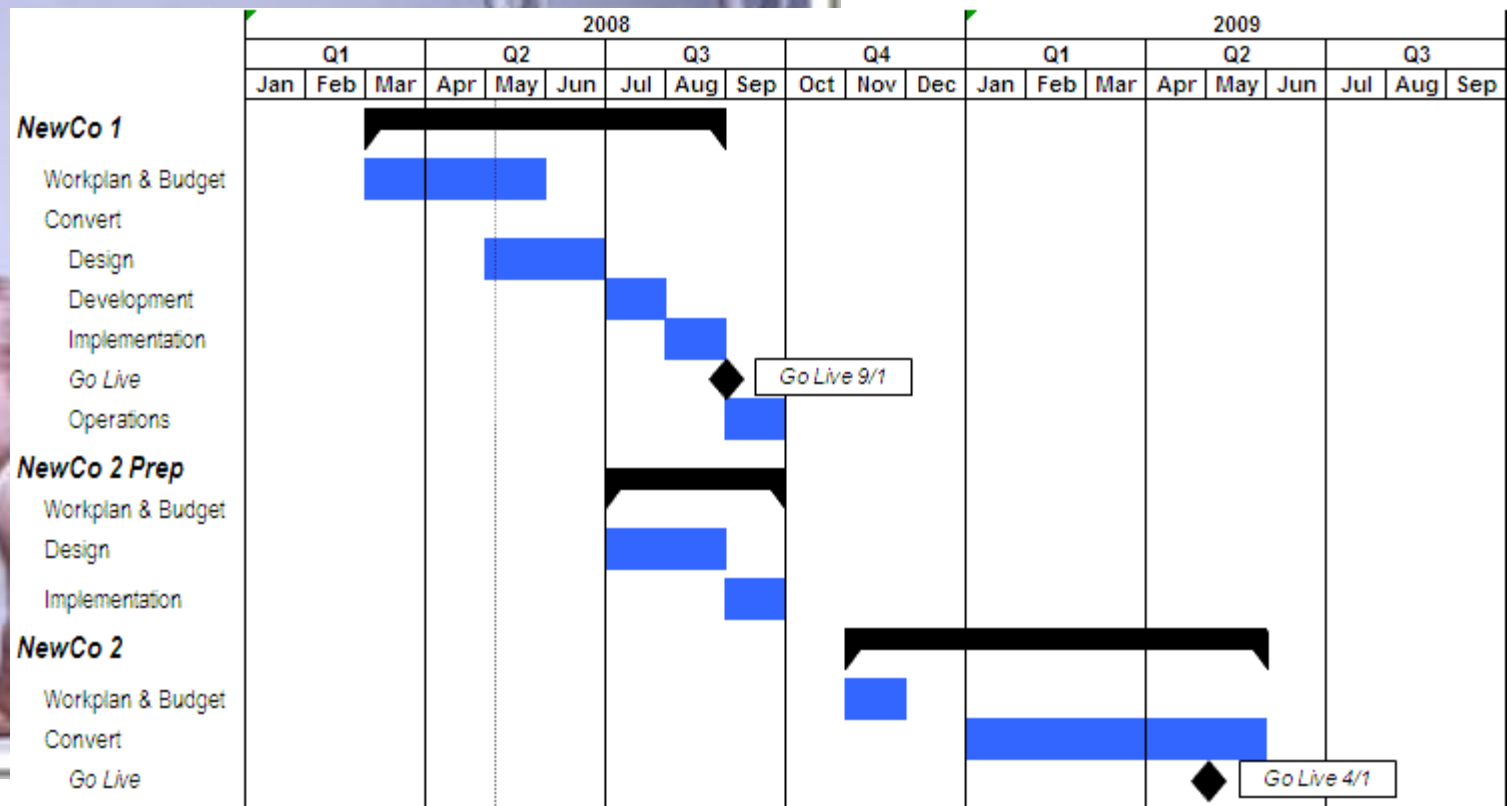# Project Time Management

Project Time Management

Project Time Management

"Doing your project without a plan is like watching television with someone else holding the remote control"- Peter Turla

"The bad news is time flies. The good news is you're the pilot." - Michael Altshuler

"I made this letter longer than usual because I lack the time to make it shorter." – Pascal

"Time is a great teacher, but unfortunately it kills all its pupils." - Hector Louis Berlioz

Project Time Management

Definition

Processes required to manage timely completion of the project.

Project Time Management

12. Define Activities [PLANNING]

13. Sequence Activities [PLANNING]

14. Estimate Activity Resources [PLANNING]

15. Estimate Activity Durations [PLANNING]

16. Develop Schedule [PLANNING]

17. Control Schedule [M&C]

Definition

Identifying the specific actions to be performed to produce the project deliverables

Define Activities

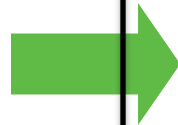| Knowledge Area	:	**Project Time Management**
Process Group	:	**Planning Process Group**

Input

1. Scope baseline
2. Enterprise environmental factors
3. Organizational process assets

Tool & Technique

1. Decomposition
2. Rolling wave planning
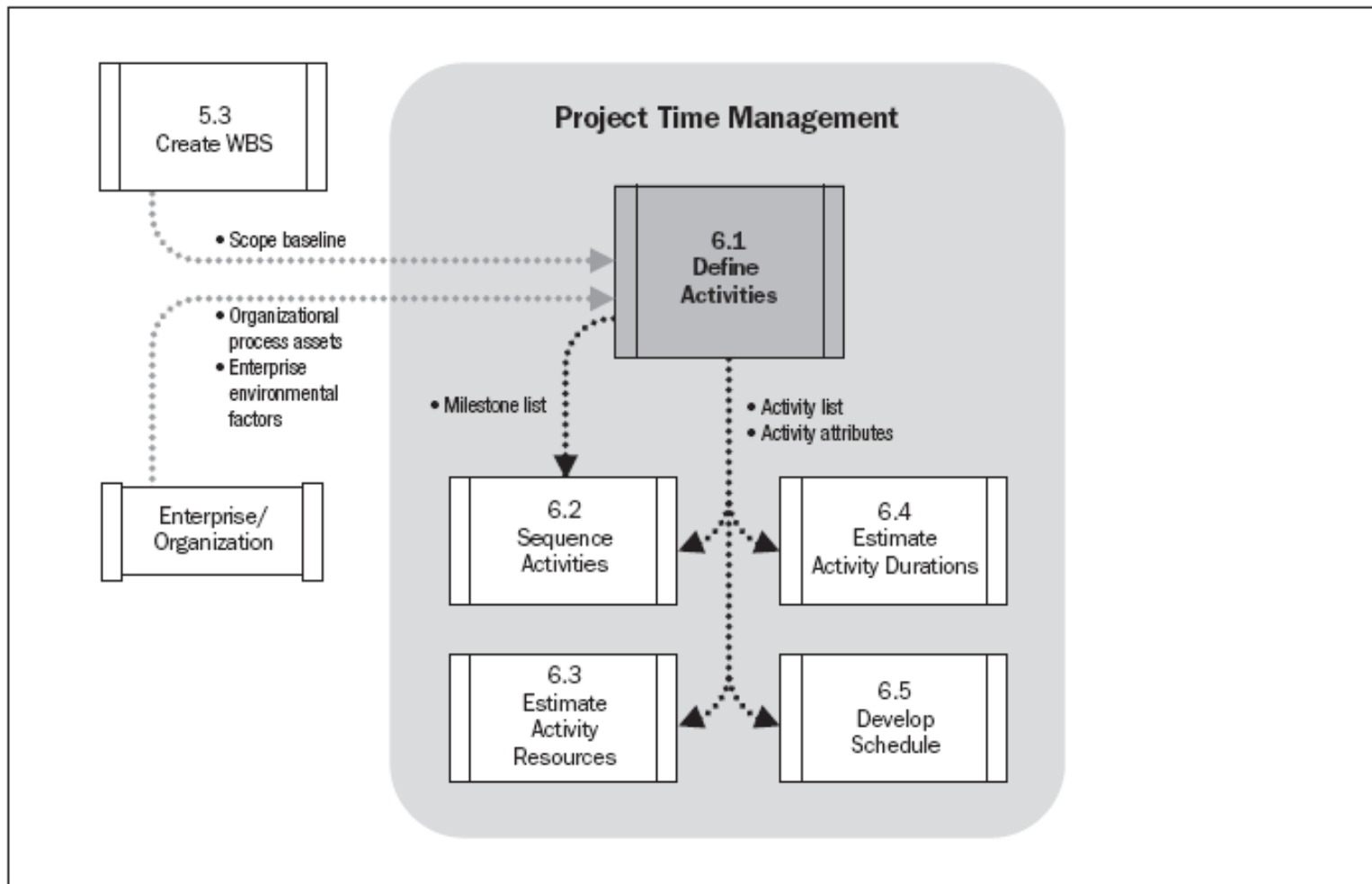3. Templates
4. Expert judgment

Output

1. Activity list
2. Activity attributes
3. Milestone list

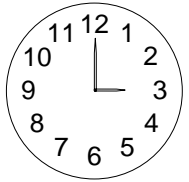**Vedavit Project Solutions**

Activity Attributes

- Dependency
- Type of dependency
- Efforts required
- Related Deadline
- Related WBS account
- Critical activity
- Type of task (fixed duration, resources, work)
- Resource & skills required
- Duration
- Lead & Lag

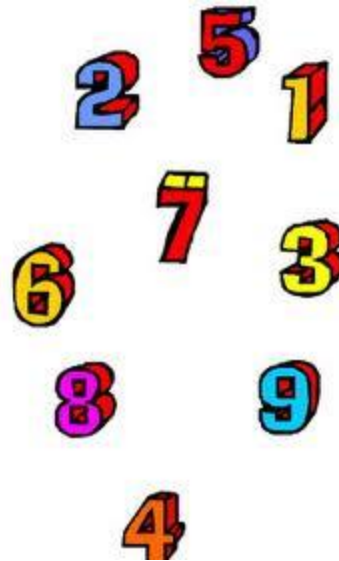**Figure 6-4. Define Activities Data Flow Diagram**

5 Minutes

- **Write activities & their attributes for previously created 2 level WBS for your project**

Definition

Identifying and documenting relationships among the project activities.

