employee benefits to enhance overall organizational performance and employee satisfaction.

key points for effective benefit management include-

(1) Needs Assessment

(2) Strategic Alignment

(3) Compliance

(4) Communication

(5) Employee Education

(6) Cost Management

(7) Technology Integration

(8) Wellness Programs

(9) Feedback Mechanisms

(10) Flexibility.
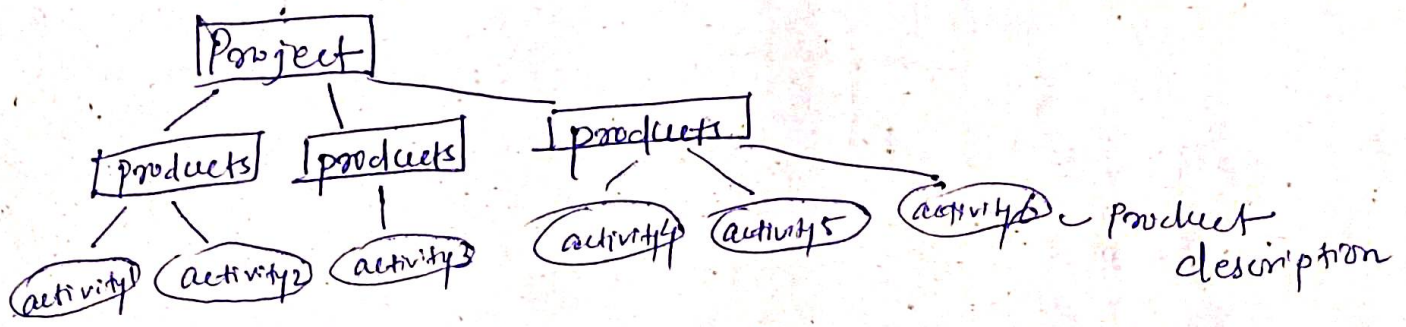
(14)

01/02/24

→ Case Study

Step-0 : Select the project

Step-1 : Identify the objectives

Step-2 : Identify project infrastructures

└ Establish link b/w project & any strategic plan

└ Identify installation standards and procedures.

└ Identify project team organization

- Step 3: Analysis of project characteristics
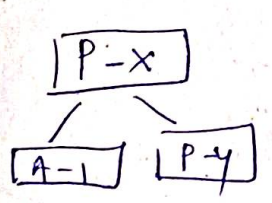- Step-4: Identify project products and activities

PBS - Product Breakdown Structure
PRINCE2 - Development of project in controlled environmen
  ↳ Appendix (A)

Q. What is PRINCE2 methodology? Why is it used? What are the steps used to develop project in controlled environment?

Product Description - Attributes of product (Name, Id,
  ↳ (present at bottom of)   purpose, derivation, composition, format,
        PBS   relevant standards, quality criteria)
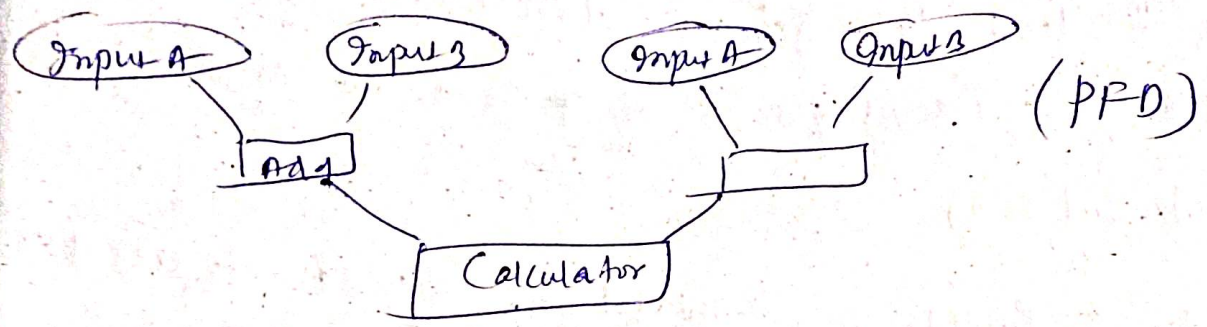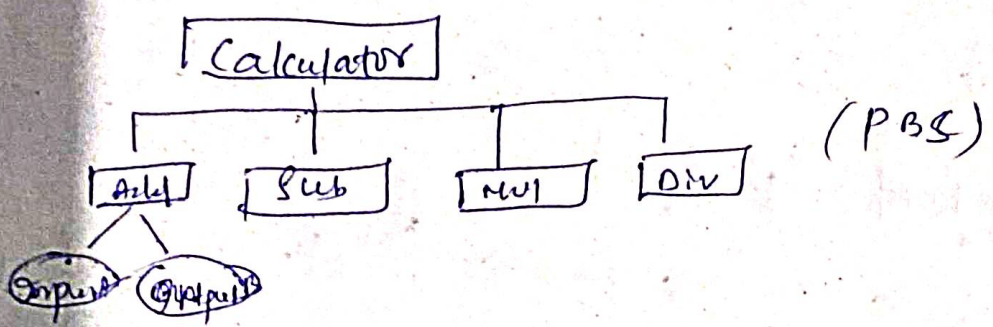
A product can be composed of activity and sub product

