The purpose of this workflow document is to help us organize the work and define clear stages that need to be followed for the successful release of our product.

**Software Engineering Workflow Document**

**1. Objective**

The purpose of this document is to define the structured workflow for the software engineering process and lifecycle.

**2. Overview of the Workflow Stages**

The software engineering process is broken down into the 8 phases that are followed in a step-by-step manner:

1. Vision
2. Requirement
3. Design
4. Implementation
5. Testing
6. Release
7. Maintenance/Support
8. Upgrades/Updates

**3. Workflow Stages Breakdown**

3.1 Planning & Requirement Gathering

* Objective**:** Gather detailed project requirements from stakeholders and create a project plan.
* Tasks**:**
  + - Meet with stakeholders to understand business goals and user needs.
    - Define functional and non-functional requirements. Mandatory and non-mandatory.
    - Establish tools.
    - Create a Software Requirements Specification (SRS) document.
    - Groom and prioritize features based on business value in the PBI.
* Deliverables**:**
  + - Requirements Document (SRS)
    - Project Plan
    - PBI
    - Sprints

3.2 Design

* Objective**:** Create a blueprint for how the software will be built and organized.
* Tasks**:**
  + Break down requirements into sprint-able tasks.
  + Create system architecture, data models, and interface designs.
  + Choose appropriate technologies and frameworks.
  + Design APIs, database schemas, and user interfaces (UI/UX).
  + Review design with the development team and PO
* Deliverables**:**
  + System Architecture
  + Database Design
  + API Documentation
  + UI/UX Design Mockups

3.3 Development

* Objective**:** Write the code that implements the functionality and requirements as per the design.
* Tasks**:**
  + Set up development environment (version control, IDE, etc.).
  + Implement features
  + Break down tasks into smaller work units if needed
  + Follow coding standards and best practices
    - * code reviews, tests
  + Write unit tests alongside code where applicable.
  + Perform regular code commits and push to GitHub
* Deliverables**:**
  + Developed Codebase
  + Documentation of comments and commits
  + Unit Tests

3.4 Testing

* Objective**:** Ensure that the software meets the specified requirements and is free of bugs.
* Tasks**:**
  + Unit Testing**:** Ensure individual components work as expected.
  + Integration Testing**:** Ensure multiple components interact correctly.
  + System Testing**:** Verify the overall system functionality.
  + Acceptance Testing**:** Ensure the system meets the business requirements.
  + Identify and fix defects
  + Automate tests where possible
  + Perform load and performance testing.
* Deliverables**:**
  + Test Plan
  + Test Cases & Results
  + Bug Reports and documentation

3.5 Deployment

* Objective**:** Deploy the software to the production environment.
* Tasks**:**
  + Prepare the deployment
  + Deploy code to staging environment and verify functionality.
  + Deploy to production environment.
  + Monitor and check for issues.
* Deliverables**:**
  + Deployment Checklist

3.6 Maintenance

* Objective**:** Ensure that the software continues to perform well and remain functional after deployment.
* Tasks:
  + Monitor the system for bugs and performance issues.
  + Provide patches and updates to fix defects
  + Gather review feedback for improvements.
  + Maintain proper documentation.
* Deliverables**:**
  + Issue Documentation
  + Software Updates and Patches
  + Feedback

**4. Tools and Technologies**

* Version Control: GitHub,
* Project Management: Jira
* Language: JS and C#
* Collaboration Tools: Discord, Microsoft word

**5. Roles and Responsibilities**

* Product Owner: Defines project vision, manages requirements, and prioritizes tasks.
* SCRUM Master: Acts as a facilitator and coach for the Agile methodology and ensures the team follows Scrum principles and practices by removing obstacles.
* Developers: Write and test the code according to design specifications.
* Stakeholders**:** Review and approve requirements and final product.

**6. Workflow Diagram**

A visual representation of the workflow:

[Planning & Requirement Gathering]

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[Design]

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[Development]

↓

[Testing]

↓

[Deployment]

↓

[Maintenance]

**GitHub workflow**