Critical Path Analysis (Lab Task)

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1. Introduction

This report focuses on the critical path analysis of a single task assigned by our instructor. Critical path analysis, though typically applied to entire projects, can also be used to identify the most time-consuming sequence within a complex task.

By analyzing the critical path of this task, we aim to:

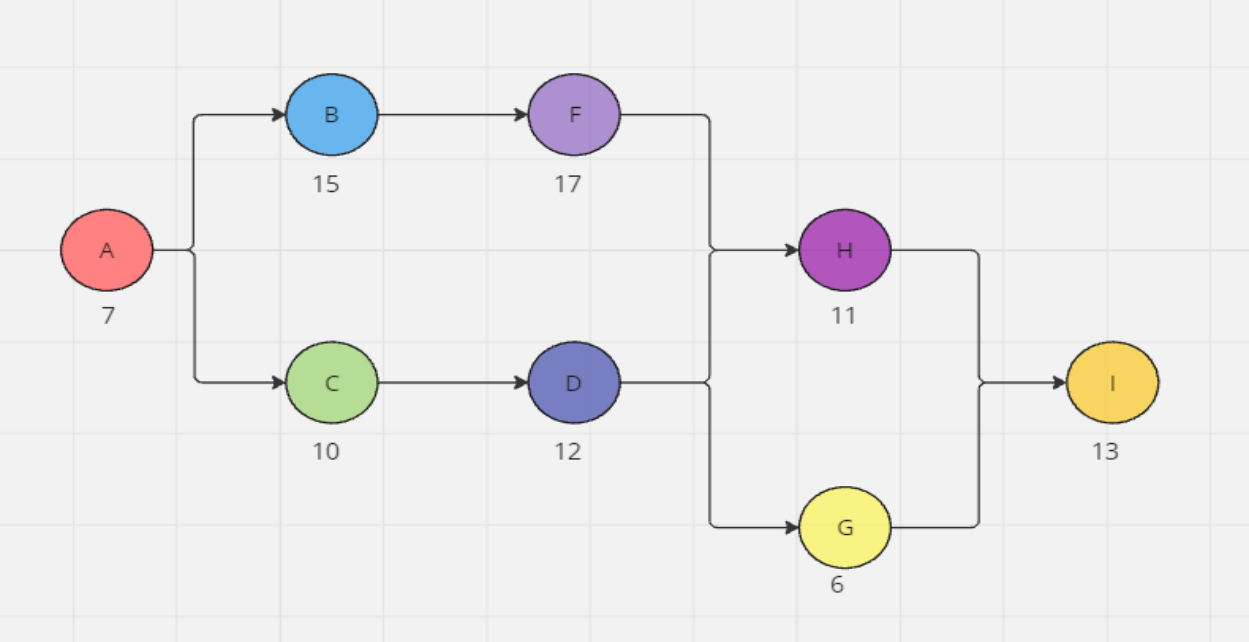
- **Identify the bottleneck:** Pinpoint the sequence of sub-steps within the task that takes the longest time.
- **Optimize the workflow:** Understand dependencies between sub-steps and streamline the overall process.
- **Improve efficiency:** Focus efforts on the most time-consuming parts of the task.

2. Problem

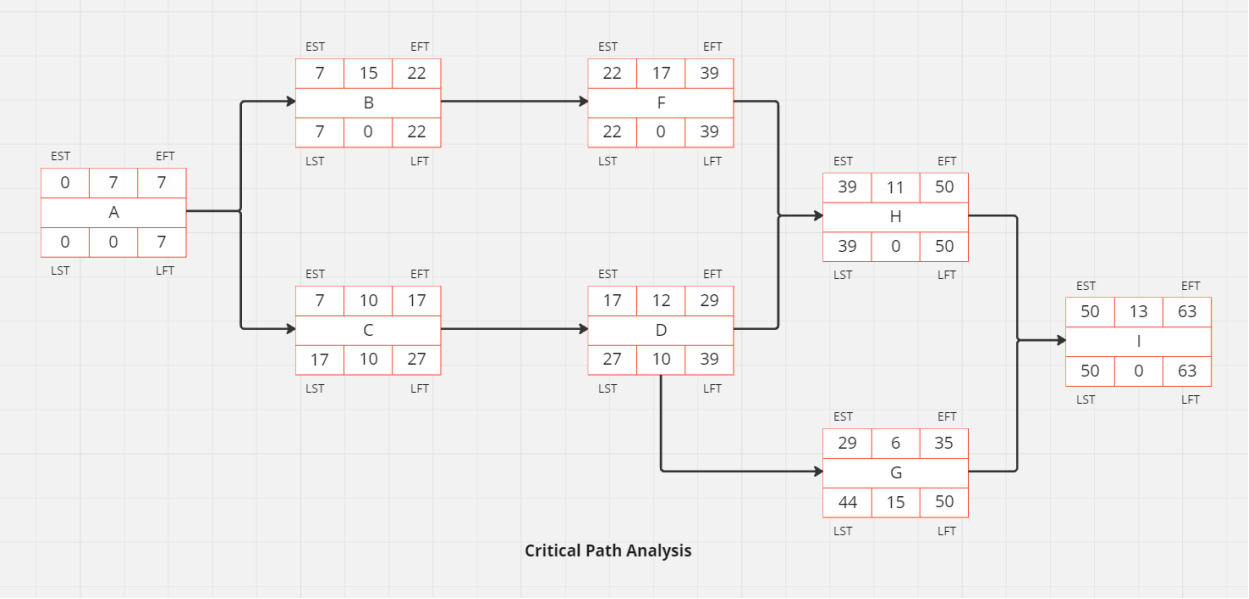
Activity	Predecessor	Duration
A	--	7
B	A	15
C	A	10
D	C	12
F	B	17
G	D	6
H	D, F	11
I	G, H	13

