better understanding.

The following are some disadvantages of using colours:

- Resolution may degrade with different displays;
- Colour fidelity may degrade on different displays; and
- Printing or conversion to other media may not be possible easily.

8.10.3 Displaying Text

Now a days, as the text based applications such as e-mail, bulletin boards , chatting, etc., are being widely used, textual output is becoming increasingly important. Some of the guidelines to be followed in order to display text are given below:

We should use appropriate punctuation wherever required. The text should be properly spaced and there should be blank line between paragraphs. We should not hyphenate words between lines or use obscure abbreviations and acronyms while displaying textual information.

8.10.4 Designing Tables and Lists

The content and meaning of tables and lists are significantly derived from the format of the information. There are a few simple guidelines that are to be followed while designing tables and lists. Use meaningful labels to all columns and rows and separate labels from other information by using highlighting. The data displayed should be sorted in a meaningful order (like ascending or descending or alphabetic). Columns should be separated by at least two spaces between them. We should make use of single typeface except for emphasis.

Numeric, textual and alphanumeric data should be properly formatted. For example, numeric data should be right justified and columns should be aligned using decimal points or other delimiter.

Textual data should be left justified and line length should be somewhere between 30-40 characters per line. If there are long sequences of alphanumeric data, then they should be broken into small groups of three to four characters each.

8.11 CRITERIA FOR FORM DESIGN

Forms should be well conceived and attractive in design. We can achieve this goal if we design a form that satisfies the following criteria:

- Organization,
- Consistency,
- Completeness,
- Flexible entry, and
- Economy.

8.11.1 Organization

The different parts of a form must be arranged in a proper order with visual separation between the parts. Balancing of different information on the form should be done according to the sequence of entry, frequency of use, function and significance of that particular data. The first data available, the most important data and the data that is going to be used most frequently should always be placed in the beginning of the form. If there are groups of data of the like information, they should be placed together just as Name+Address+Phone Number. Grouping of information will help the user to understand which section of the form they are completing.

8.11.2 Consistency

Forms designed should be internally consistent. They must also be consistent with related forms and with other forms in the organization. If the forms are consistent, then it will be easy for the users to learn how to fill them. Consistent forms reduce errors and data capture costs.

8.11.3   Completeness

The form should gather all the necessary data at the source so that there is no need to transcribe data to other forms. This reduces the major source of errors.

8.11.4   Flexible Entry

It should be possible to enter data by hand or with a typewriter. In most cases, both kinds of entries occur.

8.11.5   Economy

The total cost of design, printing, data entry, etc., must be minimized. Most of the times, it is required to increase one cost to reduce another. Usually, handling costs are much more than the cost of designing and printing. Having spent more resources on design and printing often reduces the cost of data capture and keying.

8.12   CRITERIA FOR REPORT DESIGN

Reports convey information from one of more computer files to the user. They perform this task satisfactorily only when they present information to the user accurately and in small portions.

Several criteria that should be considered in order to produce good reports are given below:

- Relevance,
- Accuracy,
- Clarity,
- Timeliness, and
- Cost.

8.12.1   Relevance

Only the information that is relevant to the purpose of the report should be present in the report. This is a selection process, i.e., all the relevant information should be included and all the irrelevant information or data should be excluded. Only required information should be printed or displayed. In on-line reports, we should use information hiding and provide methods to expand and contract levels of information details.

8.12.2   Accuracy

The data that appears on the report should be accurately recorded, accurately transmitted and accurately transformed into summary data. Accuracy is very important because if the data are inaccurate, then the main purpose of the report which is to provide accurate information to the user will not be accomplished. Incomplete data are also inaccurate.

8.12.3   Clarity

The information that is present on the report should be clear and understandable. The information present should be balanced on the report, the display should not be too crowded and not too spread out. Sufficient margins and spacing throughout the output

will enhance readability. Desired information must be easy to locate. Comparisons, ratios, percentages, exception flags and graphs should be used where necessary.

8.12.4   Timeliness

Reports must be prepared and ready for use in time. Most reports provide information, which is used to make decisions. Hence, this information must reach the recipients while the information is pertinent to transactions or decisions. Information is of very little use if it arrives after the decisions are made.

8.12.5   Cost

Every report has two costs. First is the cost of preparation, which consists of analysis, design, computation and distribution. Second is the cost of reading the report and locating germane parts of it. Often the cost of reading the report is forgotten during the calculation of costs. The reading cost can be significantly reduced only if the appropriate information is presented clearly on the report. The total cost should always be less than the expected benefits. Only then the report should be prepared.