Sequence Activities

| Knowledge Area | : | **Project Time Management** |
| Process Group | : | **Planning Process Group** |

Input

1. Activity list
2. Activity attributes
3. Milestone list
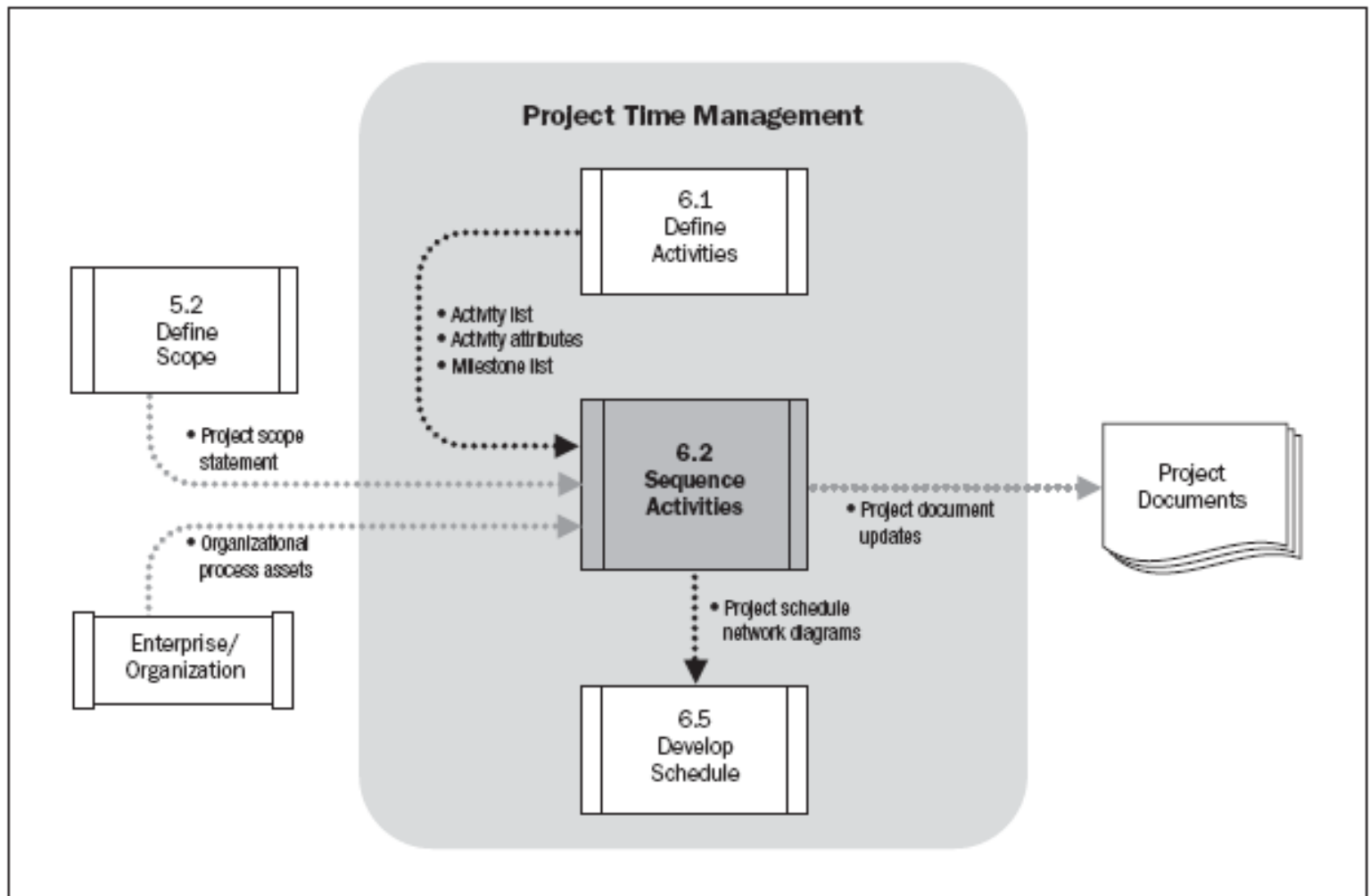4. Project scope statement
5. Organizational process assets

Tool & Technique

1. Precedence diagramming Method (PDM)
2. Dependency determination
3. Applying leads and lags
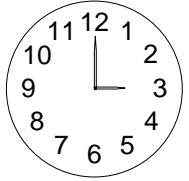4. Schedule network templates

Output

1. Project schedule network diagrams
2. Project document updates

Vedavit Project Solutions
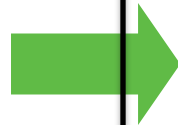
Figure 6-6. Sequence Activities Data Flow Diagram
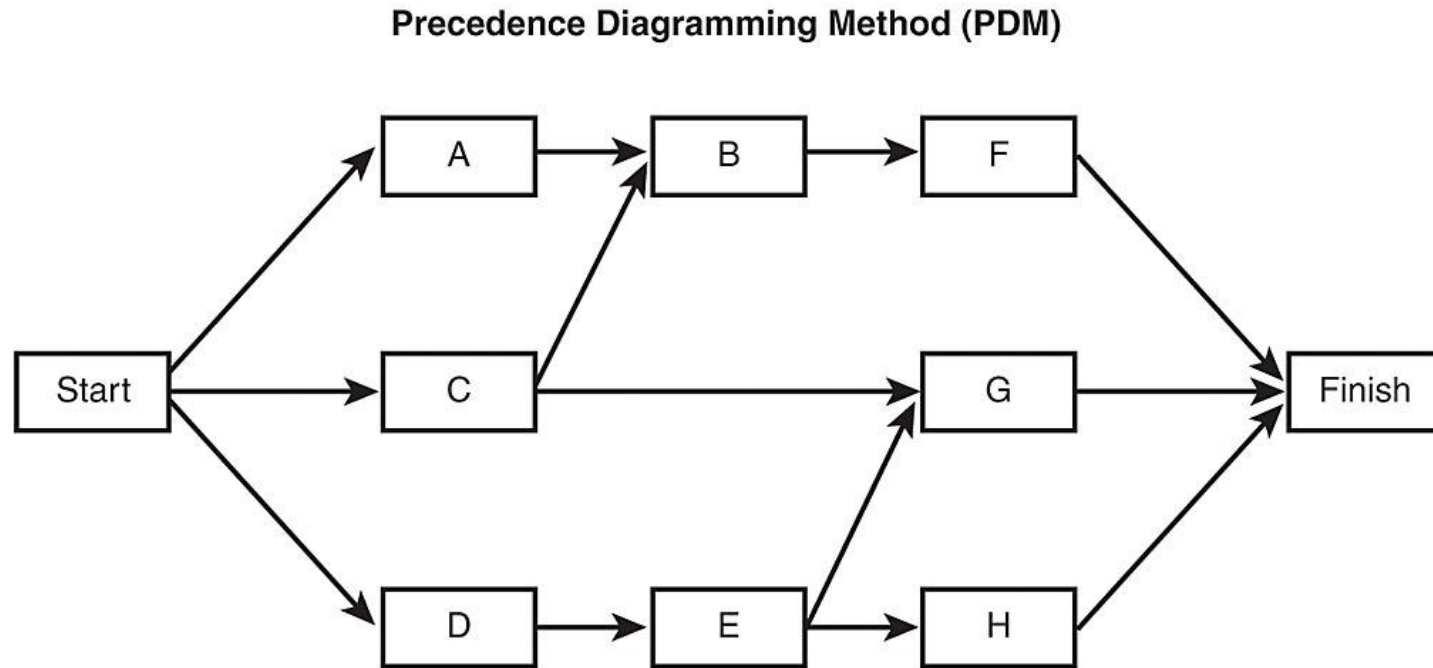
2 Minutes

- **Sequence Previously activities of your project write FS, SF, FF, SS after the activities**

