

**CoLAB TalentReady IT Pathways**  
**Software Development KSAs for Curriculum Alignment**

**4. Development Methods**

|   | <b>KSA Description</b>   | <b>Knowledge, Skill, or Ability?</b> | <b>Bloom's Taxonomy Level?</b> | <b>Cross-cutting KSAs</b> | <b>Notes</b> |
|---|--|--------------------------------------|--------------------------------|---------------------------|--------------|
| a | Trace the execution of a variety of code segments and write summaries of their computations.   | Knowledge                            | 2                              |                           |              |
| b | Explain why the creation of program components with minimal defects is important in the production of high-quality software.                       | Knowledge                            | 1                              |                           |              |
| c | Describe the factors that influence performance in a production environment (load, resource intensive tasks, dependencies on external interfaces). | Knowledge                            | 2                              |                           |              |
| d | Conduct a personal code review (focused on common coding errors) on a program component using a provided checklist.                                | Skill                                | 3                              |                           |              |
| e | Contribute to a small-team code review focused on component correctness.   | Skill                                | 3                              |                           |              |
| f | Describe how a contract can be used to specify the behavior of a program component.  | Knowledge                            | 2                              |                           |              |
| g | Refactor a program by identifying opportunities to apply procedural abstraction.   | Skill                                | 2                              |                           |              |
| h | Apply a variety of strategies to the testing and debugging of simple programs.   | Ability                              | 4                              |                           |              |
| i | Construct and debug programs using the standard libraries available within a chosen programming language.  | Skill                                | 4                              |                           |              |
| j | Analyze the extent to which another programmer's code meets documentation and programming style standards.   | Skill                                | 4                              |                           |              |
| k | Apply consistent documentation and program style standards that contribute to the readability and maintainability of software.                     | Skill                                | 3                              |                           |              |