

✓ IMPROVE
Code Design:-

UNIT:- 2

The purpose of codes is to make the easy task for identification and retrieval of items or information. When there are many items in the same group, it becomes difficult to distinguish any particular item from another item only by description of the item. Hence, in any computer system, data to be processed have codes so that sorting, storing etc will become more efficient.

Thus codes are necessary because

- 1 Data is easily identified.
- 2 Data is simplified and standardized.
- 3 Data processing operation can be done easily.
- 4 It helps to work computer system easily.

Code:-

A code is group of character and /or digit that identify or describe the item. E.g. Postal Identification number (PIN) – 385510. Codes is frequently used to describe customers, products, materials or events. Normally, in data processing, code numbers are referred to as key fields on transactions and records.

❖ Principle of Code Design:-

It is used for effective coding system

Uniqueness:-

The code for any particular item should be unique e.g. the university examination seat number should be unique for each student.

Compactness:-

The length of the code should be as minimum as possible. However codes alone are not sufficient for easy identification and verification.

E.g. the codes M and F can be used for males and females respectively.

Uniformity:-

Uniform sign and format is highly desirable and mechanized data processing system. This is to avoid inconsistencies and confusion in results.

Expansibility:-

The code structure should allow growth. Enough elbow room should be provided in the construction itself for accommodating possible future expansion.

Simplicity:-

The code should be simple and easy to understand by the user even with minimum experience.

Versatility:-

It should be easy to modify to reflect necessary changes in conditions, characteristics and relationships of the encoded entities.

Clarification:-

For the user sorted output data in a predefined format is valuable. Data must be sorted and collated; its representative code does not need to be in a sort able form. This can be achieved by correcting the representative code with another code which is sort able.

Stability:-

Code should not be updated or modified frequently. Modification in codes is costly, laborious, degrade the system and also affect the user efficiency.

Meaningfulness:-

Codes should be meaningful. Code values should echo the characteristics of the encoded entities.

Significant Codes:-

In significant codes, digit or letters may describe a measurable or identifiable characteristic of the item. Significant codes are used in inventory item.

Coding for electric bulbs for inventory item. The following coding may be used.

[1] Product Classification:-

Bulbs: 1. Automobiles 2. Domestic Use 3. Clinical Use

Character code such as A, D and C can be allotted for automobile, Domestic and clinical bulbs respectively.

[2] Color:-

1 digit code can be used

Colorless – 1, Milky – 2, Yellow – 3, Red – 4, Green – 5 etc.

[3] Wattage:-

5 digit codes occupying 3rd to 7th position can be used.

25W - 00025

40W - 00040

100W - 00100

1000W - 01000

10000W - 10000

E.G. the domestic use bulb of 100W of the color red can be coded as D400100

❖ Logical Codes:-

In digital code, the individual values are derived in conjunction with a consistent, well defined rate or procedure.

In logical codes we have two types.

1. Check digit code: Refer data Validation example.

2. Matrix code: the code is based on the X-Y coordinate location. It is useful in coding relationships between two entities.

The following matrix gives the air-lines distance between the cities indicated in miles.

		X	1	2	3	4	
		Y	1	0	85	3463	3959
		2	785	0	3593	6706	
		3	3463	3593	0	6757	
		4	3959	6707	6757	0	

Let code for London be 1, Madrid – 2, New York -3, Tokyo – 4

The(X, Y) coordinate (3, 2) will refer the distance between New York and Madrid, which is 3593.

❖ Collating Codes:

Collating codes are by far the widely used code system. The collating code structure is designed so that when sorted by the code number, the item represented by the codes is placed in predetermined sequence. The collating codes are of four types:

1) Alphabetic codes:

For effectiveness, alphabetical coding requires placement of all items in alphabetical sequence, then assignment of a code of ever-increasing value.

For example, consider the following students appearing for M.C.M examination.

1. Parmar	Vijaysinh	Pratapsinh
2. Bhandari	Vishal	Prakashbhai
3. Parmar	Kuldeepsinh	Ranjitsinh
4. Trivedi	Vishal	R.

In allotting examination seat number, these students can be given

The numbers by the alphabetic order in which their surname appears.