Precedence Diagramming Method (PDM)
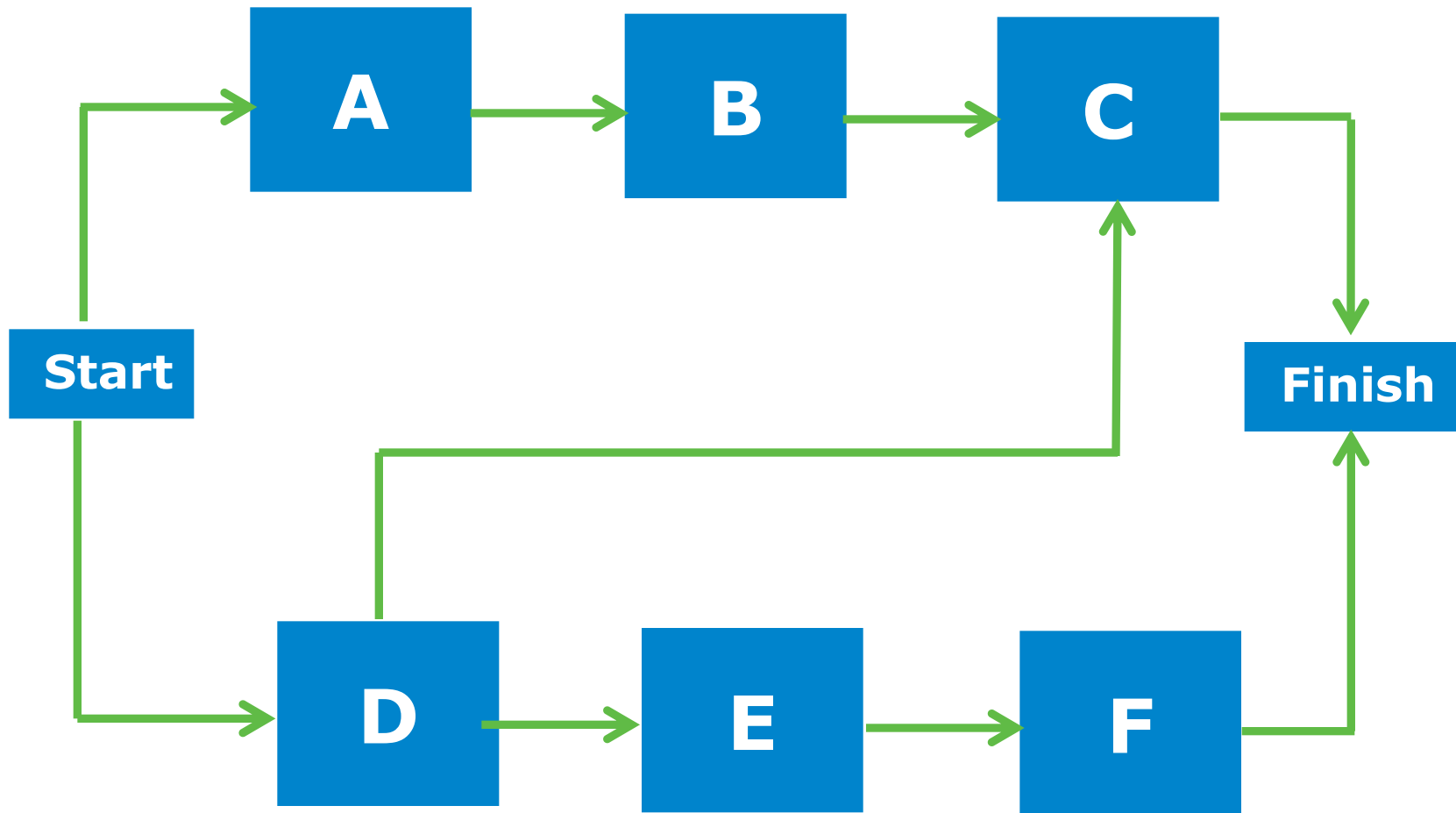

Precedence Diagramming Method (PDM)

8 Activities with 13 dependencies

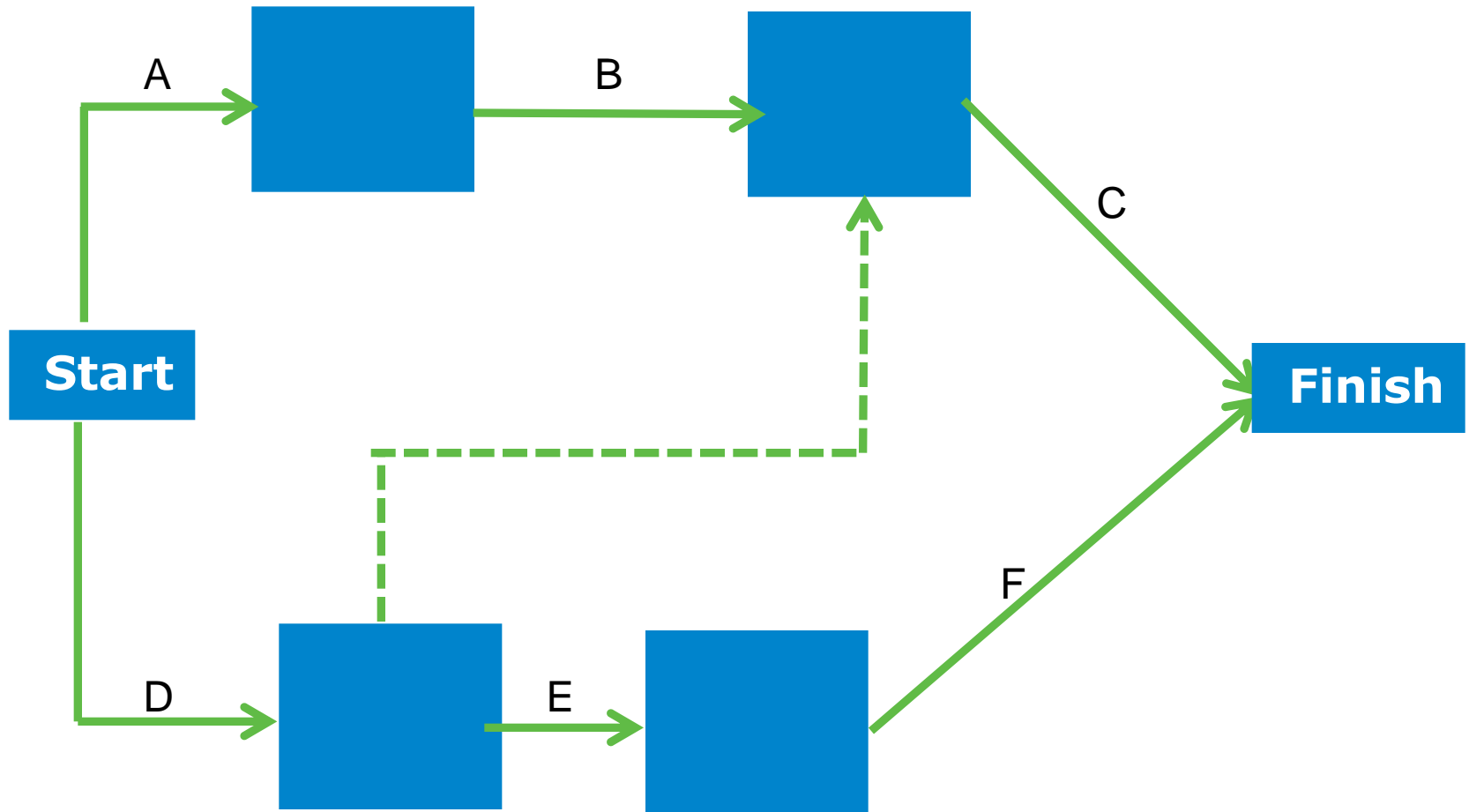**Also known as Activity on Nodes (AON)**

Network Development

Precedence Diagramming Method (AON)

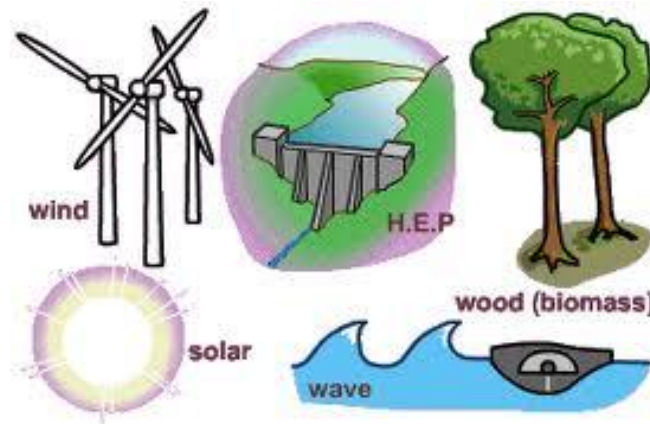# Network Development

Precedence Diagramming Method (AOA)

14. Estimate Activity Resources

Definition

Estimating the type and quantities of material, people, equipment or supplies required to perform each activity.

