Experiment No:- 3 Date: 22.10.21

Aim:- Calculate Effort using FP oriented Estimation model for library Management System.

function point Analysis was initially developed by Allan j. Albercht in 1979 at IBM

FPA provides a standardized method to functionally size the Software Work product.

It is a set of rules of functional size measurement. It is used to analyze the functionality delivered by Software and unadjusted function point is the measurement Unit.

UFP is calculated by simply counting the value of each information domain and multiplying it by an appropriate weight at it's Complexity level.

CAA refers to the Complexity adjustment attributes. The CAA's are Complexity attributes that can vary from project to project. They are Computed using the following relationship.

$$CAA = [0.65 + 0.01 \times \Sigma(CAA_i)].$$

	Simple	Average	Complex
Number of inputs	4	5	6
Number of outputs	5	6	8
Number of inquiries	3	5	7
No of internal logic file	7	11	14
External interfaces	4	6	10

for library Management System assumed that it is an average Complexity Size project.

The Information Domain values are as follows. No of inputs = 6, no of Outputs = 7, no of inquiries = 3, no of External files = 4, no of interfaces = 2 let us assume that the total value of Complexity adjustment attributes is 12.

1. Calculation of UFP for average Complexity Size project:

= (No of inputs) x5 + (No of Outputs) x6 + (no of inquiries) x5 + (no of internal logic files) x11 + (External interfaces) x6

= 6x5 + 7x6 + 3x5 + 4x11 + 2x6

UFP = 123+20 = 143.

2. Compute CAA, which has the value. = 12

0.65x1 + 0.01 x (12x3)

↓ average Complexity

= 1.01

3. Compute fp = UFP x CAA

= 143 x 1.01

= 144.43.

Thus the total value of fp is 144.43.

FAQS

1. What is the purpose of COCOMO Model?
2. Why do we need to Estimate Effort?
3. What are different types of COCOMO Model?
4. How do we assume the values of Constants in the Calculation?
5. Who proposed COCOMO Model?
6. What is meant by cost drivers?
7. Why do we need Cost drivers?
8. What is the use of phase wise Estimation?
9. What is fp Analysis?
10. For what do we use fp Analysis?
11. How do we Calculate UFP?
12. What are the Complexity adjustment attributes?

27/11

Experiment No:- 4 Date : 27.10.21

Aim :- Develop time line chart and project table using PERT or CPM Model for Library System.

PERT & CPM:-

Basically PERT (programmed Evaluation Review Techniaue) and CPM (Critical path method) are project management techniaues. This is used to schedule, organize and coordinate tasks within the project.

We can determine the critical path using this. We can prepare this chart with the help of information generated in the project planning activities like Effort Estimation, Selecting appropriate process model etc.

Advantages of PERT Chart

1) It represents the project in graphical form.
2) Specifies the activities that form the critical path.
3) Includes the deadlines of activities
4) Describes the dependency of tasks over Each Other.
5) portability of Completion of projects before deadline.
6) provides info about Expected time of completion.

Steps to create a PERT Chart

1) Identifying the activities and Milestones.
2) Identifying the order of priority of activities
3) prepare PERT Chart.
4) Estimate the time Consumed.
5) Determine critical path.
6) Update PERT Chart

CPM:-

CPM is the critical path method used in project planning. It helps in determining the Earliest time by which the Whole project can be Completed. There are two main Concepts involved in this method namely critical task and critical path. Critical task is the task or activity which cannot be delayed Otherwise the Completion of the Whole project will be delayed. It must be Completed on time before Starting the Other dependent tasks.

Critical path is the Sequence of critical tasks and is the largest path in the project Network. It gives us the minimum time which is required to Complete the Whole project. These activities are known as Critical activities

Based on Work Breakdown Structure and activity Network Diagram is drawn and which is followed by PERT with the critical path and finally Gantt chart for Software design is prepared.

