

Date: 21/08/2025**Lab Practical #09:**

Develop a project schedule using PERT.

Practical Assignment #09:

Identify project milestones. Estimate optimistic, pessimistic, and most likely times for each task. Calculate the expected duration and develop a PERT analysis.

Description:**Step 1- Identity project Milestones and tasks**

For a Courier Management System (CMS) project, the key milestones could include:

1. Requirement Gathering
2. System Design
3. Database & API Development
4. User & Branch Management Module
5. Order Booking & Label Generation
6. Shipment Tracking & GPS Integration
7. Route Optimization & Dispatch Module
8. Payment & Billing Module
9. Testing
10. Deployment & Training

Step 2: Estimate Optimistic, Pessimistic, and Most Likely Times

Task	Optimistic Time (O)	Most Likely Time (M)	Pessimistic Time (P)
1. Requirement Gathering	4 days	6 days	9 days
2. System Design	6 days	9 days	13 days
3. Database & API Development	7 days	11 days	16 days
4. User & Branch Management Module	5 days	8 days	12 days
5. Order Booking & Label Generation	4 days	7 days	10 days
6. Shipment Tracking & GPS Integration	7 days	12 days	18 days
7. Route Optimization & Dispatch Module	8 days	13 days	20 days
8. Payment & Billing Module	5 days	8 days	12 days
9. Testing	7 days	10 days	14 days

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10. Deployment	3 days	5 days	7 days
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Step 3: Calculate Expected Duration (TE)

Using the PERT formula: $TE = (O + 4M + P)/6$

1. **Requirement Gathering:** 6.17 days
2. **System Design:** 9.17 days
3. **Database & API Development:** 11.17 days
4. **User & Branch Management Module:** 8.17 days
5. **Order Booking & Label Generation:** 7.00 days
6. **Shipment Tracking & GPS Integration:** 12.17 days
7. **Route Optimization & Dispatch Module:** 13.33 days
8. **Payment & Billing Module:** 8.17 days
9. **Testing:** 10.17 days
10. **Deployment:** 5.00 days

Step 4: PERT Chart Data Structure

Task Name	Optimistic (O)	Most Likely (M)	Pessimistic (P)	Expected Duration (TE)
Requirement Gathering	4 days	6 days	9 days	6.17 days
System Design	6 days	9 days	13 days	9.17 days
Database & API Development	7 days	11 days	16 days	11.17 days
User & Branch Management Module	5 days	8 days	12 days	8.17 days
Order Booking & Label Generation	4 days	7 days	10 days	7.00 days
Shipment Tracking & GPS Integration	7 days	12 days	18 days	12.17 days
Route Optimization & Dispatch Module	8 days	13 days	20 days	13.33 days
Payment & Billing Module	5 days	8 days	12 days	8.17 days

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Testing	7 days	10 days	14 days	10.17 days
Deployment	3 days	5 days	7 days	5.00 days