0001	Parmar	Vijaysinh	Pratapsinh
0002	Bhandari	Vishal	Prakashbhai
0003	Parmar	Kuldeepsinh	Ranjitsinh
0004	Trivedi	Vishal	R.

Advantages of alphabetic codes:

1. It is easy for sorting.
2. It is easy for maintenance.

With any initial encoding we can access the code.

Disadvantages of alphabetic codes:

1. All the item will have to be encoded at one time to get reasonable spacing for new entries.
2. It has relatively short life.
3. These are a necessity of central control for number issuing.

2. Hierarchical codes:

Hierarchical codes provide a top down interpretation for an item every item coded is factored into groups, subgroups and so forth for instance, we could code salesman by considering the following hierarchy.

1. Region: Eastern, Western, Southern, Northern, and Central. (Denote this by one character code E, W, S, N, C). City- This will occupy the position 2 to 4 in character from (e.g. PUNE-PUN, NASIK-NSK, BOMBAY-BBY, DELHI-DLI, MADRAS-MDS.)

2. Group: The salesman in a particular city is divided into manageable groups of ten to twelve per group. Each group can be denoted by two digits occupying fifth and sixth position from the left in the code.

3. Salesman number: Each salesman can be given a two digit number within the group. This will occupy the last two positions (seventh and eighth) in the code.

e.g. A Salesman with number twelve in the group number three in the Nasik city belong to Western region denoted by WNSK0312.

3. Classification code:

Classification codes place separate entities such as events, people or objects into distinct groups, called classes. A code is used to distinguish one class from another. A classification is by nature and order systematic structure. Classification codes are of two types-

A. Decimal codes: A Widely known classification code commonly used in libraries for uniquely coding the books is decimal coding.

The following example will illustrate the method to some extent.

Subject	code
Sociology	300
Philology	400
Natural Science	500
Mathematics	510
Physics	530
Mechanics	531
Machine	531.1
Level and Bank	531.11

Wheels and Axle	531.12
Cord and Catenary	531.13
Pulley	531.14
Pulley, compound	531.141

Decimal code is useful when we cannot tell the exact quantity of items to be coded.

B. Faceted codes: Certain kinds of classification code are known as faceted codes. This kind of code represents different facets of the decoded item. Each facet is given as many characters as required. In contrast to Hierarchical Classification a position does not have to be associated with a higher level in order to ascertain its meaning.

A viable classification system must be flexible enough to accommodate changes in types and attributes. Its classes must be expandable. Also classification code must be comprehensive (i.e. covering all types, classes and subclasses) and mutually exclusive in categorizing.

4. Chronological codes:

As the name suggest, this code is assigned in the order of events so that each code has a higher value than the last code assigned.

e.g. Preparing the students list of names according to the date of birth starting the code with the earliest born.

1. Abbreviation:

Many times coding is done by taking the abbreviation of the name of an entity. There are two methods of doing this.

a. **Mnemonic codes:** Mnemonic means assisting the memory. The codes should help to convey the meaning quickly to the user.

E.g. to describe a 21 inch color television set, a useful code is TV-CL-21 and a - BLACK and WHITE, is TV-BW-21. In the university education this is commonly used.

For e.g. M C M for Master in Computer Management

M C S for Master in Computer Science

M C M for Master in Computer Application and so on-

b. **Acronyms codes:** it is a particular type of mnemonic representation constructed from the first letter or letters of several words. An acronym often becomes a word in itself.

e.g. WHO -World Health organization.

FORTRAN -FoRmula Translation.

COBOL - Common Business Oriented Language.

BASIC - Beginners All-purpose Symbolic Instructional code

ROM -Read Only Memory

RAM -Random Access Memory.

❖ Non-Significant codes:

A non significant code conveys no information by itself. E.g. range of numbers may be allocated to customer Account codes, stock codes etc. The non significant codes are of two types.