Check Your Progress 3

1. When can highlighting be used to convey special information to users?
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2. What are the advantages and disadvantages of using colours when designing system outputs?
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3. Specify the criteria used to identify a good report design.
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4. Specify the criteria used to identify a good form design.
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5. Describe how numeric, textual and alphanumeric data should be formatted in a table or a list.
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8.13 SUMMARY

As we have seen, the main aim of this unit is to help the reader in selecting appropriate formats for conveying information on Forms and Reports. Here, we have seen that forms and reports are instruments of communication between people and computers.

In this unit, we have seen that Forms are used to collect or present information and Reports to convey information on a collection of items. Also, we have seen that information can take any of the three general forms:

Internal information is the information, which is used only within the organization.

External information is the information, which is used for distribution outside the organization.

Turnaround documents are documents that are produced for outside parties, but ultimately return (in part or in whole) as an input to internal system.

There are many ways in which information can be collected and formatted. Also, specific guidelines should be followed, as these guidelines will help in creating professional usable systems. Here, we have presented a variety of guidelines covering use of titles, layout of fields, highlighting data, use of colours, navigation between pages, formatting text and numeric data.

We have seen that before we start the designing of forms or reports, we should collect answers for questions like who, what, when, where, and how. Answers to these questions will help us to have a clear idea of what actually is required from the form or report to be designed. After getting answers to above questions, the initial prototype can be created.

A well designed form should satisfy the criteria like Organization, Consistency, Completeness, Flexible entry, Economy and a well design report should satisfy the criteria like relevance, accuracy, clarity, timeliness, cost, etc.

8.14   SOLUTIONS/ ANSWERS

Check Your Progress 1

1. In computer terminology, a Form identifies the data we want to collect. A report is the information that is organized and formatted to fit the required specification. The difference between Form and Report is that a form is used to collect or present information and reports are used to convey information on a collection of items.

2. Some of the advantages of using the forms are given below:

   - Forms provide an easy way to view data.
   - Using forms, data can be entered efficiently.
   - We can present data in attractive format using forms.
   - Forms offer convenient layout for entering, changing and viewing records present in the database.

   The advantages of reports are:

   - Reports organize and present data in groups.
   - With reports, we can calculate running totals, group totals, grand totals etc.

- We can present data in attractive format.
- Within reports we can include sub-forms, sub-reports and graphs.

3. While designing Forms and Reports, the following steps have to be taken:

   a) The first is to collect all relevant information regarding the form or
      Report by asking questions like who, what, when, where and how.
   b) Refine the above information into an initial prototype.
   c) Review and evaluate the prototype.
   d) Design, validate and test the outputs using some combination of prototyping
      and code generation tools.

4. State True or false

   a) False
   b) False
   c) True

Check Your Progress 2

1. Internal information   –   For use within the organization
   External information   –   For distribution outside the organization
   Turnaround documents –   Produced for outside parties but are again returned
                              back as input to the Internal system.

2. The general formatting guidelines are:

   - Meaningful titles,
   - Meaningful information,
   - Balanced layout, and
   - Easy navigation.

3. The different sections of design specification are:

   - Narrative overview
   - Sample design
   - Testing and usability assessment

4. State True or False

   a) False
   b) True
   c) False

Check Your Progress 3

1. Special information such as the following should be conveyed using Highlighting
   to users:

   - Notifying the users in case of some errors,
   - Drawing attention to high priority messages, and
   - Provide any warning messages to users.

2. Advantages of using colours:

   - Soothes or strikes the eye,
   - Emphasizes the logical organization of information, and
   - Draws attention to warnings.

   Disadvantages of using colours:

- Resolution may degrade with different displays
- Colour fidelity may degrade on different displays
- Printing or conversion to other media may not easily translate.

3. Criteria used to identify good report design are:

- Relevance,
- Accuracy,
- Clarity,
- Timeliness, and
- Cost.

4. Criteria used to identify good form design are:

- Organization,
- Consistency,
- Completeness,
- Flexible entry, and
- Economy.

5. Numeric data should be right justified and columns should be aligned using decimal point or delimiter. Textual data should be left justified and line length should be somewhere between 30 – 40 characters per line.

8.15 FURTHER READINGS

Jeffrey A.Hoffer, Joey F.George and Joseph S.Valacich; *Modern Systems Analysis and Design*; Pearson Education; Third Edition; 2002.

Jeffrey L. Whitten, Lonnie D. Bentley, Kevin C. Dittman; *Systems Analysis and Design Methods*; Tata McGraw Hill; Fifth Edition;2001.

Alan Dennis, Barbara Haley Wixom; *Systems Analysis and Design;*John Wiley & Sons;2002.

K.C.Laudon and J.P.Laudon; *Management Information Systems*; Pearson Education; Seventh Edition.

John W. Satzinger, Stephen D. Burd, Robert B. Jackson; *Systems Analysis and Design in a changing world*; Course Technology Inc.; Third Edition;2004.

Reference Websites

http://www.formdesk.com
http://www.functionx.com