# SE\_DAY4\_Software-Project-Management

Why is timely delivery crucial in software project management, and how can project managers ensure deadlines are met?

*Why is delivery crucial?*

* Ensures stakeholder trust and competitive advantage.
* Avoids penalties, lost revenue, or contract breaches.

*How to ensure deadlines?*

* Break tasks into smaller milestones e.g., Work Breakdown Structure.
* Use Agile sprints for iterative progress tracking.
* Monitor progress with tools like Gantt charts or Jira.
* Allocate buffer time for risks.

How does effective cost control contribute to the success of a software project? What strategies can be used to prevent budget overruns?

*Contribution to success:*

* Prevents financial waste and ensures ROI.
* Maintains stakeholder confidence.

*Strategies to avoid overruns:*

* Estimate accurately e.g., COCOMO model.
* Prioritize MVP Minimum Viable Product to avoid scope creep.
* Track expenses with tools like QuickBooks or Microsoft Project.

Compare and contrast Agile and Waterfall methodologies. What are the main advantages and disadvantages of each?

*Agile vs. Waterfall*

| **Aspect** | **Agile** | **Waterfall** |
| --- | --- | --- |
| **Approach** | Iterative, flexible | Linear, sequential |
| **Advantages** | Adapts to changes, faster feedback | Clear milestones, easier budgeting |
| **Disadvantages** | Harder to predict costs/timeline | Inflexible to changes |

In what types of projects might Agile be more beneficial than Waterfall, and vice versa? Can you provide examples of each?

*When to use:*

* Agile: Startups e.g., evolving app like Slack.
* Waterfall: Regulated projects e.g., banking software.

What are some methods for ensuring quality assurance throughout a software project? Why is it important to maintain high standards?

*Quality Assurance (QA) Methods*

*Methods:*

* Automated testing Selenium, JUnit.
* Code reviews & pair programming.
* CI/CD pipelines Jenkins, GitHub Actions.

*Why important?*

* Reduces post-launch bugs and maintenance costs.
* Enhances user satisfaction and security.

How does defining the project scope contribute to successful project planning? What is a Work Breakdown Structure (WBS), and why is it useful?

*Why define scope?*

* Prevents scope creep and keeps focus.
* Enhancing Communication
* Improving Resource Allocation
* Setting Clear Expectations

*What is WBS?*

* It is a hierarchical decomposition of a project into smaller, manageable components.

*Why useful?*

* Facilitates Performance Monitoring.
* Enhances Project Organization.
* Supports Scheduling and Timeline Management.
* Clarifies responsibilities and estimates effort.

What are the benefits of developing a detailed project schedule, and how can Gantt charts assist in this process?

*Benefits of a Detailed Project Schedule*

* Improved Time Management
* Resource Optimization
* Better Coordination and Communication
* Enhanced Accountability

*Benefits of Using Gantt Charts*

* Visual Timeline of Tasks
* Resource Allocation Insight
* Progress Tracking
* Facilitates Communication

What are the core issues that your software aims to address? Why are these problems significant to your target audience?

* Ensures the solution aligns with user needs for instance, "Users waste time on manual data entry → Automate it").

How can clearly defining the problem help in developing a more effective software solution?

* Prevents Misalignment and Scope Creep
* Leads to Better Requirement Gathering
* Improves Solution Efficiency
* Enhances User Satisfaction
* Simplifies Testing and Validation

How would you describe your software solution in a way that captures its essence without diving into technical details?

*Non-technical pitch:*

* Our software automates invoice processing for small businesses, saving 10+ hours/week by reducing manual data entry errors.

What are the main features or functionalities that make your software stand out?

*Standout features:*

* AI-based OCR for receipts.
* Real-time collaboration for accounting teams.

What data is available regarding the market size and growth potential for your software?

*Why analyze market size?*

Example: The global fintech automation market is $XXB, growing at 12% CAGR → Opportunity for our invoicing tool.

How can understanding market trends inform your software’s positioning and development?

*How trends inform development?*

* Rising remote work → Prioritize cloud collaboration.
* Privacy laws (GDPR) → Build compliance features.