1. Sequential codes (serial or tag code):

Sequential codes are either numbers or letters assigned in series. They tell the order in which events have occurred. For instance in the saving bank accounts of the Bank the numbering for the pass books is done sequentially. The code value has no significance in itself but does uniquely identify the entity. It makes no provision for classifying groups of like items. It is useful when the only readjustment is for a short, convenient and easily applicable representation. Block coding is a variation of sequential coding. A set of sequential or serial codes is divided into blocks that classify items into specific classes. Thus a block is a set of serial numbers classified into smaller groups based on certain general characteristic of the entities e.g.

Steel rod	: 0001 to 0170
Steel pipe	: 0171 to 0540
Steel plates	: 0541 to 0500
Copper rods	: 0550 to 0650
Copper pipe	: 0651 to 0850
Copper plates	: 0851 to 1000

2. Random codes:

Random code is drawn from a number list which is not detectable in order of sequence. Random number lists are available in statistical tables or can be generated through a computer program. In this method each additional item may not be given the next serial number for e.g., the item following the item with code number 300 can be any random number chosen from the random number list provided. In random code there is no logical way to predict the next number. Random code may be used in case where security of the data is needed. Since this method is cumbersome it is not often used in

practice.

Additional points to note in code design:

Hyphens, commas, and other wild characters should be avoided in a code.

The code should not be too lengthy. A code of length 12 or more digits/characters will be confusing and difficult to handle.

The coding should enable fast processing by computer.

If data is common then code used in one subsystem should be applicable in other subsystems as well.

FORMS DESIGN

Introduction:

- Forms are very important means of communication.
- In any organization the forms are used for both input and output purposes.
- The staff read from forms, writes on forms and spent sufficient amount of time in handling and filling forms.
- Normally the data is transferred through various forms & information is obtained through forms.
- Hence we can say that form is physical carrier of data as well as information.
- Form design is an important aspect of improving the efficiency of the organization.
- The purpose of form is to convey or collect information quickly and completely.
- As the time taken for filling up these forms is large, they must be designed carefully.
- In an organization there may be different types of forms like quotations, Purchase order, Invoice, Inspection and Goods received note etc.

Type of Forms:

- The forms can be also be classified as input or output forms depending on their function in a system environments.
- Input forms provide information from the environment to the system.
Output forms provide communication from the system to the environments.
- Many of the input forms are also action forms.
- Most of the output forms are reports.

The main types of forms are as given below:

1. Action Forms
2. Records Memory
3. Reports.

Form Type	Characteristics	Examples
Action Forms	<ul style="list-style-type: none"> Orders, Instructs Achieves Results Movable 	<ul style="list-style-type: none"> ✓ Purchase Order, P.O ✓ Q.C, Test Reports, Application Form ✓ Material Requisition, Sales Slip, Gate Pass
Records Memory	<ul style="list-style-type: none"> Data Generally used for reference Shows Historical Data Serves as control on certain details 	<ul style="list-style-type: none"> ✓ Inward/Outward Register, Cheque Policies ✓ Stock ledger, Purchase Record
Reports	<ul style="list-style-type: none"> Summary of jobs/ projects Normally used by manager with authority to effect change Used as a basis for decision making 	<ul style="list-style-type: none"> ✓ Status Reports ✓ Balance sheet, profit & loss ✓ Sales analysis, Trial balance

❖ Basic Principles of Form Design

- The form should be as simple as possible to understand and compile.
- The language used should be understandable to the user.
- In erstwhile days Indian Money Order forms used to have a line 'signature of the payee'.
- The user generally the common man used to have confusion and the sender signed the place above "signature of the payee".
- Entries should flow in a logical sequence. In a pay slip the logical order is Earnings, Deductions and net pay.
- Layout and form sizes should be standardized as far as is practicable. This will reduce the difficulties encountered in handling the forms.
- Ease of use: The format of the form should be such that it can be filled up easily and quickly without missing any information.
- Duplication of data should be avoided wherever possible.
- Combine related forms when feasible.

- Too much operation on one form to be operated by different people will be confusing and time consuming resulting in information bottle-necks.

