|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – BACK END DEVELOPER** | | | | | | |
| **Sector** | Infocomm Technology | | | | | |
| **Track** | Product Development | | | | | |
| **Sub-track** | Software Development | | | | | |
| **Occupation** | Software Developer | | | | | |
| **Job Role** | **Back End Developer** | | | | | |
| **Job Role Description** | The Back End Developer codes and develops server-side systems to support core product functionality and offering. He/She identifies security risks and ensures coding standards meet security requirements. He executes specifications and features for the next iteration of the product based on user needs and feedback, and continuously integrates code changes. He provides support to the quality testing teams.  He works in a team setting and is proficient in programming languages required by the organisation. He is familiar with software development tools and standards.  The Back End Developer is innovative in developing a range of product designs and solutions. He supports 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 | | | | |
| Write technical requirements and specifications | | | | |
| Execute software requirement specifications | | | | |
| Recommend approaches that balance security, stability, and performance needs | | | | |
| Support team with technical guidance on proposed solutions and alternatives | | | | |
| **Manage the back-end design of software** | Develop scalable server-side systems and APIs | | | | |
| Collaborate with stakeholders to improve new and existing products | | | | |
| Deliver high quality, maintainable, and scalable codes | | | | |
| Code new and/or current features for products | | | | |
| Use simulation and prototypes to evaluate back-end software design quality | | | | |
| Partner with the Site Reliability Engineering teams to develop reliable and scalable products | | | | |
| Partner with business teams to align products with business goals and objectives | | | | |
| Perform code re-factoring | | | | |
| **Perform software testing** | Perform integration testing as part of the integration process | | | | |
| Write unit tests for delivered codes | | | | |
| Support final pre-release testing activities involving stakeholders | | | | |
| 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 | | | | |
| Gather defect arrival rate and failure intensity data | | | | |
| Identify potential defects in software through testing | | | | |
| **Manage software configuration management (SCM)** | Execute the SCM plan | | | | |
| Assist in specifying the SCM measures to be used | | | | |
| Support the development of tools for generating SCM audit reports | | | | |
| Perform product readiness review in software configuration management | | | | |
| Execute the building, verification, and implementation of software releases | | | | |
| Support the procurement of SCM tools | | | | |
| Maintain mechanisms for recording and reporting SCM information | | | | |
| Ensure the execution and documentation of approved changes | | | | |
| **Oversee security provisions in software** | Follow recommended coding standards and secure-coding principles to avoid security vulnerabilities | | | | |
| Adhere to project standards in the collection of security assessment metrics | | | | |
| Perform code reviews to identify security vulnerabilities | | | | |
| Use security tools to address security vulnerabilities | | | | |
| Support threat modelling to 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 3 | Communication | | Intermediate |
| Applications Development\* | | Level 3 | Creative Thinking | | Intermediate |
| Applications Integration\* | | Level 3 | Learning Agility | | Intermediate |
| Applications Support and Enhancement\* | | Level 2 | Problem Solving | | Intermediate |
| Business Needs Analysis\* | | Level 2 | Self Management | | Basic |
| Configuration Tracking\* | | Level 2 |  | | |
| Continuous Integration and Continuous Deployment\* | | Level 3 |
| Data Design\* | | Level 3 |
| Quality Standards\* | | Level 4 |
| Service Level Management\* | | Level 3 |
| Software Configuration\* | | Level 2 |
| Software Design\* | | Level 3 |
| Software Testing\* | | Level 2 |
| System Integration\* | | Level 3 |
| Business Environment Analysis | | Level 2 |
| Business Requirements Mapping | | Level 3 |
| Business Risk Management | | Level 3 |
| Change Management | | Level 3 |
| Cloud Computing | | Level 3 |
| Database Administration | | Level 2 |
| Emerging Technology Synthesis | | Level 3 |
| Performance Management | | Level 4 |
| Problem Management | | Level 3 |
| Product Management | | Level 3 |
| Project Management | | Level 3 |
| Test Planning | | Level 2 |
| **Programme Listing** | For a list of Training Programmes available for the ICT sector, please visit: www.skillsfuture.sg/skills-framework/ict | | | | | |
|  |  |  | |  |  | |
| 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).