→ Product is the result of an activity.
The followings are not normally products -

  (1) activities
  (2) events
  (3) resources and actors

PFD - Product flow diagram

(PBS)

(PFD)

→ Activity Network - All activities are linked with each other.

→ Checkpoints ensures the preeeeding activities together and complete and compatible.

• Step-s: Estimate effort for each activity
    effort, duration and elapsed time
    ↳ No of work units used to complete an activity

duration - Entire time taken to complete the activity.
        It does not include holidays and nonworking days.

elapsed time - passage of calender days.

Controllable activities - divide the activities into smaller activities.

Selection of an appropriate project approach

OTS software - off the shell software (commercial software)
↳ It has multiple functionalities.
Ex - Windows

ERP - Enterprise Resource Planning

Choice of process models

- Process - a system in action

Process models - Arrangement of activities to form a system.

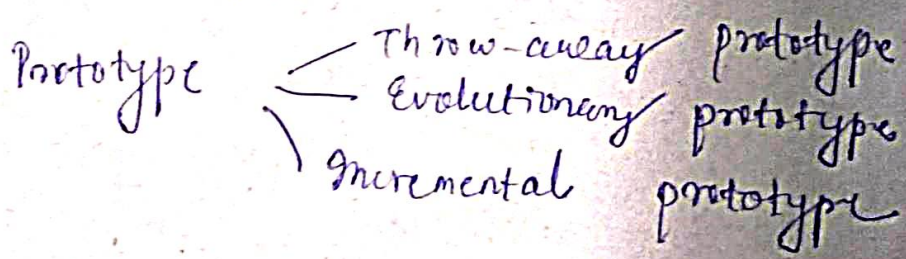heavyweight - use of more no. of resources

The process which uses more no. of resources is called heavy weight process.

The process which uses limited no. of resources is called light weight process,

- Structured method
- Agile method (quick development)

RAD   JAD

Prototype 〈 Throw-away prototype
            Evolutionary prototype
            Incremental prototype

Name Age Aird Mob

```
┌───┬───┬───┬───┐
├───┼───┼───┼───┤
├───┼───┼───┼───┤
└───┴───┴───┴───┘
```

Select * from studt
Ajay 20 BNSR Jrgsperuo

Vertical - some attributes are shown ~~but~~ in detailed.

horizontal - All features are shown but not in detailed. Shown in summarized manner.

→ Incremental approach reduces gold-platting (removal of unnecessary features)

→ incremental breakage

$$i \geq 10$$

$$i = i + 10 \quad \Rightarrow 20 \, (10, 26)$$

Color coded technology

DSDM - Dynamic System Development Method

SSADM - Structured System Analysis and Design Methodology

DSDM uses DFDs. (Data Flow Diagram)

LDS - Logical Data Structure

Atern - updated version of DSDM

Q1 With respect to XP in any agile technology explain managing, designing, coding and testing phase.

Q.2 Explain the twelve XP practices.

(Problem with overestimate & underestimate)

- Software effort estimation techniques.