❖ **Form Design considerations:**

While principles of form design should be ingrained in the thought and action process of any form design, there are certain considerations one should keep in mind in the actual preparation of the form.

Title:

Every form must have a title clearly indicating the objective titles such as Examination form for Engineering (May, 1993), Eligibility form, Admission form, Migration form, and so on. This will help to identify the form by its title.

Spacing:

The spacing for each item of information needs proper planning and imagination. This should be convenient for the person filling up the form and the person analyzing it.

The least and the maximum number of spaces needed under normal requirements for each every item of information must be considered.

Logical Arrangement:

The data requested should be in a logical sequence; also related data should be in the adjacent positions. As far as possible the data copied should be in the same sequence as in the source document.

Abbreviation:

If used should be explained at some suitable space in the form itself.

Cost:

The form must be cost effective by eliminating unnecessary data. The paper quality, printing aspects must judiciously balance the cost and the purpose of form.

Numbering the forms:

For effective control all important forms must be and serially numbered at the proper place in the form.

Size and color of paper to be used:

A range of paper documents available in the market. The designer must choose the size taking

into consideration the utility system constraints.

Colored paper may be needed to distinguish different documents and facilitate sorting and identification. Color combination of the paper and printing should consider readability, photocopying ability and aesthetic value.

❖ Form Design Steps:

In order to design any form, the designer may follow the steps indicated here:-

- Define objective of form.
- Specify its data content.
- Decide upon quantity required and likely method of production.
- Decide the format and the layout of the from on a drawing board preferably.
- Revisions with the user, revise using new guide sheet, if necessary.
- Produce fair specimen.
- Submit to forms controller for approval.
- Consider limited production run and field test.
- ⇒ Revise if necessary.
- ⇒ Place order via forms controller

INPUT DESIGN

Input design involves capturing of data as well as inputting it to the computer. Accordingly input design consists of data capturing and data validation.

❖ DATA CAPTURE

Data capture covers all the stages from the recording of basic data to the feeding of this data into the computer. Major processing basic steps in this process are:—

Basic Steps of Data Capture:-

- 1 Original Recording
- 2 Data Transmission
- 3 Data Preparation
- 4 Verification
- 5 Sorting
- 6 Control
- 7 Computer input

(1)Original Recording:-

This is the collection of data at its source. This involves clerical preparation of source documents including manual checks.

E.g.:-(1) Preparing an examination mark list.

(2) Filling out job application from giving details of name, address, qualification & experience.

In recent years there has been a tendency to reduce human intervention in the recording procedure.

(2)Data transmission:-

The data moves from the point of origin to the data processing center.

E.g.:-(1) The group of related mark list are bunched into jobs and sent to data processing center.

(2) If a main processor has terminals the transfer of data from a particular terminal to the main processor can be regarded as data transmission.

(3)Data Preparation:-

The transcriptions of source documents on to an input media such as magnetic tape, magnetic disk, magnetic drum etc. Is data preparation. In the off-line system the transfer of data from mark list to magnetic floppy disk is the case of data preparation.

(4)Verification:-

It is to verify that the transcription has been done correctly. This is vital because it can result in wrong output.

(5)Sorting:-

Sorting is the process of arranging data into some desired sequence. Sorting may be done manually or mechanically. E.g. In the rest while system purchased cards have to be arranged in a logical order for the production of particular input or output. The cards are sorted out & arranged in the desired sequence.

(6)Control:-

Throughout all the stages listed above it is essential the checking, verifying & validity controls are maintained. This is to ensure that all the data collected, transmitted & input are correct.

(7)Computer Input:-

The data is read by the input devices like manager disk drive & transferred to the internal store where it undergoes validity checks. Invalid data will pass back to go through the entire stages again.

