**1 - Work Breakdown Structure (WBS)**

1. Time Management System (TMS)

1.1. Initiation

1.1.1 Project Charter

1.1.1.1. Project purpose and justification

1.1.1.2 Business Case

1.1.1.3 Agreements

1.1.2 Stakeholder Register

1.1.2.1. Develop team

1.1.2.2. Project Management

1.1.2.3. Sponsor

1.2. Definition

1.2.1 Software Requirements Specification (SRS)

1.2.2 Definition Scope project

1.2.3 Definition Risk project

1.2.4 Definition Schedule project

1.2.5 Definition Quality project

1.2.6 Definition Human Resource project

1.2.7 Get approved by Stakeholder.

1.3 Solution

1.3.1 Analysis requirement

1.3.1.1 Create uses case diagram

1.3.1.2 Wireframe

1.3.1.3 Screen Flow

1.3.2 Design

1.3.2.1 Design Architecture

1.3.2.2 Design UI/UX

1.4 Construction

1.4.1 Coding

1.4.1.1 Implement module User Maintenance

1.4.1.2 Implement module Daily Timesheet Report and Weekly Timesheet Approval

1.4.1.3 Implement module Project List Maintenance

1.4.1.4 Implement module Report: Generate report on timesheets

1.4.2 Testing

1.4.2.1 Testing module User Maintenance

1.4.2.2 Testing module Daily Timesheet Report and Weekly Timesheet Approval

1.4.2.3 Testing module Project List Maintenance

1.4.2.4 Testing module Report

1.4.3 Deployment

1.4.3.1 User Acception Testing

1.4.4 Config Management

1.4.4.1 Control scope

1.4.4.2 Validate Scope

1.4.4.3 Control and monitoring Risk

1.5 Transition

1.5.1 Project Management

1.5.2 Support

1.5.2.1 User Guideline Document

1.5.2.2 User Support Document

1.6 Termination

1.6.1 Post Mortem Report

1.6.2 Final Project Report

**Request 2 - Milestones and Deliverables.**

1.

**The deliverable is** Project Chapter Report and Stakeholder Register and the milestones is complete Initiation stage;

**Explanation:**

Specific: This milestone is specified for initiating process

Measurable: Its measurable by tracking 2 complete deliverable

Attainable: Its attainable when completed 2 deliverable

Relevant: Yes. Its relevant

Time bound**:** It had 1 week to complete

2. **The deliverable is** Project Plan Management and the milestones is complete definition stage;

**Explanation:**

Specific: This milestone is specified for definition process

Measurable: It measurable by tracking Project Plan Management deliverable

Attainable: Its attainable when completed Project Plan Management Deliverable

Relevant: Yes. Its relevant

Time bound: It had 2 weeks to complete

3. **The deliverable is** SRS, Use case Diagram, UI/UX Design, Architecture Design and **the milestones is** complete Solution stage:

**Explanation:**

Specific: This milestone is specified for solution process

Measurable: It measurable by tracking for 4 completed deliverable.

Attainable: Its attainable when completed 4 deliverable are complete.

Relevant: Yes. It relevant

Time bound: It had 1 months to complete

4. **The deliverable is** source code, testing report and milestone completed Construction stage

**Explanation:**

Specific: This milestone is specified for construction process

Measurable: It measurable by tracking for 2 completed deliverable

Attainable: It attainable when 2 deliverable are complete

Relevant: Yes, it relevant

Time bound: It had 2 months to complete

5. **The deliverable is** User Support Document and milestone is completed Transition stage

**Explanation:**

Specific: This milestone is specified for transition process

Measurable: It measurable by tracking for User Support Document completed deliverable.

Attainable: Its attainable when completed User Support Document deliverable.

Relevant: Yes, it relevant.

Time bound: It has 2 weeks to complete.

**Request 3 - Project Scheduling**

**All the path:**

1. Start -> A -> B -> C -> G -> End: Duration is 15 months

2. Start -> D -> B -> C -> G -> End: Duration is 16 months

3. Start -> D -> E -> F -> G -> End: Duration is 17 months

4. Start -> D -> H -> I -> End: Duration is 19 months.

-> **The critical path is Start -> D -> H -> I -> End and project duration is 19 months**

With each activity:

A:Early start: 0, Float 4

B:Early start: 5, Float 3

C:Early start: 8. Float 3

G: Early start: 11, Float 2

D: Early start: 0. Float 0

E: Early start: 5, Float 2

F: Early start: 9, Float 2

H: Early start: 5, Float 0

I: Early start: 10, Float 0

**Request 4 - Schedule Tracking**

Because, manager/sponsor need speed up after 5 months, so, we need consider on activity H, I to finish 3 months sooner.

**2 solution:**

**1. Fast tracking**

When activity H start 2 months, we will start activity I. Two activity are H and I will overlaps 3 months. Then, we will reduce 3 months in activity I -> finish project 3 months sooner

It will help team finish sooner, but it difficulties, because team develop must to do a lot in the same time)

**2. Crashing**

a) Overtime

Motivation team member overtime in activity I, H

(It effective, but we shouldn't use this method in long time)

b) Add more project participants into project

Use team member in activity has Float high (B, C, F) and add their to activity H, I to reduce time -> Finish project 3 months sooner

With this method, we can handle activity to complete sooner, it impact to the project

**Request 5:**

PV (Planned Value): $5000

AC (Actual Cost): $6500

SPI (Schedule Performance Index)= EV/PV = 0.8 (< 1 -> behind schedule)

==> EV = SPI x PV = 5000 x 0.8 = 4000

SV (Schedule Variance)= EV - PV = 4000 - 5000 = -$1000 (SV < 1 => behind schedule)

CV (Cost Variance) = EV- AC= 4000 - 6500 = -$2500 (<0 -> over budget)

CPI (Cost Performance Index) = EV/AC = 4000/6500 = 8/13 (<1 , it over budget)

==> So that, we can see this project behind schedule and over budget $2500.

Recommended adjustment: decrease cost, motivate team developer overtime to do project finish as soon as possible.

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