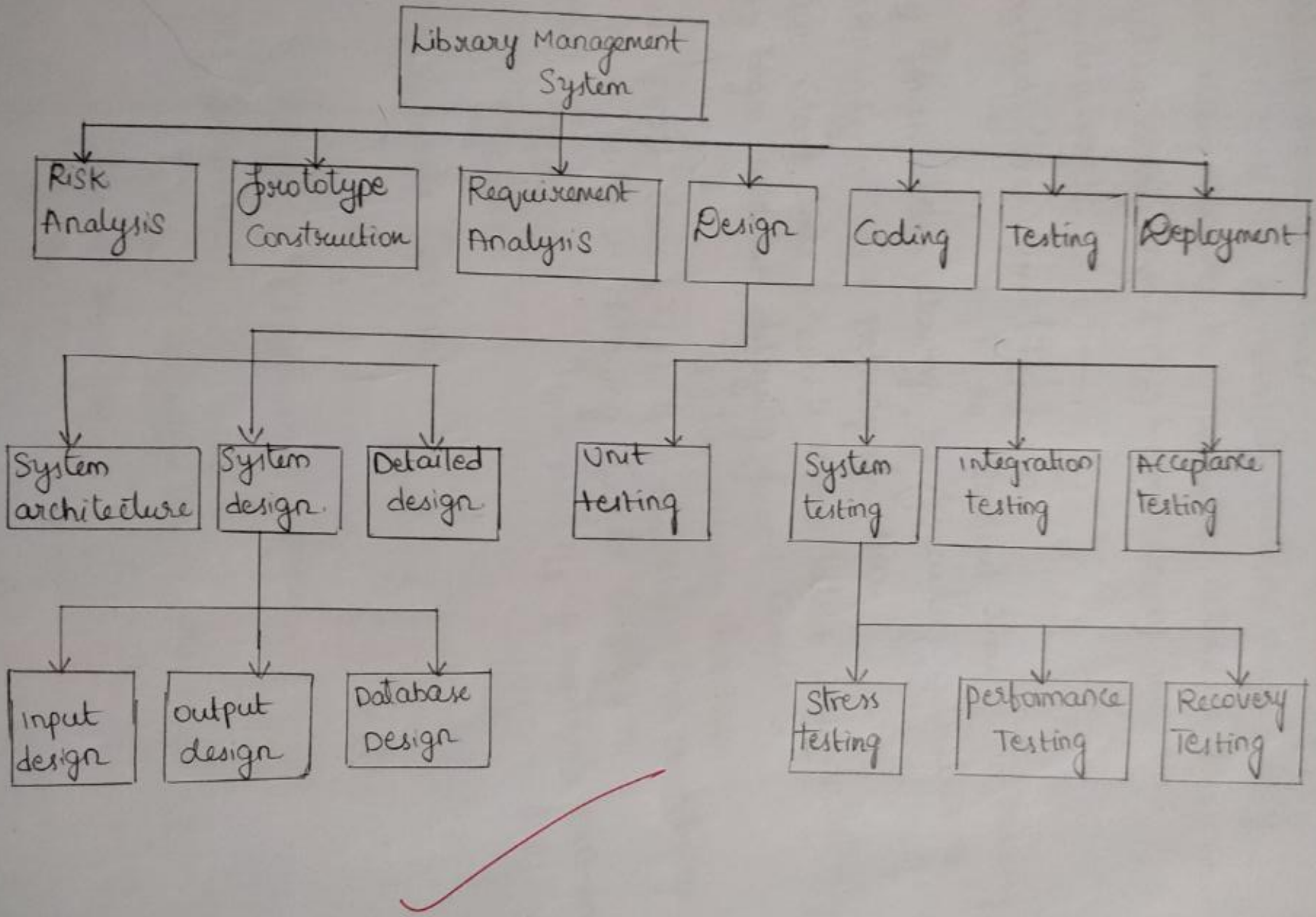
Work Breakdown Structure :-

Work Breakdown Structure is nothing but the representation of identified tasks in a graphical form. It acts a medium for breaking an Engineering project down into subproject, tasks, subtasks and soon. It follows top to down approach.

Steps for creating a WBS.

1. Identify the major activities of the project.
2. Identify the sub activities of the major activities.
3. Repeat till undividable, simple and independent activities are created.

WORK BREAKDOWN STRUCTURE



Earliest Start time (T_{ES})

It is the earliest time an activity may begin after allowing the preceeding activities to finish.

Earliest Start time (T_{ES}) = max (T_{EF} of immediate predecessors).

Earliest finish time (T_{EF})

It is the earliest time of an activity may finish after allowing the preceeding activities to finish. $T_{EF} = T_{ES}$ + Activity duration.

Latest Start time (T_{LS}): It is the latest time an activity may begin without delaying project Completion

$T_{LS} = T_{LF}$ - Activity duration.

Latest finish time (T_{LF}): It is the latest time an activity may finish without delaying project Completion.

