TEMA:

Process of Software Development

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COURSE:

Software development process management

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Tijuana, Baja California, 10 of january 2025

Process of Software Development

1. Introduction

Software development planning is a critical phase in the software lifecycle that defines the goals, scope, timeline, resources, and methodologies needed to deliver a successful project. This document outlines the key steps and considerations involved in planning a software development process.

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2. Importance of Planning

1. **Clear Objectives:** Ensures alignment on goals between stakeholders and development teams.
2. **Resource Allocation:** Optimizes the use of time, budget, and human resources.
3. **Risk Mitigation:** Identifies potential issues early, allowing for preventive measures.
4. **Quality Assurance:** Establishes standards and practices to ensure a high-quality product.

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3. Key Phases of Planning

3.1 Requirement Analysis

- Gather and document functional and non-functional requirements.
- Engage stakeholders for validation and prioritization.

3.2 Feasibility Study

- Evaluate technical, financial, and operational feasibility.
- Analyze risks and propose mitigation strategies.

3.3 Defining Scope

- Outline project deliverables, boundaries, and exclusions.
- Use a Work Breakdown Structure (WBS) to detail tasks.

3.4 Timeline Estimation

- Use techniques like Gantt charts or Agile sprints for scheduling.
- Identify milestones and deliverables.

3.5 Resource Planning

- Assign roles and responsibilities (e.g., developers, testers, project managers).
- Plan for hardware, software, and third-party tools.

3.6 Selection of Development Methodology

- Choose between methodologies like Waterfall, Agile, or DevOps based on project needs.

3.7 Risk Management

- Identify potential risks (technical, financial, operational).
- Develop a contingency plan for critical risks.

3.8 Budget Planning

- Estimate costs for resources, tools, and infrastructure.
- Allocate funds for unexpected expenses.

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4. Example Planning Scenario

Scenario: Building an E-Commerce Platform

1. Requirements: Support for user registration, product catalog, shopping cart, and payments.
2. Timeline: 6 months with Agile sprints.
3. Resources: 5 developers, 1 UI/UX designer, 2 QA engineers.
4. Methodology: Scrum with 2-week sprints.
5. Risks: Integration issues with payment gateways mitigated by early prototyping.

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5. Best Practices

1. Involve Stakeholders: Keep stakeholders engaged throughout the planning process.
2. Iterative Updates: Update the plan regularly to adapt to changes.
3. Use Tools: Leverage tools like Jira, Trello, or MS Project for task and timeline management.
4. Documentation: Maintain clear and detailed documentation for all planning phases.