- In any particular application these functions may not all exist or they may take place in a different sequence form that listed above.
- The data capturing process will also depend on ,The type of input data,
- Type of application &
- The hardware configuration available.
- Data are the facts which describe events and entities.
- Data are communicated by various types of symbols such as letters of the alphabets, numbers, speech patterns, dots and dashes, hand signals, pictures and so on.
- The processed data with specific purpose are called information.
- Data obtained in general are not suitable for directly feeding into the computer.
- To get the data into the computer the analyst has
- To design the form,
- Design the input record.
- Design methods for getting the data into the computer.
- The computers will only accept those data which are in machine sensible form.
- If its original form is unacceptable, then it has to be brought into the acceptable form.
- There can no information system without data. Data are the facts which describe events and entities. Data are various types of data like variable, alphabetic data.

Terms of Data Capture:-

This work of the analyst is

- 1 Complex
 - 2 Time consuming and
 - 3 Expensive
- But unavoidable

Basic terms of data capture are as under:-

1 Data collection: -

The process of getting data to the computer in a machine sensible form for processing.

2 Data capture: -

Sometimes used as a substitute term for data collection but more significantly refer to data capture.

3 Data Entry:-

Is the process of translating the source document into the machine readable format?

4 Data Input: -

To the computer comes only after the data has been entered into one of the machine readable formats.

5 Data Base: -

A collection of data fundamental to a system.

Datacapture Objectives:

If the data input is bad then output will be worse. This call for clear data capture objectives such as:-

- Reduction in the volume of input to the extent possible.
- Lesser [smaller] manual preparation.
- An input design which will ease the work of the person engaged [busy] in input preparation.
- Minimizing the number of steps practicable [possible] in the data capturing process.

❖ DATA VALIDATION:-

Data validation: -

- The objective of a data validation system is to be detecting errors at the earliest possible stage before costly activities are performed on invalid data.
- Some data validation is done by way of manual verification data capture stage itself.
- This check will classify valid and invalid data.
- This is generally done with the help of a DATA VET or DATA VALIDATION program.
- Invalid data is also identified and recorded separately.
- This invalid data is checked manually for low casting errors.
- After correcting these errors the data is again subjected to above data validation process of accurate input.

Validation Checks:-

There are various categories of checks which can be applied to data during a validation run.

(1) Field check: - Include the following:-

- (a) Limit check: - May be applied to each field of a record to ensure that its contents lie within predefined size.
- (b) Picture checks: - May be applied to each field to deleted entry of incorrect character in the field.

- (c) Valid code check: - to validate input against predefined transaction codes. These predefined codes may either be embedded in the programs or stored in files.
- (d) Check digit: - It is used to detect transposition errors when recording "key" fields.
- (e) Arithmetic check: - are used to ensure the validity of the results by performing arithmetic operation in different ways.
- (f) Cross checks: - may be applied to verify fields appearing in different fields to verify that result fully.

(2) Transaction checks:-

- (a) Sequence checks: - are applied to detect any missing transaction.
- (b) Format completeness: - are used to check the presence & position of all fields in a transaction.
- (c) Redundant data checks: - are employed to check the validity of codes with reference to description.
- (d) Combination checks: - may be applied on various fields of a file.
- (e) Probability checks: - are used to avoid unnecessary rejection of data.
- (f) Pass words: - may be exercised to check entry of data by unauthorized person in the system.
- (g) Check: - may be incorporated to ensure that transaction pertains to the current period.
- (h) Batch total: - Can be used to ensure that transaction have been transcribed currently. A total of some common components of a batch of data so as to enable a control to be maintained over the validity of data.
- (i) Hash total: - A control total i.e. the sum of values in a particular field or record area of a file, to ensure that transactions have been transmitted currently.

OUTPUT DESIGN:-

The output generally refers to the result and information that are generated by the system.

One of the most important features of an information system from the point of view of users is the output produced.

If output is of poor quality, the whole system is in problem because the users will then avoid using it.

No system can be designed properly without knowing what output is exactly required.

❖ DESIGN PRINCIPLE OF OUTPUT:-

A system designer should try to incorporate the following design principles for output.

Principle of starting with output.

- This principal is known as "PRINCIPAL OF STARTING WITH OUTPUT" means that organizations output needs should be considered first before devising
 - Appropriate methods and procedures,
 - Databases,
 - Planned inputs and
 - Effective internal control.