T_{LF} = Min(T_{LS} of immediate successors)

Start

$T_{ES} = 0$

$T_{EF} = 0$

Requirements Specification

$T_{ES} = 0$

$T_{EF} = T_{ES}$ + Activity duration = 0 + 2 = 2

SRS Document

T_{ES} = T_{EF} for Requirement Specification = 2

T_{EF} = 2 + 6 = 8

System Design

$T_{ES} = 8$

$T_{EF} = 8 + 10 = 18$

Input design

$T_{ES} = 18$

$T_{EF} = 18 + 6 = 24$

Data base design

$T_{ES} = 18$

$T_{EF} = 18 + 12 = 30$

Backup design

$T_{ES} = 18$

$T_{EF} = 18 + 16 = 34$

Output design

T_{ES} = max(T_{EF} of immediate predecessors)

$= 30$

$T_{EF} = 30 + 6 = 36$

Coding

T_{ES} = max(T_{EF} of immediate predecessors)

$= 36$

$T_{EF} = 36 + 15 = 51$

Testing

$T_{ES} = 51$

$T_{EF} = 51 + 3 = 54$

Deployment

TES = 54

TEF = 54+2 = 56

End.

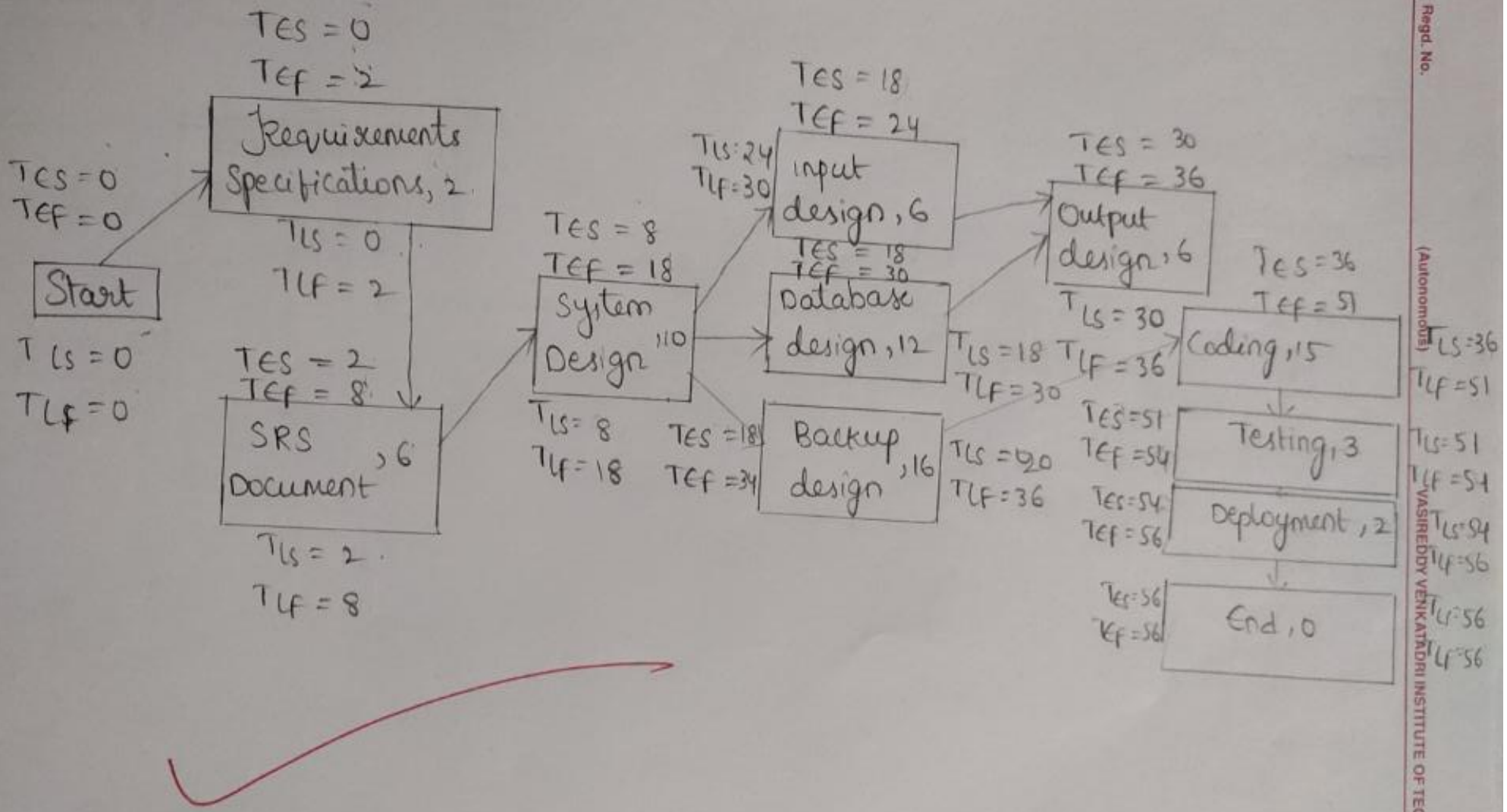
TES = 56

TEF = 56+0 = 56.