Estimate Activity Resources

Knowledge Area : **Project Time Management**

Process Group : **Planning Process Group**

Input	Tool & Technique	Output
1. Activity list	1. Expert judgment	1. Activity resource requirements
2. Activity attributes	2. Alternatives analysis	2. Resource breakdown structure
3. Resource calendars	3. Published estimating data	3. Project management updates
4. Enterprise environmental factors	4. Bottom-up estimating	
5. Organizational process assets	5. Project management software	

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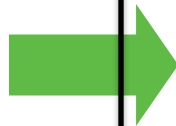
Resource Breakdown Structure

Project ABC RBS												Material	Expenses
Labor												Material	Expenses
PM (1)	Config Mgmt		Technical Leaderhsip			Dev Team				Test Team			
	Config Mgr	Rele ase Mgr	Arch (1)	UIExpert (1)	DBA (1)	Sr.Dev (4)	Jr.Dev (3)	TL (1)	Test Mgr	Tester (4)		Laptop (10 Units)	Procurement_Team
												Desktop (Units)	Systems _eam
												Leaseline (2 Mpbs)	Travel_Cost (3 People)
												Servers (2 Units	Boarding_Loding_Cost (60 Days)
													HR
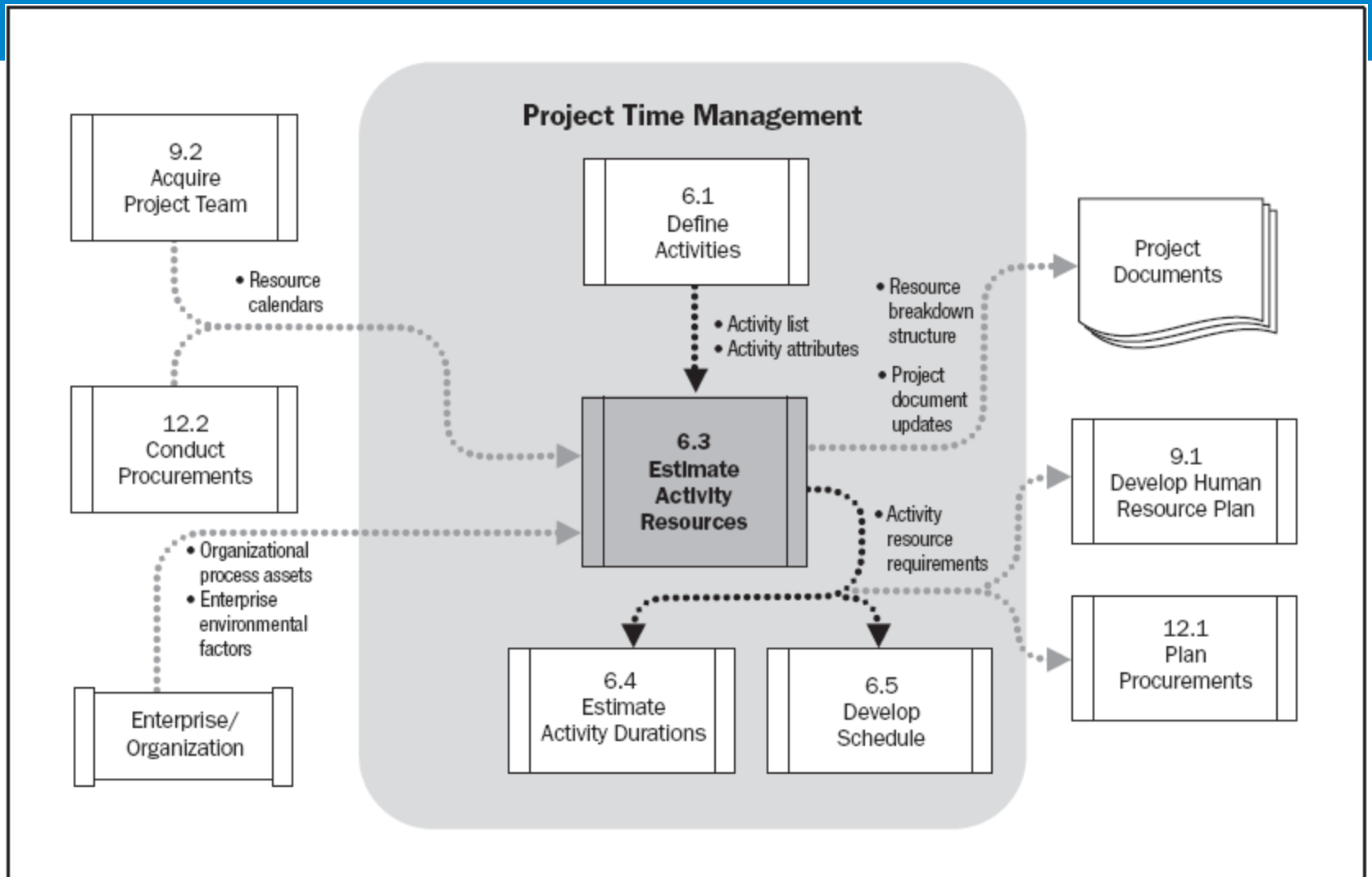
Figure 6-9. Estimate Activity Resources Data Flow Diagram

Discussion/Exercise 14
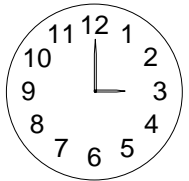
2 Minutes

- **Estimate Activity Resources for previously sequenced activities of your project**

15. Estimate Activity Durations

Definition

Approximating the number of work periods needed to complete individual activities with estimated resources.

Estimate Activity Durations

| Knowledge Area	:	**Project Time Management**
Process Group	:	**Planning Process Group**

Input

1. Activity list
2. Activity attributes
3. Activity resource requirements
4. Resource calendars
5. Project scope statement
6. Enterprise environmental factors
7. Organizational process assets
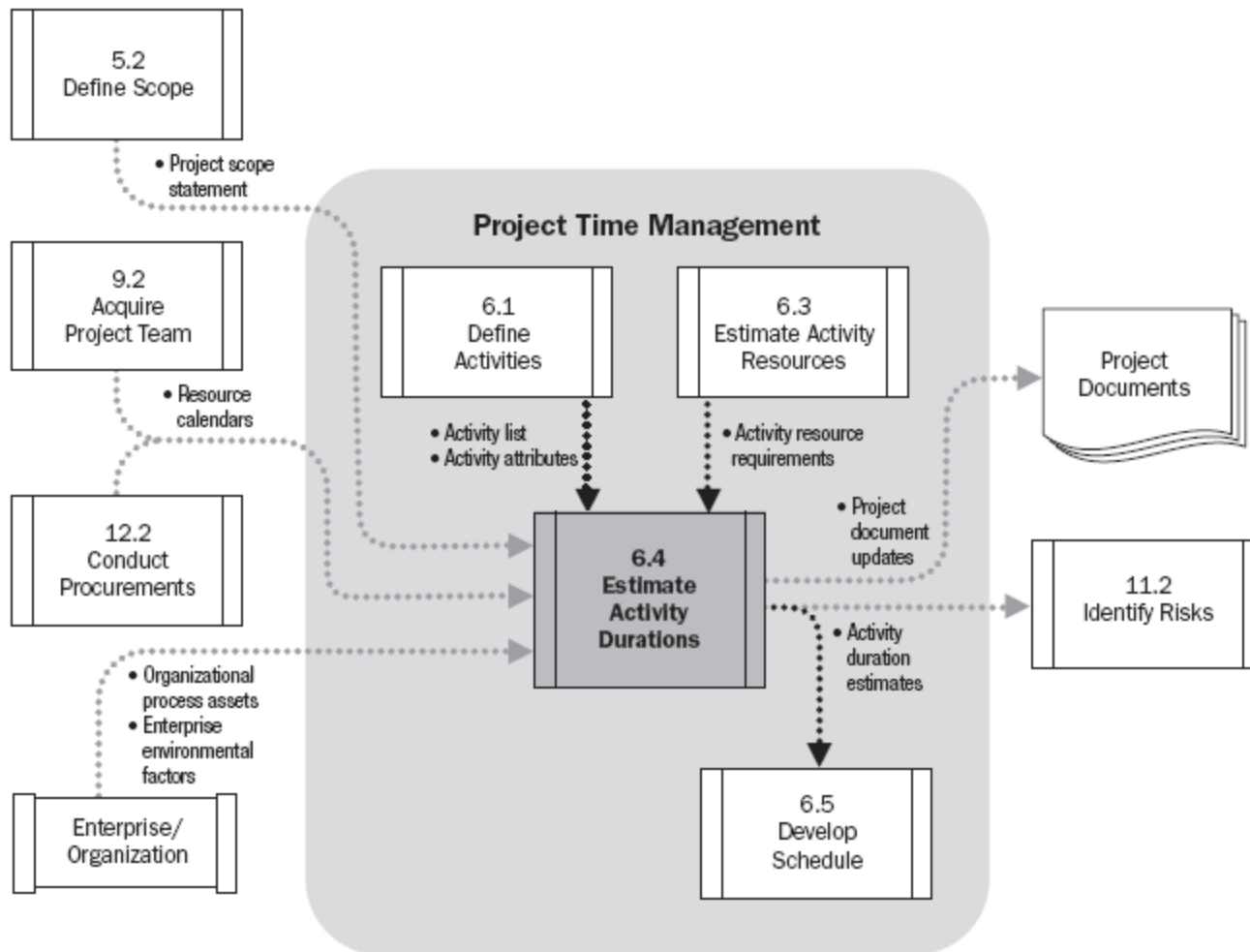
Tool & Technique