Principle of acceptability (suitability) of reports.

- The end user has to accept these outputs since they are the people who will be using it for their desired purpose.
- Hence it is ideal (perfect) to have their participation in the output design phase for the greater success of the system.

Principle of timely output.

- An output in time can help to make better decisions.
- The output must be given in the specific time period.

Principle of enhancing the decision making process.

- After all the systems are designed for the manager and other personnel to make better decision.
- Naturally the output report must be prepared keeping this principle constantly in mind.

Principle of practicing (involve, working) "management by exception".

- Management controls through completed tasks.
- The report should be designed not only for what has happened but for deviations (difference) were there from actual plans.

- Significant deviations as and when it occurs are brought to the notice of the management through exception reports of the system.

Principle of duplication reduction in reports.

- Duplication or unnecessary information in the reports should be minimized to extent the possible.
- This automatically reduces the cost of processing.

Principle of simplicity in reports.

- Reports should be simple and self explanatory.

❖ **OUTPUT OBJECTIVES:-**

- Before designing output, the objectives of each output must be clear.
- It must accomplish one or more of the following objectives:-
- The objective of the each output must be clear.
- The output is very attractive or if has used the latest computer technology, output cannot be regarded as good.
- An Output Must

1 Convey information about

a) Past Activities - ex. Personnel file, Vendor History

b) Current Status - ex. Inventory on Hand, Cash on Hand

c) Future Projections - ex. Sales or Cost of manufacturing a new item.

2 Confirm an action - ex. Completed task

3 Trigger an alarm - ex. Rush purchase, market loss

4 Signal events - ex. Through exception reporting or report on luring opportunities etc.

❖ **TYPES OF OUTPUT:** *most IMP*

There are various types of output required by most system. The main types of output are as below.

1 External Output: -

Those intended to go outside the user's organization eg. Invoices, Pay slips, Tax return etc.

2 Internal Outputs:-

Those used within the user's organization and it requires careful design because they are user's main interface with computer

3 Operational Outputs:-

The use of this is in general within the computer department. For example: Program list.

4 Interactive Outputs:-

This involves the user communication directly with the computer.

5 Turnaround Outputs:-

The data will be added to this document before they are returned to the computer for further processing.

OUTPUT CONSIDERATIONS:-

- While designing outputs, system analyst must consider the following points.
- Determine what information is to be presented.
- Decide whether to display, print or speak the information and select the output medium.
- Arrange the presentation of information in an acceptable form.
- Decide how to distribute the output to intended users.
- After considering all the above questions, the analyst and the user can define output more clearly in terms of following:-

1. Types of output
2. Content (Reading? Numeric? Alphanumeric? Tools?)
3. Format (Hardcopy? Remote? Transmitted? Transported?)
4. Location (Local? Remote? Transmitted? Transported?)
5. Frequency (Daily? Weekly? Hourly? Etc)
6. Response (Immediate? With a period? Etc)
7. Volume (Number of Documents? Growth?)
8. Sequencing (Account no? Within sales area)
9. Action Required (Error detection)

❖ OUTPUT MEDIA:- *LIMP most*

- Output from a computer system can take a variety of forms.
- The systems analyst has to determine the most appropriate medium the output.
- The most common media are as under:-

1. Printed Output

The device used for printed output may be line printer, dot matrix printer, laser printer or plotter.

2. Visual Output

With the increasing emphasis on the design of interactive management information systems, the CRT [cathode ray tube] unit is becoming a widely used form of output.

For example, order entry system, account payable/receivable, airlines and hotel reservation systems may be find this medium most useful.

3. Turnaround Document Output

In order to reduce the input workload at a later date, turnaround documents in the form of punched cards are widely used.

The applications include credit card billing and employee time cards.

Additionally OCR (optical character recognition) that means simple scanner, forms can be prepared as output which at a later date serves as input to the computer system.

4. Secondary Storage Output

This generally includes magnetic disk, magnetic drums, and magnetic tapes.