3. Critical Path Analysis

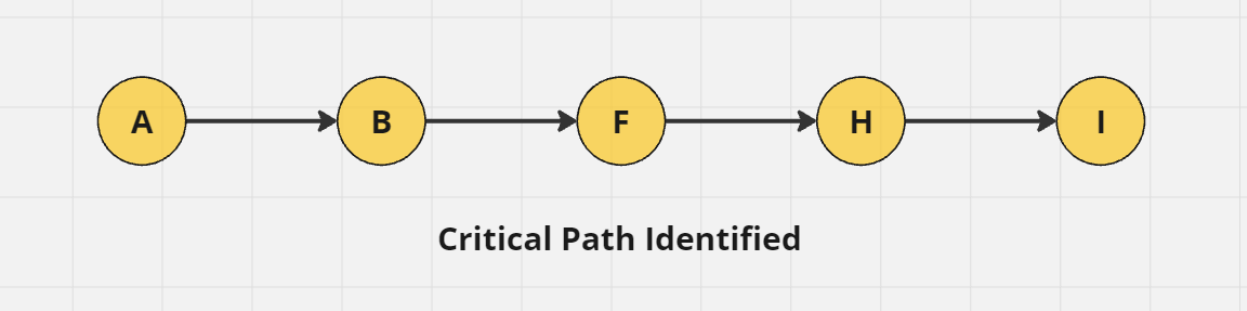
3.1 Paths Identified



3.2 Activity on Node Diagram



3.3 Critical Path



3.4 EST, LST, EFT, LFT

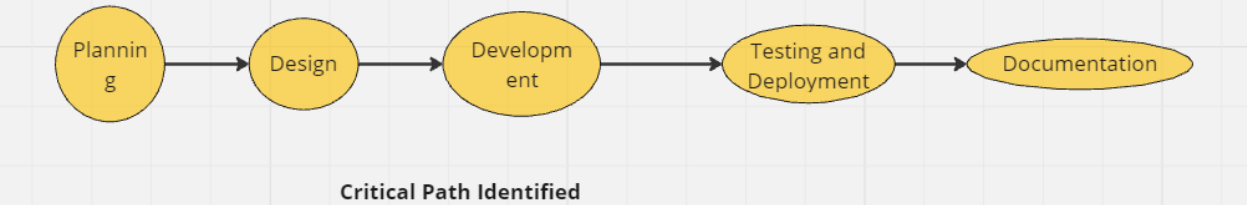
Activity	EST	LST	EFT	LFT	Slack
A	0	0	7	7	0
B	7	7	22	22	0
C	7	17	17	27	10
D	17	27	29	39	10
F	22	22	39	39	0
G	29	44	35	50	15
H	39	39	50	50	0
I	50	50	63	63	0

4. CPA for project

4.1 Activities

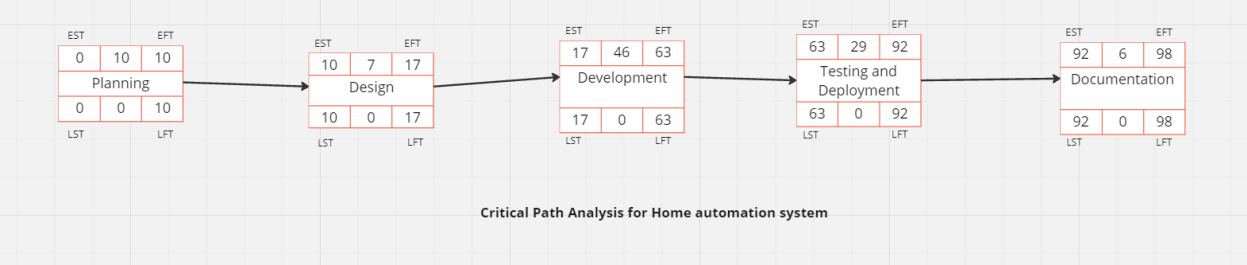
Activities	Predecessors	Duration
Planning	--	10
Design	Planning	7
Development	Design	46
Testing and Deployment	Development	29
Documentation	Testing and Deployment	6

4.2 Paths Identified



Critical Path Identified

4.3 Activity on Node Diagram



Critical Path Analysis for Home automation system