1. Expert judgment
2. Analogous estimating
3. Parametric estimating
4. Three-point estimates
5. Reserve analysis
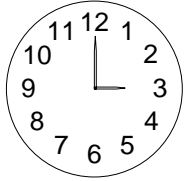
Output

1. Activity duration estimates
2. Project document updates
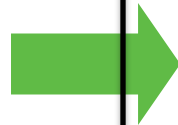
Figure 6-11. Estimate Activity Durations Data Flow Diagram

PERT – Program Evaluation and Review Technique

- PERT Estimate = (Optimistic + 4 Most Likely + Pessimistic)/6

- Standard Deviation (using PERT) = (Pessimistic-Optimistic)/6

- Variance (using PERT) = ((Pessimistic - Optimistic)/6)^2

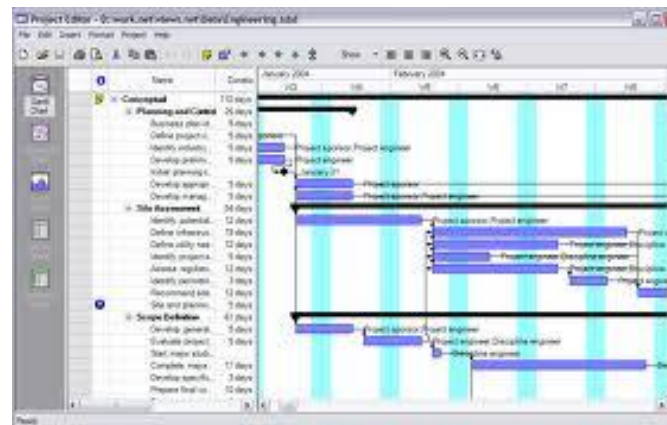# Discussion/Exercise 15

5 Minutes

- **Estimate Activity Duration for activities where resources are identified**

16. Develop Schedule

Definition

Analyzing activity sequences, durations, resource requirements and schedule constraints to create the project schedule.

Develop Schedule

| Knowledge Area	:	**Project Time Management**
Process Group	:	**Planning Process Group**

Input

1. Activity list
2. Activity attributes
3. Project schedule network diagrams
4. Activity resource requirements
5. Resource calendars
6. Activity duration estimates
7. Project scope statement
8. Enterprise environmental factors
9. Organizational process assets

Tool & Technique

1. Schedule network analysis
2. Critical path method
3. Critical chain method
4. Resource leveling
5. What-if scenario analysis
6. Applying leads and lags
7. Schedule compression
8. Scheduling tool

Output

1. Project schedule
2. Schedule baseline
3. Schedule data
4. Project document updates

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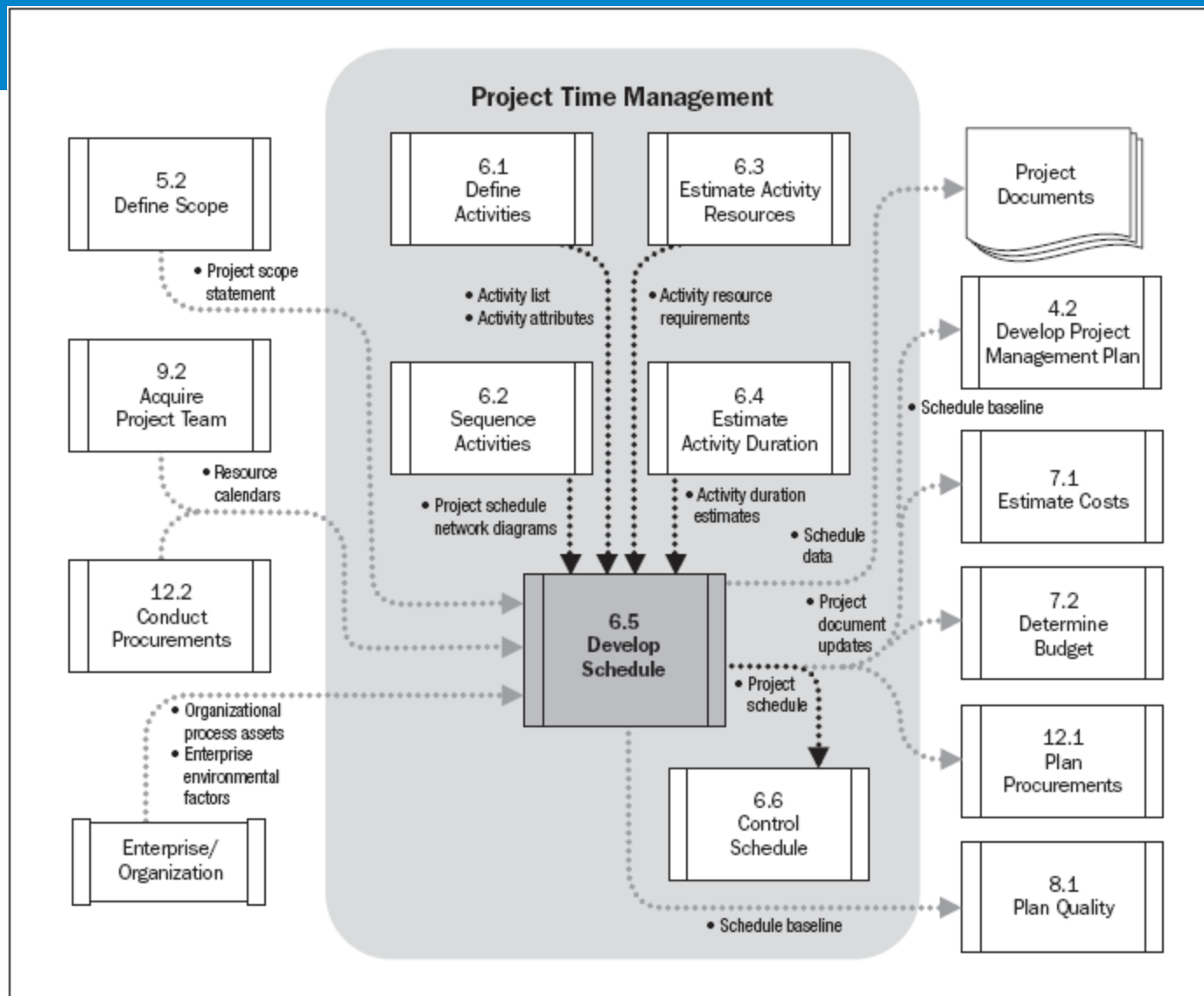
Figure 6-13. Develop Schedule Data Flow Diagram

