

SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – BACK END DEVELOPER		
<b>Sector</b>	Infocomm Technology	
<b>Track</b>	Product Development	
<b>Sub-track</b>	Software Development	
<b>Occupation</b>	Software Developer	
<b>Job Role</b>	<b>Back End Developer</b>	
<b>Job Role Description</b>	<p>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.</p> <p>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.</p> <p>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.</p>	
<b>Critical Work Functions and Key Tasks</b>	<b>Critical Work Functions</b>	<b>Key Tasks</b>
	<b>Understand technical specifications required by the business</b>	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
	<b>Manage the back-end design of software</b>	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
	<b>Perform software testing</b>	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
		Execute the SCM plan

	<b>Manage software configuration management (SCM)</b>	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		
	<b>Oversee security provisions in software</b>	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		
<b>Skills and Competencies</b>	<b>Technical Skills and Competencies</b>		<b>Critical Core Skills</b>	
	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	
<b>Programme Listing</b>	For a list of Training Programmes available for the ICT sector, please visit: <a href="http://www.skillsfuture.sg/skills-framework/ict">www.skillsfuture.sg/skills-framework/ict</a>		

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).