

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:

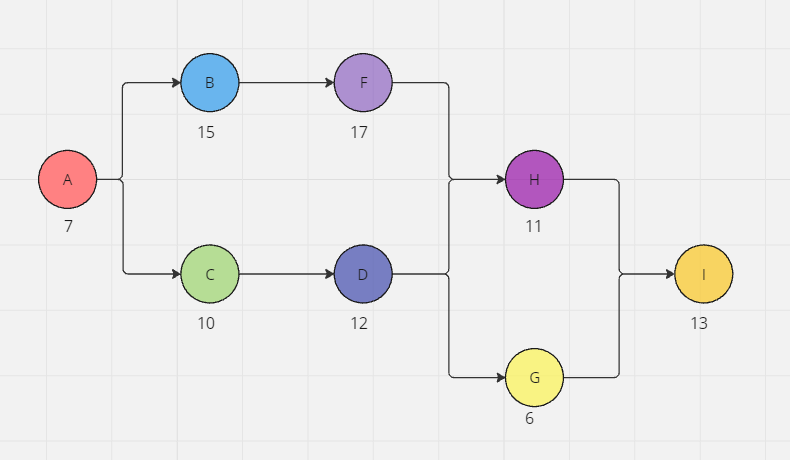
* **Identify the bottleneck:** Pinpoint the sequence of sub-steps within the task that takes the longest time.
* **Optimize the workflow:** Understand dependencies between sub-steps and streamline the overall process.
* **Improve efficiency:** Focus efforts on the most time-consuming parts of the task.

# 2. Problem

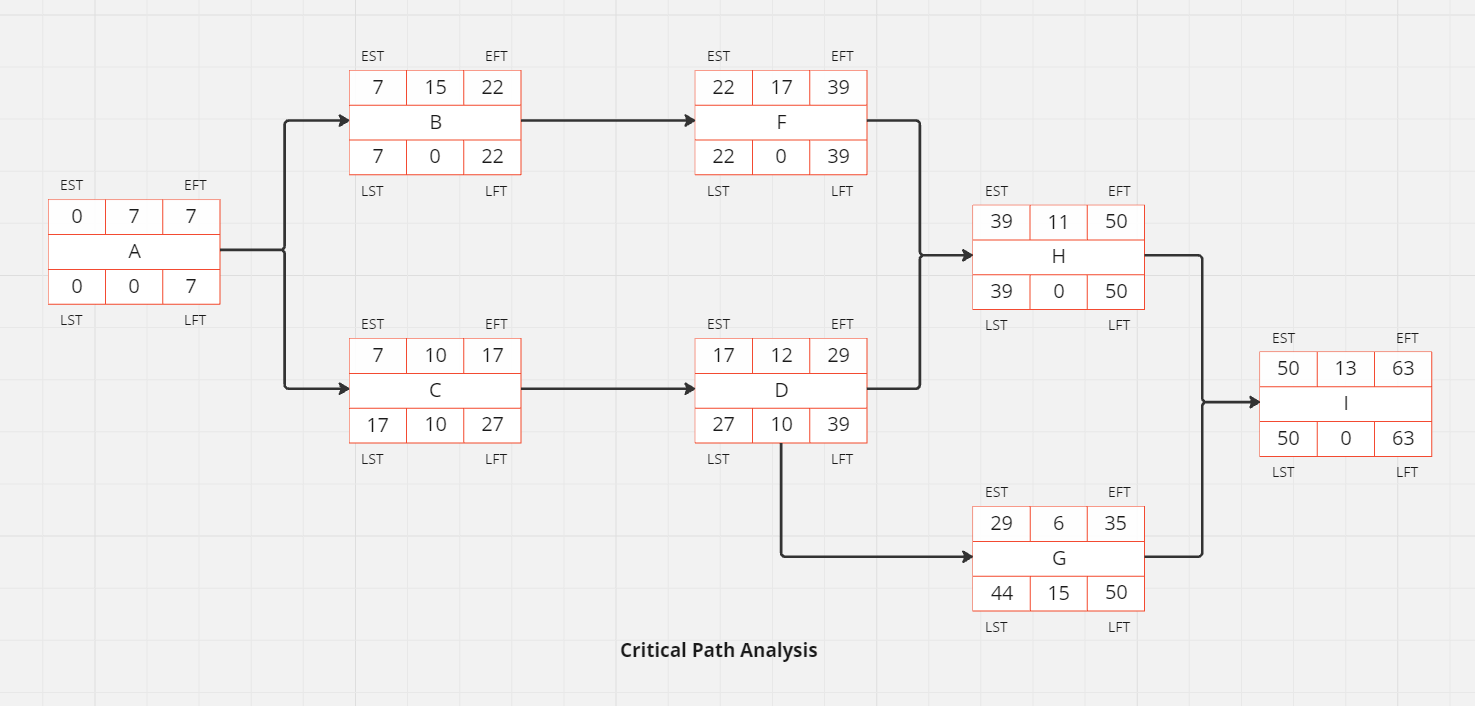
|  |  |  |
| --- | --- | --- |
| Activity | Predecessor | Duration |
| A | -- | 7 |
| B | A | 15 |
| C | A | 10 |
| D | C | 12 |
| F | B | 17 |
| G | D | 6 |
| H | D, F | 11 |
| I | G, H | 13 |

