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| **SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – SENIOR BACK END DEVELOPER** | | | | | | |
| **Sector** | Infocomm Technology | | | | | |
| **Track** | Product Development | | | | | |
| **Sub-track** | Software Development | | | | | |
| **Occupation** | Software Developer | | | | | |
| **Job Role** | **Senior Back End Developer** | | | | | |
| **Job Role Description** | The Senior Back End Developer designs, develops, tests, debugs and implements server-side systems to support core product functionality and offering. He/She identifies security risks and ensures coding standards meet security requirements. He determines specifications and features for the next iteration of the product based on user needs and feedback, and continuously integrates code changes. He provides guidance and technical support to the quality testing teams.  He works in a team setting and is proficient in programming languages required by the organisation. He is proficient in software development tools and standards.  The Senior Back End Developer is innovative and methodical in developing new and improved product designs and solutions. He engages, leads others in the team, and is confident in communicating ideas to the team in a clear and compelling manner. | | | | | |
| **Critical Work Functions and Key Tasks** | **Critical Work Functions** | **Key Tasks** | | | | |
| **Understand technical specifications required by the business** | Participate in discussions with stakeholders to understand user requirements | | | | |
| Provide guidance on the technical requirements and specifications | | | | |
| Formulate software requirement specifications | | | | |
| Define approaches that balance security, stability, and performance needs | | | | |
| Provide technical guidance on proposed solutions and alternatives | | | | |
| **Manage the back-end design of software** | Refine scalable server-side systems and APIs | | | | |
| Collaborate with stakeholders to build and improve new and existing products | | | | |
| Guide teams to deliver high quality, maintainable, and scalable codes | | | | |
| Code new and/or current features for products | | | | |
| Develop simulation tools and prototypes to evaluate front-end software design quality | | | | |
| Devise strategies with the Site Reliability Engineering teams to develop reliable and scalable products | | | | |
| Devise strategies with business departments to achieve business goals and objectives | | | | |
| Perform code re-factoring | | | | |
| **Perform software testing** | Perform integration testing as part of the integration process | | | | |
| Guide team to write quality unit tests for delivered codes | | | | |
| Engage stakeholders participating in final pre-release testing activities and evaluate outcomes of these tests | | | | |
| Write success and failure criteria for unit and integration testing | | | | |
| Execute the test environment and test case scenarios to ensure software resilience | | | | |
| Specify test cases for the selected testing techniques including clean coding | | | | |
| Analyse defect arrival rate and failure intensity data | | | | |
| Resolve potential defects in software found through software tests | | | | |
| **Manage software configuration management (SCM)** | Develop the SCM plan | | | | |
| Specify the SCM measures to be used | | | | |
| Develop tools for generating SCM audit reports | | | | |
| Guide teams to execute the product readiness review in software configuration management | | | | |
| Oversee the building, verification, and implementation of software releases | | | | |
| Procure SCM tools | | | | |
| Maintain mechanisms for recording and reporting SCM information | | | | |
| Ensure the execution and documentation of approved changes | | | | |
| **Oversee security provisions in software** | Identify recommended coding standards and secure-coding principles to avoid security vulnerabilities | | | | |
| Set project standards in the collection of security assessment metrics | | | | |
| Perform code reviews to mitigate security vulnerabilities | | | | |
| Keep abreast of the latest security vulnerabilities and use security tools to identify and address these vulnerabilities | | | | |
| Perform threat modelling to identify and mitigate security risks | | | | |
| Identify the attack surface of new and modified systems | | | | |
| **Skills and Competencies** | **Technical Skills and Competencies** | | | **Critical Core Skills** | | |
| Agile Software Development\* | | Level 4 | Adaptability | | Intermediate |
| Applications Development\* | | Level 4 | Collaboration | | Intermediate |
| Applications Integration\* | | Level 4 | Developing People | | Intermediate |
| Applications Support and Enhancement\* | | Level 3 | Sense Making | | Intermediate |
| Business Needs Analysis\* | | Level 3 | Transdisciplinary Thinking | | Intermediate |
| Configuration Tracking\* | | Level 3 |  | | |
| Continuous Integration and Continuous Deployment\* | | Level 4 |
| Data Design\* | | Level 4 |
| Quality Standards\* | | Level 5 |
| Service Level Management\* | | Level 4 |
| Software Configuration\* | | Level 3 |
| Software Design\* | | Level 4 |
| Software Testing\* | | Level 3 |
| System Integration\* | | Level 3 |
| Business Environment Analysis | | Level 3 |
| Business Requirements Mapping | | Level 3 |
| Business Risk Management | | Level 3 |
| Change Management | | Level 3 |
| Cloud Computing | | Level 4 |
| Database Administration | | Level 3 |
| Emerging Technology Synthesis | | Level 4 |
| Performance Management | | Level 4 |
| Problem Management | | Level 4 |
| Product Management | | Level 4 |
| Project Management | | Level 4 |
| Test Planning | | Level 3 |
| **Programme Listing** | For a list of Training Programmes available for the ICT sector, please visit: www.skillsfuture.sg/skills-framework/ict | | | | | |
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| The information contained in this document serves as a guide. | | | | | | |

\*Note: Technical Skills and Competencies (TSCs) with an asterisk (\*) refer to Priority Skills (i.e., TSCs to be prioritised for this role).