**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 |
| 10. Deployment | 3 days | 5 days | 7 days |

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