# 3. Critical Path Analysis

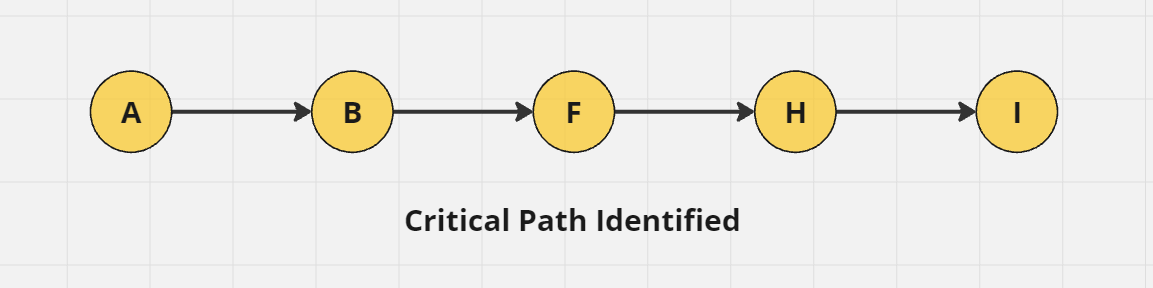
## 3.1 Paths Identified



## 3.2 Activity on Node Diagram



## 3.3 Critical Path



## 3.4 EST, LST, EFT, LFT

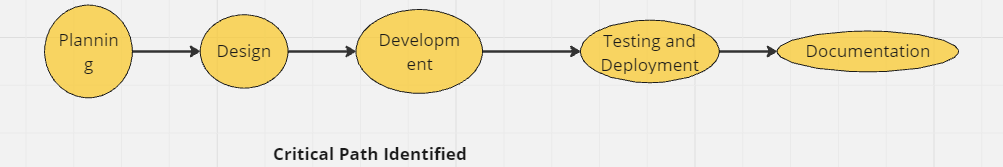
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Activity | EST | LST | EFT | LFT | Slack |
| A | 0 | 0 | 7 | 7 | 0 |
| B | 7 | 7 | 22 | 22 | 0 |
| C | 7 | 17 | 17 | 27 | 10 |
| D | 17 | 27 | 29 | 39 | 10 |
| F | 22 | 22 | 39 | 39 | 0 |
| G | 29 | 44 | 35 | 50 | 15 |
| H | 39 | 39 | 50 | 50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



## 4.3 Activity on Node Diagram

