

**SKILLS FRAMEWORK FOR MEDIA
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

TSC Category	Media Technology and Operations					
TSC Title	Application Development					
TSC Description	Develop applications based on the design specifications; encompassing coding, testing, debugging, documenting and reviewing and/or refining it across the application development stages in accordance with defined standards for development and security. The complexity of the application may range from a basic application to a context-aware and/or augmented reality application that incorporates predictive behaviour analytics, geo-spatial capabilities and other appropriate algorithms. The technical skill includes the analysis and possibly the reuse, improvement, reconfiguration, addition or integration of existing and/or new application components					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
			MED-DIT-3002-1.1	MED-DIT-4002-1.1	MED-DIT-5002-1.1	
			Develop basic applications, run routine application tests, and conduct debugging to resolve errors	Plan the application development process, and program complex applications, applying suitable debugging techniques to resolve complex errors	Lead large-scale or business-critical application development projects and explore the incorporation of analytics and advanced capabilities to enhance the application	

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<p>Knowledge</p>			<ul style="list-style-type: none"> • Application development tools and methodologies • Syntax and structures of commonly-used programming languages and their respective Application Programming Interfaces (APIs) • Tools and techniques required for performing coding and/or programming • Organisational standards in application development and documentation • Process of embedding user interface templates • Software tests and process for executing unit testing • Application development standards • Commonly-encountered application errors • Basic debugging tools and techniques 	<ul style="list-style-type: none"> • Software development life cycle models for applications • Broad range of application development frameworks, tools and methodologies, and their various uses • A range of programming languages and effectiveness in different contexts • Types of software or application testing techniques, and pros and cons of various tests • Internal and external quality, safety and security standards or benchmarks in application development • Quality assurance practices for application development review • Range of tests and testing techniques for applications • Multiple debugging techniques and tools and suitability for different contexts • Feasibility analysis for reconfiguration, integration or portability of applications 	<ul style="list-style-type: none"> • Long term vision and immediate objectives of the application • Key characteristics, pros and cons of different application development methodologies • New and emerging trends in application development • Advanced programming languages and tools, and their uses in different contexts for different application features • Applicability and reusability of externally developed codes and components • Relative criticality or importance of different application components or properties • Various debugging processes and suitability for different contexts • Feasibility analysis for incorporating new, complex or advanced features or capabilities 	
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<p>Abilities</p>			<ul style="list-style-type: none"> • Develop and/or Program simple applications or components according to agreed specifications • Reuse externally developed components in creation of applications • Embed user interface templates into applications according to design guidelines and specifications • Run routine software tests to identify defects or errors • Perform unit testing of each unit of the codes to ensure that the code works according to application requirements • Apply basic debugging tools and techniques to reproduce, simplify and resolve application errors or problems • Make simple revisions and modifications to existing application • Add new application components or features, according to endorsed recommendations • Document the internal design of the application for future maintenance and enhancement • Write APIs 	<ul style="list-style-type: none"> • Create a project plan to guide the application development process • Determine the server, scripting and mark-up languages required to develop applications • Develop advanced applications in line with design specifications, utilising a range of tools, methodologies, programming, and externally developed codes • Design templates for reusable user interface patterns for applications • Assess suitability of various software testing techniques and select appropriate software tests, according to the application properties of interest • Evaluate test results against desired performance and usability outcomes • Analyse application issues, errors or problems encountered, and determine suitable debugging tools and techniques • Resolve complex or less commonly-encountered errors in applications • Plan a series of steps to enhance the application's functionality and usability potentially including reconfiguration, integration, removal or 	<ul style="list-style-type: none"> • Evaluate implications of new and emerging trends on application development • Plan large-scale or business-critical application development projects • Determine application development methodologies, tools, and programming languages • Program highly complex applications • Establish an efficient and effective application testing process • Take accountability for the team meeting quality, safety and security standards in application development • Establish debugging process for application issues encountered • Review recommendations to improve the overall functionality and usability of the application, against cost, efficiency and viability considerations • Evaluate feasibility and incorporate predictive behaviour or data analytics, geo-spatial capabilities and other advanced features in application development 	
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				addition of application components		
Range of Application			Types of applications / various platforms on which the skill can be applied may include, but are not limited to:			
			<ul style="list-style-type: none"> • Native / Mobile application development • Web application development • Desktop application development • Augmented reality application development • Virtual reality / context-aware application development • Game development 			
			Programming languages for native application development may include, but are not limited to:			
			<ul style="list-style-type: none"> • Python • C • Java • C++ • C# • R • HTML 5 • Javascript • PHP • Go • Swift • Ethereum 			