Critical Path Method

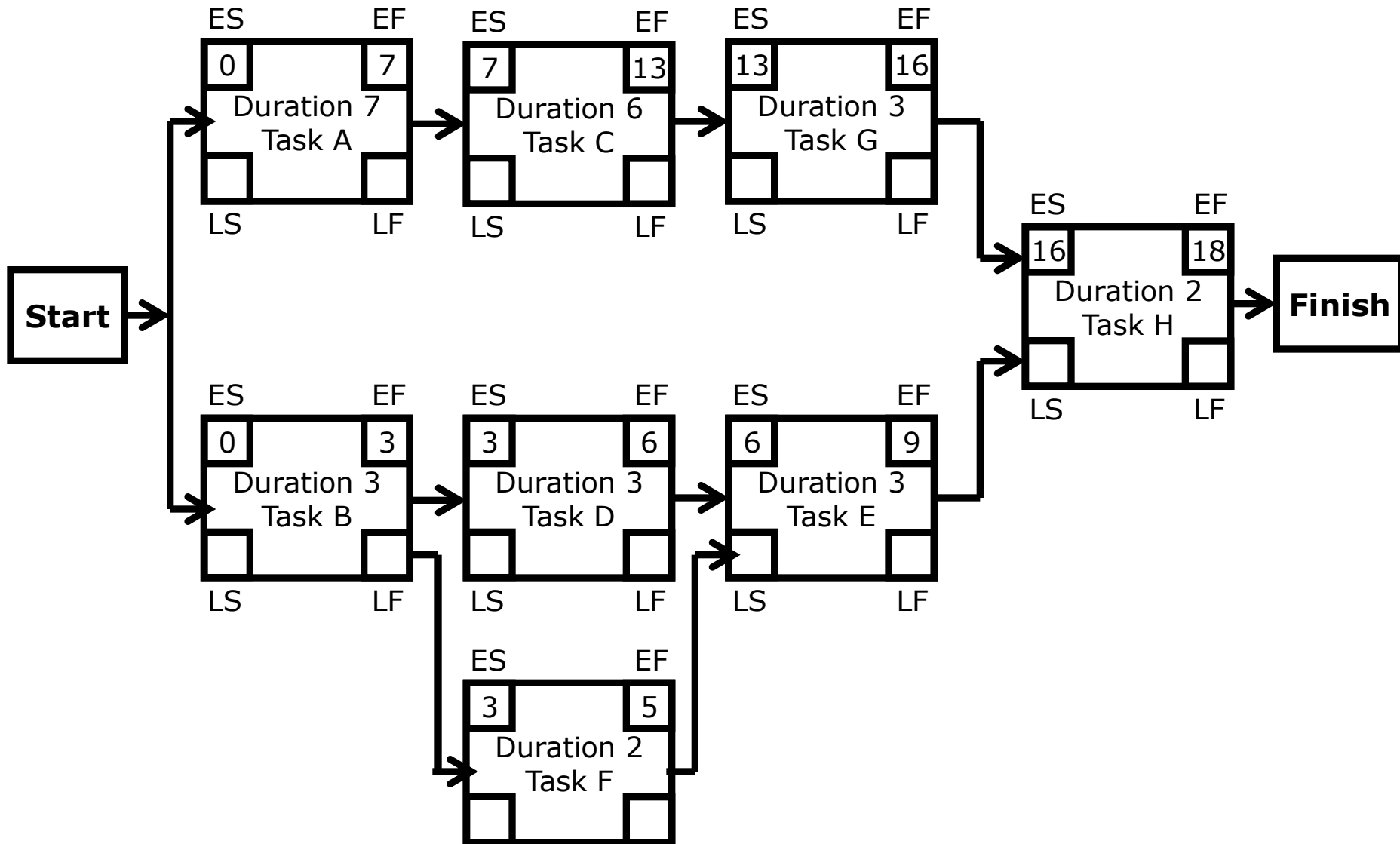**Critical Path method is a planning technique that is used to demonstrate and view the chronological activities of a program or project, and identifies any possible timing risks and can be used to establish the least amount of time to complete a project.**
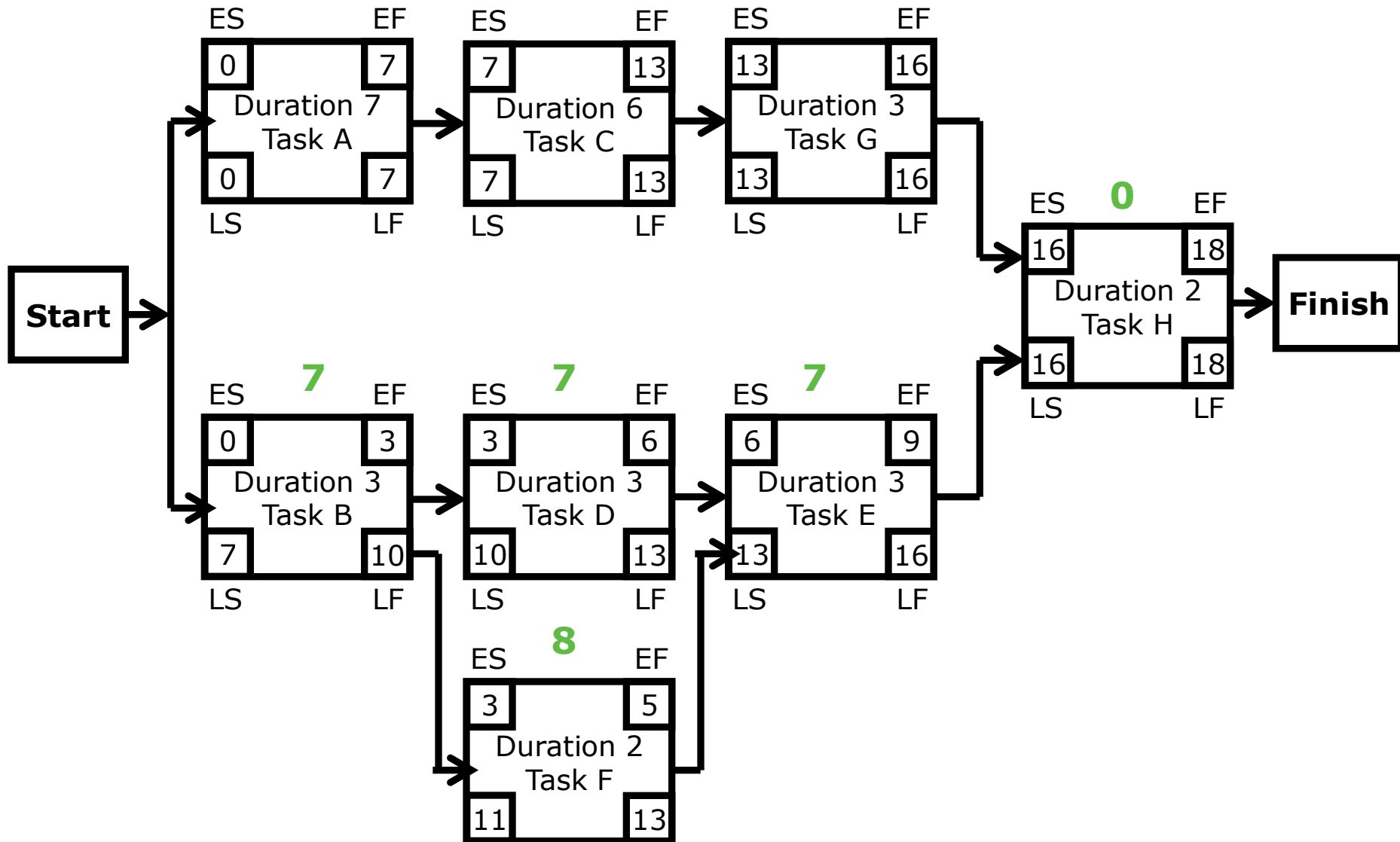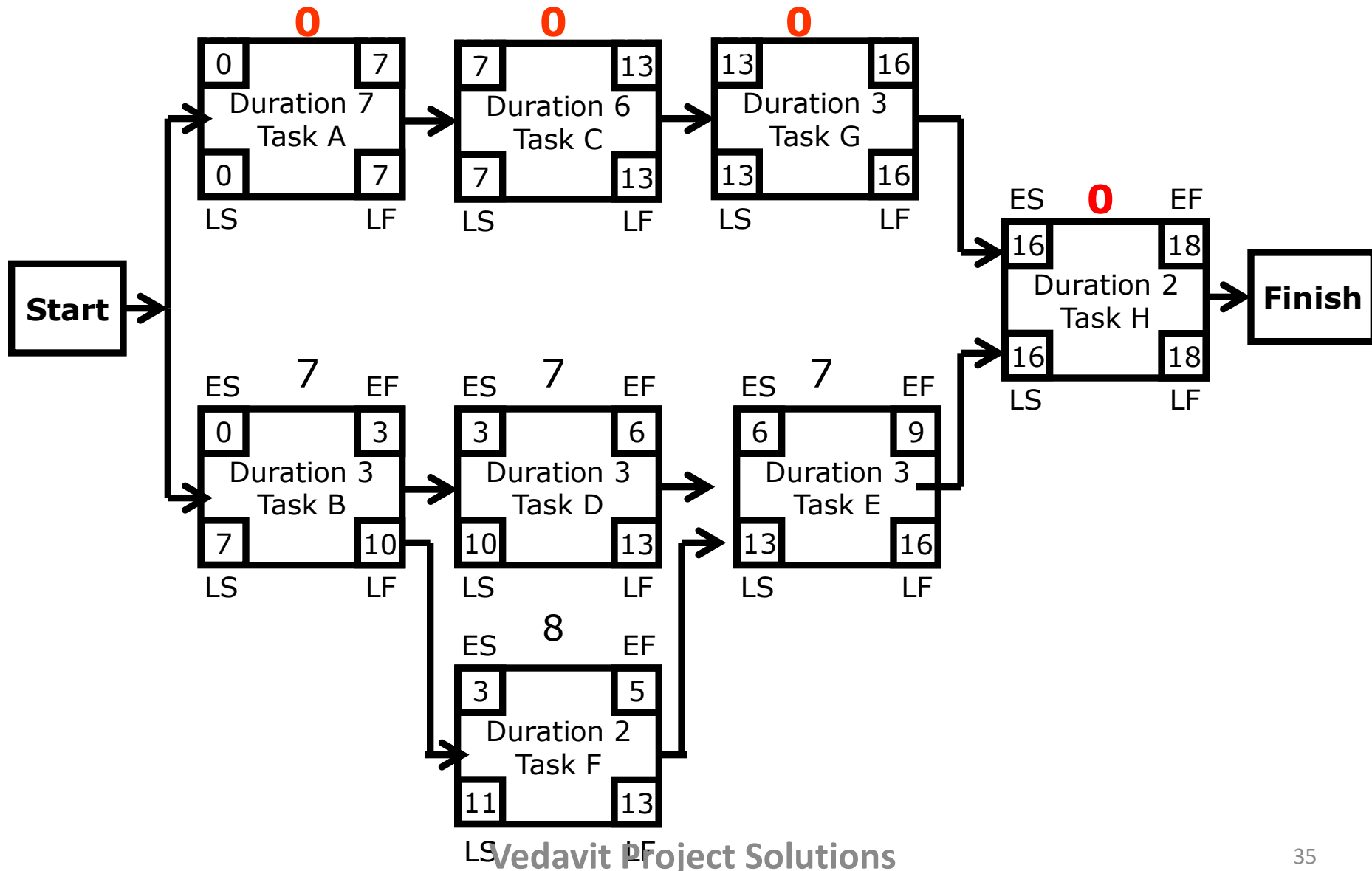
Critical Path
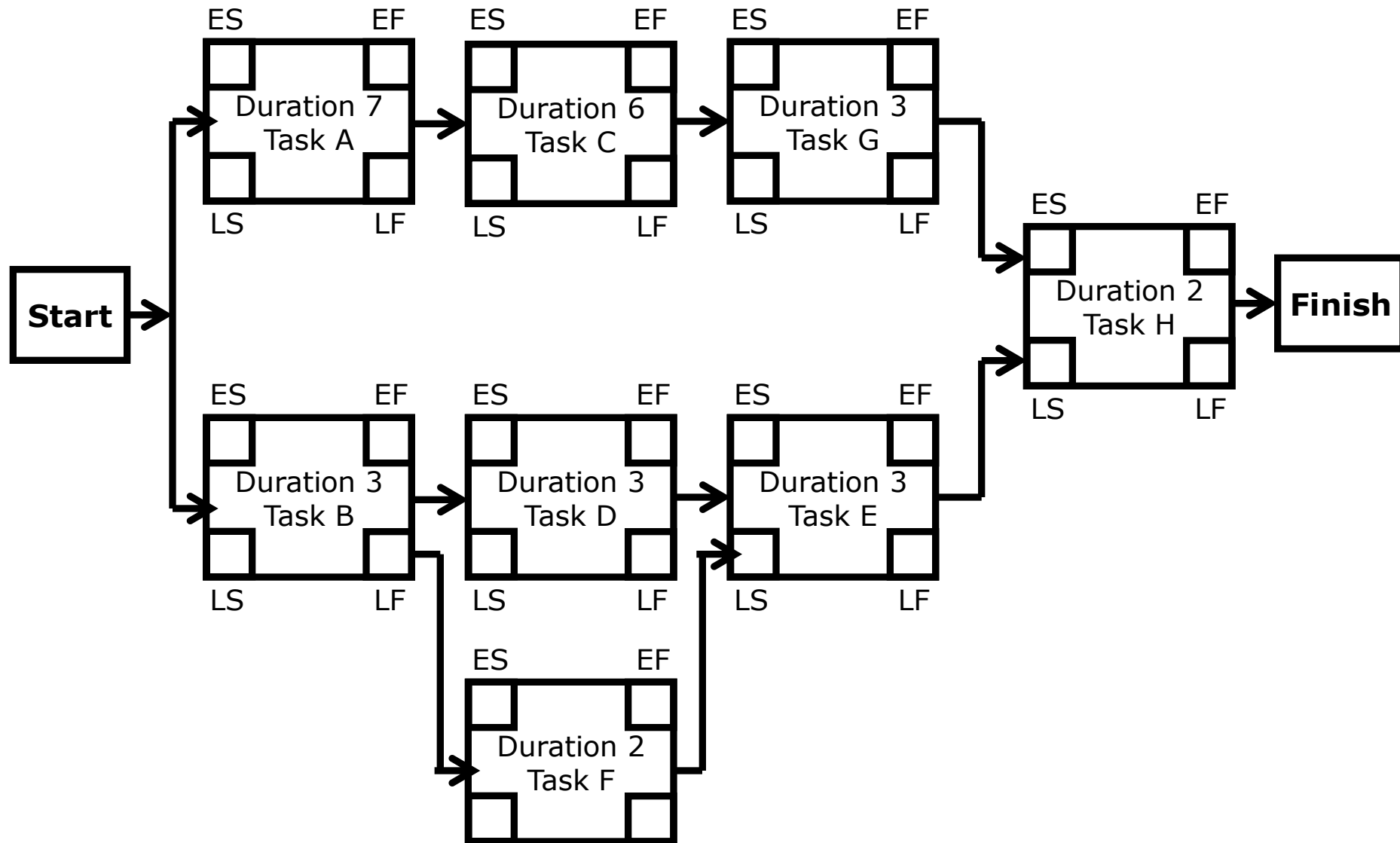
Forward Pass – Early Start, Early Finish

