

Area	Subdivision	Item	Criteria	
Programming	Basic coding	Code	<ul style="list-style-type: none"> <li>Consistent naming and layout</li> <li>Judicious use of comments, especially for failure paths</li> <li>Reasonable function and module length</li> <li>No duplicated code</li> <li>Idiomatic use of language, including avoidance of bad parts</li> <li>Appropriate and skillful use of advanced language features</li> <li>Appropriate use of known algorithms and data structures</li> <li>Appropriate use of libraries</li> <li>Citations for borrowed code and ideas</li> </ul>	
		Code	<ul style="list-style-type: none"> <li>Code sensibly divided into modules and files</li> <li>Namespace, structured and coherent</li> <li>Separation of concerns (especially presentation/content)</li> <li>Clean and simple module interfaces</li> <li>Data types immutable when possible</li> <li>Abstract data types used when appropriate</li> <li>Abstraction barriers not violated</li> <li>Inter-module dependences controlled</li> <li>Design decisions localized as much as possible</li> </ul>	
	Modularity	Specifications	<ul style="list-style-type: none"> <li>Succinct but informative specifications for public interfaces</li> <li>Preconditions given, especially on session state</li> </ul>	
		Runtime assertions	<ul style="list-style-type: none"> <li>Runtime assertions to check non-trivial expectations</li> <li>Representation invariants for abstract types</li> <li>Schema invariants declared, maintained (&amp; checked if appropriate)</li> </ul>	
	Verification	Unit tests of public interfaces	<ul style="list-style-type: none"> <li>Repeatable suite of tests for key methods of service interfaces</li> </ul>	
		Code	<ul style="list-style-type: none"> <li>Appropriate use of security mitigations (eg, sanitization)</li> <li>Access control mechanisms implemented, as relevant</li> <li>Safe defaults used</li> </ul>	
	Design	Overview	Purpose and goals	<ul style="list-style-type: none"> <li>Brief description of system to be built</li> <li>Key goals and purpose</li> <li>Motivation for development (eg, deficiencies of existing solutions)</li> </ul>
			Context diagram	<ul style="list-style-type: none"> <li>Establishes boundary of system</li> <li>Interactions between system and external entities</li> </ul>
		Concepts	Key concepts	<ul style="list-style-type: none"> <li>Brief explanation of key enabling concepts</li> </ul>
			Object model	<ul style="list-style-type: none"> <li>Object model describing main state components</li> <li>Implementation details excluded</li> <li>Small details that don't impact behavior omitted or abstracted</li> <li>Syntactically valid diagram with consistent naming &amp; layout</li> <li>Generalization used appropriately</li> <li>Names of sets and relations well chosen</li> <li>Definitions in accompanying text of non-obvious elements</li> </ul>
Behavior		Feature descriptions	<ul style="list-style-type: none"> <li>Succinct but precise descriptions of each feature</li> </ul>	
		Security concerns	<ul style="list-style-type: none"> <li>Summary of key security requirements and how addressed</li> <li>How standard attacks are mitigated</li> <li>Threat model: assumptions about attackers</li> </ul>	
User interface		Wireframes for application	<ul style="list-style-type: none"> <li>Wireframes for application</li> <li>Flow between pages indicated, with named actions</li> <li>Errors accounted for</li> </ul>	
		Design challenges	<ul style="list-style-type: none"> <li>List of problems to resolve in concepts, behaviors or implementation</li> <li>For each problem: options available, evaluation, which chosen</li> <li>Note on code design: schema design choices, abstractions</li> </ul>	
Challenges		Critique	<ul style="list-style-type: none"> <li>Summary assessment from user's perspective</li> <li>Summary assessment from developer's perspective</li> <li>Most and least successful decisions</li> <li>Priorities for improvement</li> </ul>	
		Reflection	<ul style="list-style-type: none"> <li>Most and least successful aspects of project</li> <li>What I learned from it and can improve on next time</li> </ul>	
Team Work	Plan	Stakeholders	<ul style="list-style-type: none"> <li>List of stakeholders and their roles</li> </ul>	
		Resources	<ul style="list-style-type: none"> <li>List of computational, cost and time constraints</li> </ul>	
		Tasks	<ul style="list-style-type: none"> <li>List of tasks, expected effort, allocation to team members</li> <li>Calendar of intermediate and final milestones for tasks</li> </ul>	
		Risks	<ul style="list-style-type: none"> <li>Enumeration of expected risks and their mitigations</li> </ul>	
		Minimum viable product	<ul style="list-style-type: none"> <li>Identification of minimum viable product for first release</li> <li>Subset of features to be included</li> <li>Issues postponed (eg, security mitigations, user interface elements)</li> <li>Provides real value to users</li> <li>Provides opportunity for feedback</li> <li>On path to full product</li> </ul>	
	Team contract	Team contract	<ul style="list-style-type: none"> <li>Expected level of achievement and effort for each team member</li> <li>Personal goals for each team member</li> <li>Frequency, length and location of team meetings</li> <li>How quality of work will be maintained</li> <li>How tasks will be assigned, and what to do if deadlines are missed</li> <li>How decisions will be made and disagreements resolved</li> </ul>	
		Agenda	<ul style="list-style-type: none"> <li>One agenda for each meeting</li> <li>Agenda prepared in advance of meeting</li> </ul>	
	Meetings	Progress report	<ul style="list-style-type: none"> <li>One report for each meeting, prepared in advance</li> <li>Summarizes progress since previous meeting</li> <li>Identifies achieved and missed milestones</li> <li>Identifies difficulties encountered</li> <li>Identifies changes found in problem or constraints</li> </ul>	
		Meeting minutes	<ul style="list-style-type: none"> <li>Summary of discussions and advice from mentor</li> <li>Summary of new decisions</li> <li>Changes to plan or milestones</li> </ul>	
	Reflection	Peer review	<ul style="list-style-type: none"> <li>Constructive but candid evaluations of team mate performance</li> </ul>	
Evaluation		<ul style="list-style-type: none"> <li>Evaluation of project from team planning perspective</li> </ul>		
Lessons learned		<ul style="list-style-type: none"> <li>Summary of key lessons learned</li> </ul>		

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