5. Microfilm or Microfiche output

Microfilm is photographically reduced documents on films.

Here output is written on to a magnetic tape which is then fed into a machine called a microform recorder.

The information can subsequently be inspected by using a viewer which projects on to screen.

This is actually referred to as COM (computer output on microfilm).

6. Audio Response Output

A newer form of output is the audio response unit.

The unit is capable of providing on line inquiry into the systems where output is restricted to short messages.

This system consists of message handling unit, touch tone telephone unit and standard telephone lines for an online mode.

For example, in banking system the customer can get balance in his/her accounts.

Case tools components:-

CASE:-

The work shop for software engineering is called an integrated project support environment & the tools set that fill the workshop is called computer Aided software Engineering. (CASE)

(1)Diagramming tools:-

It supports analysis & documentation of application requirements. Means has the capability to produce dataflow diagram. Data structured diagram & program structure chart. It extensively in corporate structured analysis method. They support the capability to draw diagram & chart to store details internally. When changes are described it automatically review entire diagram. The ability to change & redrew eliminates an activity that analyst find Tedious.

(2)Information repository:-

The capture, analysis, processing & distribution of all system information are aided by information repository or data dictionary. The dictionary contains data flow, data items, processes, and the volume of information's & frequency of information of each activity. They also include built in controls & safe guard which preserve the accuracy and consistency.

(3)Interface Generators:-

Interface is the means through which users interact with application to enter information & data or to receive information. Interface generator provides the capability to prepare prototype and mockups of user interface. They support the rapid creation of menus presentation screen & report layout.

(4)Code generators:-

They incorporate methods that allow the conversion of system specification into executable source code. Code generation is not yet perfected. Hence, it must be written by hand.

(5) Management tools:-

Case system also assists project manager in maintaining efficiencies & effectiveness throughout the application development process. It assists in scheduling, design activities & the allocation of resources ion some management tools allow to specify custom element they can select graphic, symbols, they

want to describe processes, people & department etc. Others allow installation to define own method including validation roles, standard for data & procedure name.

Benefits of CASE:-

(1) Easing revision of application:-

Case tools provide a substantial benefit to organization by easing the burden of application revision. The central repository facility the revision process by providing bases for definition & standards data. Internal generation capabilities if present provides the means of modify the system by changing specification rather than by adjusting the source code.

(2) Support of system prototype:-

Application prototyping takes a several forms sometimes screen & report are develop to show organization or lay out data, headings or messages. Necessary design adjustments are made quickly to change the presentation & interface features. Prototype can produce a working system only a few support full prototyping.

(3) Code generation:-

The most visible advantage of code generation is the reduction of time to prepare & operational program it also insure a consistence & standard program structured & reduction of errors & thus improving software quality. It also facilitates reuse of software as well as standard. Structure to generate code & allows specification changing.

(4) Improved ability to meet user requirements:-

It appears that case tools reduce development time they affect the nature & the amount of interaction between developer & user. Graphic description & diagrams reports & screen lay outs. Can bring effective interchange ideas.

(5) Supports iterative development process:-

Expression has shows that the development of system is an iterative process. Case tools supports iterative steps by eliminating manual tedium for diagramming cataloging and a classification & thus review & revise of system will be frequently & devices.

Weakness of CASE:-

(1) Reliance of structured method:-

Case tool Supported Structured Method which is a Limiting aspect for development of system. If analysts does not uses structured analysis method the use of case will be reduce.

(2) Conflicting use of diagram:-

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Tools vary in their use of diagram this may constraints organizations normal development process care must be taken when selecting tools to supports existing methods.

(3)Diagram not used:-

Some instance where graphic tools automated or manual may not used at all. Hence, the communication improvement is not done which reduce the interaction of a program.

(4)Limited Function:-

A SDLC may generally use tool which are primary & for one specifies tools & Hence tools has limited function to meet the requirement.

(5)Limited scope:-

Many computer based tools include the capability of checking in complete specifications virtually no analysis of application requirements accrue. The scope of development activity with current automated tools is thus quite limited.

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