Backward Pass – Late Start, Late Finish

Critical Path – Longest Path, Zero Float

Discussion/Excertise-16

5 Minutes

Start

ES		EF
	Duration 4 Task A	
LS		LF

ES		EF
	Duration 4 Task B	
LS		LF

ES		EF
	Duration 3 Task C	
LS		LF

ES		EF
	Duration 7 Task D	
LS		LF

ES		EF
	Duration 10 Task G	
LS		LF

Finish

ES		EF
	Duration 5 Task E	

ES		EF
	Duration 5 Task F	
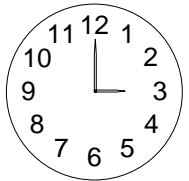
Vedavit Project Solutions
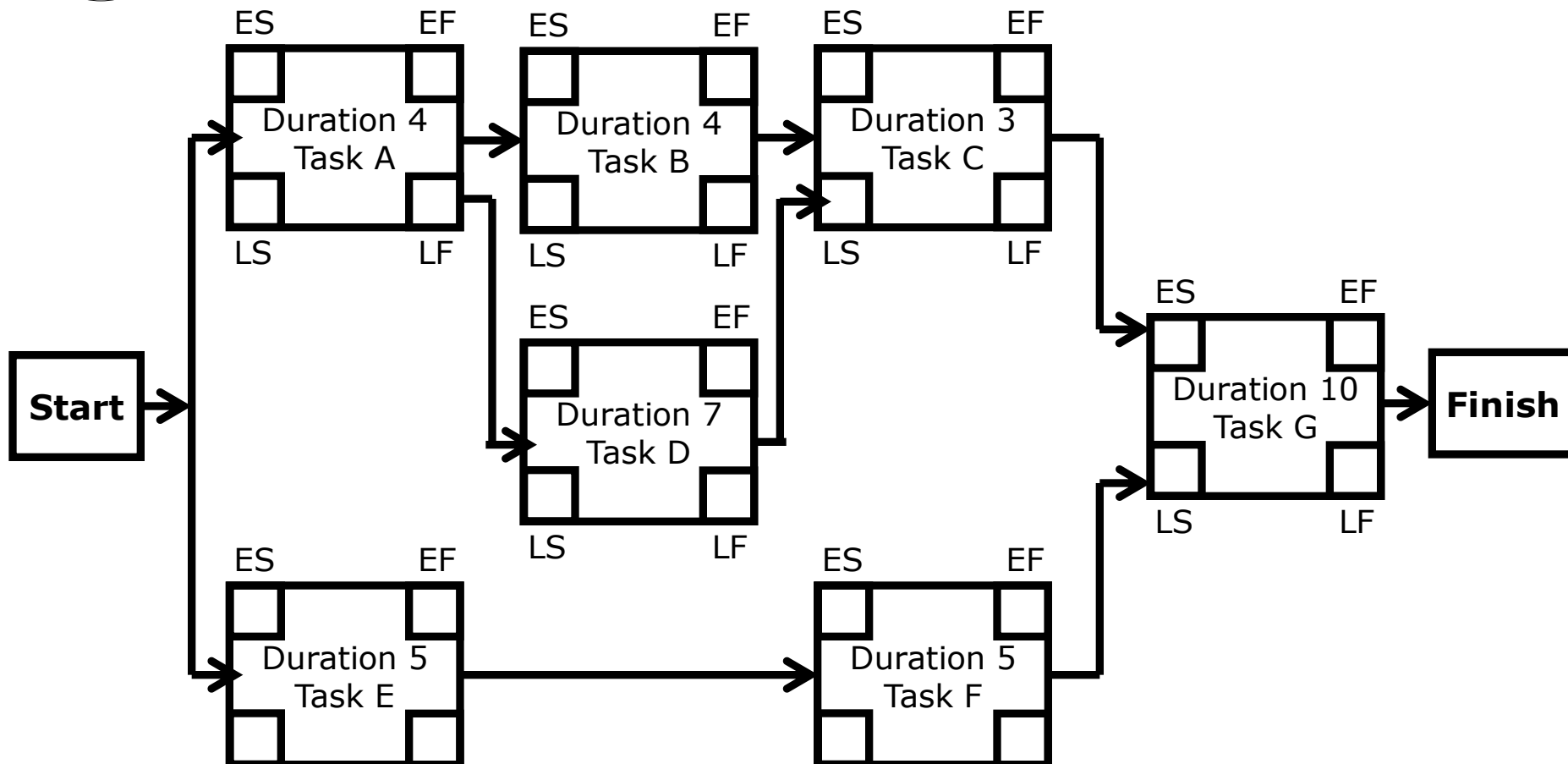
Network Exercise - solution
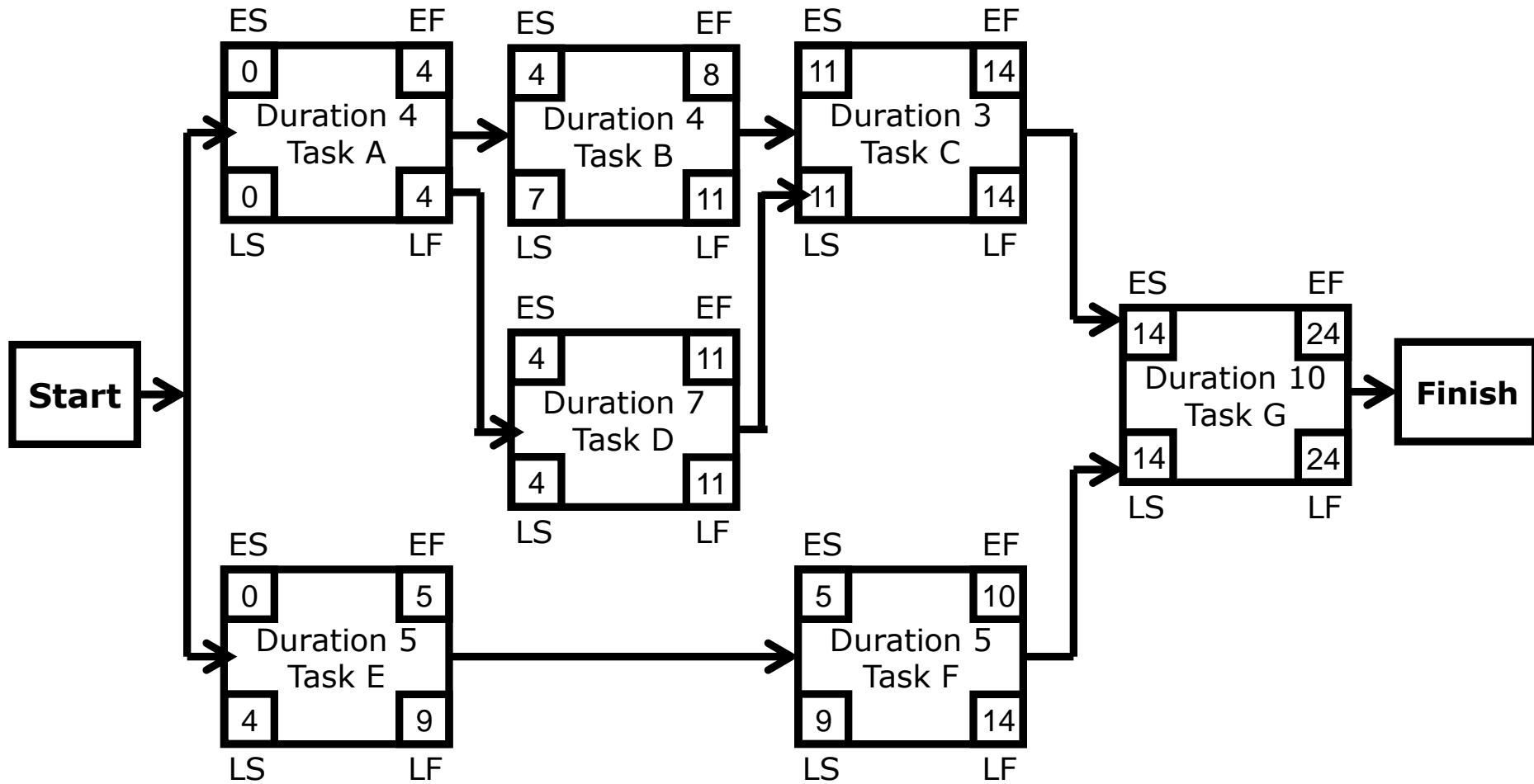
Critical Path : ADCG