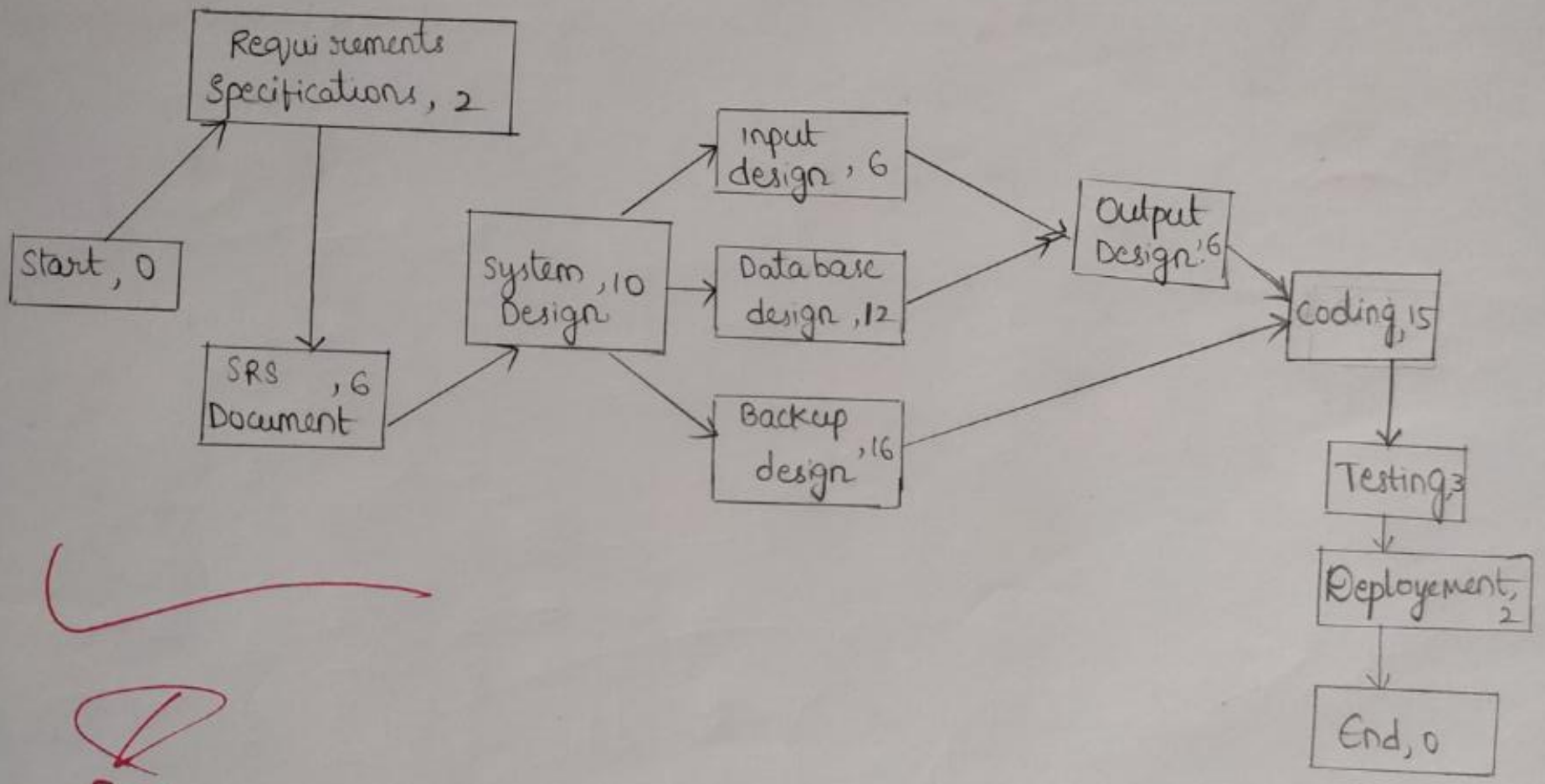
Critical path :-

Start > Requirement Specification > SRS Document > system design > data base design > output design > coding > testing > Deployment > End.

PERT CHART



Activity Network Diagram



27/11