    -effort
    - duration

SLOC - Source Line of Code - same as LOC

Differentiate b/w bottom-up v/s top-down approach

Calculate the estimate from bottom to top

Bottom up approach

→ lower/higher Euclidean distance - project matching factor

$$d = \sqrt{\left(input_X - input_A\right)^2 + \left(output_X - output_A\right)^2}$$

The project having lower Euclidean distance is suitable for the new project.

→ Functional Point Calculation

PP

Table-1
Table-2

Five function types -

1. External input types (EI)
2. External output types (EO)
3. Logical Internal files (LIF)
4. External Interface file types (EIF)
5. External Enquiry types (EQ)

① Productivity Calculation
② Top down, bottom up approach
③ Parametric model

22/02/24

COCOMO Model

$$(effort = c \times size^k)$$

	c	k	a	b
Organic	2.4	1.05	2.5	0.38
semi-detached	3.0	1.12	2.5	0.35
embedded	3.6	1.20	2.5	0.32

$$T_{dev} = a \times (effort)^b$$

ex   KLOC = 32

$$Effort = 2.4 \times (32)^{1.05} = 91 \, pm$$

$$T_{dev} = 2.5 \times (91)^{0.38} = 14 \, months.$$

Staff cost

$91 \times 50,000 = 4550,000$

Ex-2

$KLOC_1 = 10$

$KLOC_2 = 15$

$(Effort)_1 = 3.2 \times (10)^{1.05} = 35.90 \ PM$

Schedule Time $= Tdev = 2.5 \times (35.90)^{0.38} = 9.75 \ months$

$KLOC_2 = (Effort)_2 = 3.2 \times (15)^{1.05} = 54.96 \ PM$

$Tdev = 2.5 \times (54.96)^{0.38} = 11.46 \ months$

COCOMO II

→ 9t has 5 scale factors and 17 cost-drivers attributes.

Estimation model

(1) Application Composition Model

(11) Early design model.

$$pm = A \times size^{sf} \times em_1 \times em_2 \times \cdots \times em_n$$

$pm =$ effort

$A =$ const

$size$ is in SLOC

$sf =$ exponent scale factor.

$$sf = 1.01 + 0.01 \times \sum (\text{exponent driver ratings})$$

Q. 5 exponent driven.

maxm rating = 5

minm " = 0

$sf = 1.01 + 0.01 \times (5+5+5+5+5) = 1.26$

Qualities to calculate sf

① PREC - Precedentnen.

② FLEX - Flexible.

③ RESL - Risk resolution

④ TEAM - Team cohesion

⑤ Process maturity (PMAT)

COCOMO II scale factor values Table

Q.

PREC = 1.24

FLEX = 5.07

$sf = 3 + 0.01 \times \Sigma \text{ scale factor value}$

$= 1.01 + 0.01 \times (1.24 + 5.07 + 2.83 + 2.19 + 6.24)$

Here

$C = 2.94$

$K = \boxed{1.0857} \; sf$

⟨K = sf⟩

$$\boxed{\text{effort} = c \times (size)^{k} = 2.94 \times (10)^{sf}}$$

$\boxed{K = sf}$ $\boxed{C = 2.94}$
(always)

Q. $Sf = B + 0.01 \times \Sigma (\text{exponent factor})$

$\quad = 1.01 + 0.01 \times (3.72 + 2.03 + 7.07 + 1.10 + 6.24)$ *

$\text{Effort} = C \times (\text{size})^k = 2.94 \times (2)^{Sf}$

Effort multipliers

① RLPX — Product reliability & complexity

② RUSE — Reuse required $\qquad$ (Values are given in)

③ PDIF — Platform difficulty $\qquad\qquad$ Table

④ PERS — Personnel capability

⑤ PREX — Personnel experience

⑥ FCIL — Facilities available

⑦ SCED — Schedule pressure

Ex

$\quad \text{effort} = 358 \text{ pm}$

$\quad \text{effort} = 358 \times 1.91 \times 1.8 \times \ldots$
$\quad \quad \quad \text{worth}$
$\quad \quad \text{multiplien}$

Ex

$\quad$ RLPX — very high $\qquad\qquad$ PREX — nominal

$\quad$ RUSE — very high $\qquad\qquad$ PCIL — nominal

$\quad$ PDIF — low $\qquad\qquad\qquad$ SCED — nominal

$\quad$ PERS — very high