Facts/Tips for Critical Path

- Total Float is the amount of time the task can delayed without delaying the project finish date.
- Free float is the amount of time a task can slip without delaying the early start of any task that immediately follows it
- It is possible that a zero float activity may not be on critical path
- Longest path & shortest time possible to complete the project
- A project can multiple critical paths
- Difference between late and early is float
- Positive float (the activity can wait to start even after previous activity finishes)
- Negative float (the activity must start before previous finishes)
- Zero float (the activity must immediately start after the finish of previous one)
- Crashing activities to short the overall duration of project
- Fast-tracking activities to short the overall duration of project
- Be cautious that non-critical activity is not being delayed than the allowed free float
- Take care of sub-critical path or non-critical path
- Manage critical path resources very closely
- Do not overload critical path activity resources
- Avoid multitasking for resources working on critical path activities

Benefits of PERT/CPM

It Provides following information

- Expected Project completion time

- Probability of completion before a specified date

- The critical path activities that directly impact the completion time

- The activities that have slack time and that can lend resources to critical path activities

- Activity start and end dates

Definition

Monitoring the status of the project to update project progress and manage changes to the schedule baseline

Control Schedule

Knowledge Area	:	**Project Time Management**
Process Group	:	**Monitoring & Controlling Process Group**

Input

1. Project management plan
2. Project schedule
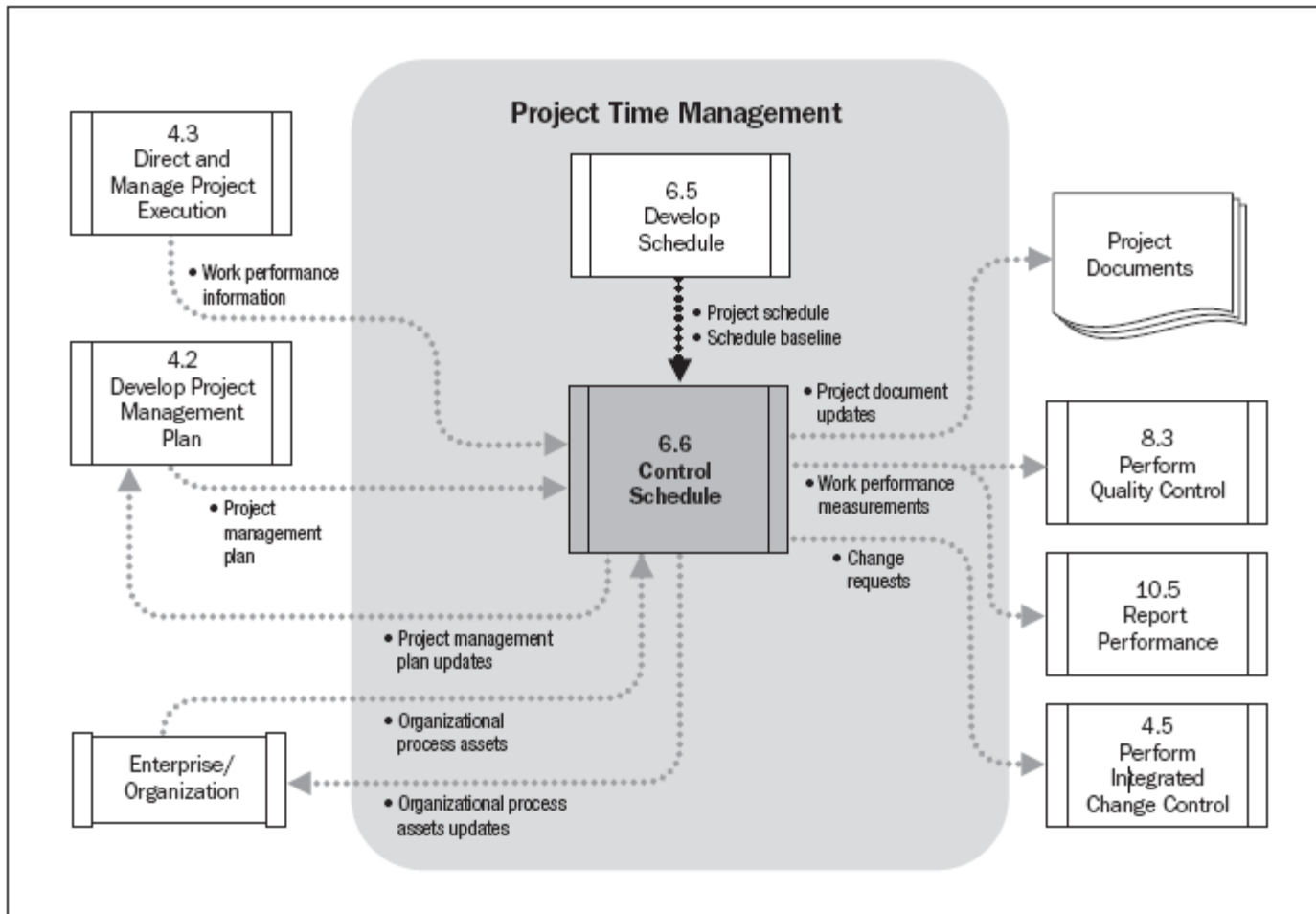3. Work performance information
4. Organizational process assets

Tool & Technique

1. Performance reviews
2. Variance analysis
3. Project management software
4. Resource leveling
5. What-if scenario analysis
6. Adjusting leads and lags
7. Schedule compression
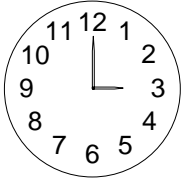8. Scheduling tool

Output

1. Work performance measurements
2. Organizational process assets updates
3. Change requests
4. Project management plan updates
5. Project document updates

Figure 6-16. Control Schedule Data Flow Diagram

Discussion/Exercise 17

- **Write work performance measures and their values of your project with respect to Schedule Management**

Questions & Discussions !