



National Competency Standards Level-3 for “Mobile App, Web & Game Development”



**National Competency Standards Level-3 for Mobile App, Web & Game Development
“Junior Programmer”**



**National Vocational and Technical Training Commission (NAVTTC),
Government of Pakistan**



National Competency Standards Level-3 for “Mobile App, Web & Game Development”



ACKNOWLEDGEMENTS

National Vocational and Technical Training Commission (NAVTTC) extends its gratitude and appreciation to representatives of business, industry, academia, government agencies, provincial TEVTAs, sector skill councils and trade associations who spared time and extended their expertise for the development of National Vocational Qualification for the trade of **Mobile App, Web & Game Development**. This work would not have been possible without the technical support of the above personnel.

NAVTTC initiated development of CBT&A based qualifications for 200 traditional / hi-tech trades under the Prime **Minister’s Hunarmand Pakistan Program**, focusing on Development & Standardization of 200 Technical & Vocational Education & Training (TVET) Qualifications. NAVTTC efforts have received full support from the Ministry of Federal Education and Professional Training which highly facilitated progress under this initiative.

It may not be out of place to mention here that all the experts of Industry, Academia and TVET experts of TEVTAs, BTEs and PVTC work diligently for making this qualification worthy and error free for which all credit goes to them. However, NAVTTC accepts the responsibility of all the errors and omissions still prevailing in the Qualification document.

It is also noteworthy that development of Skill Standards is a dynamic and ongoing process, and the developed skill standards needs periodic review and updating owing to the constant technological advancements, development in scientific knowledge, and growing experience of implementation at the grass root level as well as the demand of industry. NAVTTC will ensure to keep the qualifications abreast with the changing demands of both national and international job markets.

Dr. Nasir Khan

Executive Director (NAVTTC)



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1. Introduction

The importance of modern gadgets in our everyday life and activities is undeniably unending. This is so because there is ongoing tremendous transformation in which mobile phones, laptops and other devices are no longer the ordinary device they used to be. They have become the colossal point of attention for individuals and businesses alike, courtesy of the various incredible features and opportunities that they offer. The cumulative progress of technology, the availability and access to high speed internet and the remarkable communicative interface in these devices results into a whole level of new and innovative experience.

Web designing is the computer field which deals with the creation of websites and web application. The person who deals with the creation of websites and web application is known as a web designer or web developer. The best part of being a web developer is that they are employed by almost every organization and they can even work independently as a freelancer.

Mobile phones and devices have become such a ubiquitous part of our everyday lives that it's difficult to imagine going through an entire day without one. This shift to ubiquity has been driven largely in part by the increasing scope of mobile application development. Over just the past few years an explosion in not just the scope but also the depth of utility of these devices has occurred which rivals, if not exceeds that seen in any other discrete class of technology.

Game Development is the art of creating games and describes the design, development and release of a game. It may involve concept generation, design, build, test and release. While you create a game, it is important to think about the game mechanics, rewards, player engagement and level design.

Being conscious of the emerging trends in the market, National Vocational & Technical Training Commission (NAVTTC) has developed competency standards in consultation with the stakeholders including academia, researchers, industry, chambers and TEVTAs for '**Mobile App, Web & Game Development**' under National Vocational Qualifications Framework (NVQF). The competency standards document has been designed in a way that trainees can develop skill in the ability to explore and analyze writing in technical, scholarly and professional contexts. They can consolidate their knowledge and skills through advanced practice in writing, editing, designing and producing texts for professional and technical purposes, with concrete application on industry sourced documents and projects.



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The National Competency Standards could be used as a referral document for the development of curriculum to be used by training institutions.

2. Purpose of the Qualification

The purpose of this qualification is to set the highly professional standards for the Mobile App, Web & Game Development in order to compete local and international job market. The specific objectives of developing these qualifications are as under:

- Empower the youth with globally required employable skills.
- Produce competitive Web, Mobile App and Game Developers.
- Produce a skilled youth for Mobile App, Web & Game Development Industry.
- Improve the quality and effectiveness of the training and assessment for Mobile App, Web & Game Development Industry.



3. Date of Validation

The level 5 of National DAE qualification for ‘Mobile App, Web & Game Development’ has been validated by the Qualifications Validation Committee (QVC) members on 4th -8th August, 2020 and will remain valid for ten years i.e. **8th August, 2030**

4. Date of Review

The level 5 of National DAE qualification for ‘Mobile App, Web & Game Development’ has been validated by the Qualifications Validation Committee (QVC) members on 4th -8th August, 2020 and will remain valid for ten years i.e. **9th August, 2023**

5. Codes of Qualifications

The International Standard Classification of Education (ISCED) is a framework for assembling, compiling and analyzing cross-nationally comparable statistics on education and training. ISCED codes for these qualifications are assigned as follows:

ISCED Classification	
Code	Description
0613-S&AD&A(1)	1 st Level National Certificate of level-5, in “ Mobile App, Web & Game Development Technology”
0613-S&AD&A(2)	2 nd Level National Certificate of level-5, in “Mobile App, Web & Game Development Technology”
0613-S&AD&A(3)	3 rd Level National Certificate of level-5, in “Mobile App, Web & Game Development Technology”
0613-S&AD&A(4)	4 th Level National Certificate of level-5, in “Mobile App, Web & Game Development Technology”
0613-S&AD&A(5)	5 th Level National Certificate of level-5, in “Mobile App, Web & Game Development Technology”



6. Members of Qualification Development Committee

The following members participated in the qualification development process at PITAC, Lahore.

Date: 6th to 10th July'2020

S#	Name	Designation	Organization
1.	Mr. Atif Bashir	Faculty member CS/Visiting Faculty	NCBA&E Lahore/UCP Lahore
2.	Mr. Muzammil Hassan	Assistant Manager Research (Software Systems)	KICS UET Lahore
3.	Mr. Fahad Sabah	System/Business Analyst	Techno Dessert Lahore
4.	Mr. Tariq Aziz	System/Business Analyst	Soft Villa Solutions
5.	Mr. Ahmad Hassan	Sr. Web Developer	Black Urban Tech
6.	Mr. Goher Iqbal Punj	Faculty Member CS	KICS UET Lahore
7.	Mr. Muhammad Adrees	Assistant Professor CS	The University of Lahore
8.	Mr. Muhammad Imran Shafi	Assistant Professor CS	The University of Lahore
9.	Mr. Rehan Ahmad	Assistant Professor CS	The University of Lahore
10.	Ms. Syeda Farah Rehman	Sr. Instructor IT	P-TEVTA
11.	Ms. Fatima Iqbal	Representative of PBTE	PBTE
12.	Mr. Hafeez Abbasi	Director	S-TEVTA
13.	Mr. Aijaz Ahmed Zia	DACUM Facilitator/D&A Engr.	INTECH/UET Lahore
14.	Mr. Sikandar Masood	Director SS&C	NAVTTTC



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7. Qualification Validation Committee

The following members participated in the qualification development process at PITAC, Lahore.

Date: 4th to 8th August'2020

S#	Name	Status in Committee	Organization
1.	Ms. Amanullah Chaudhry	Representative of PBTE	PBTE
2.	Mr. Liaquat Ali Jamhro	Representative of S-TEVTA	Sindh-TEVTA
3.	Mr. Shadab Ali Shah	Representative of KP-TEVTA	KP-TEVTA
4.	Mr. Mushtaq Ahmed	Representative of P-TEVTA	Punjab-TEVTA
5.	Engr. Waqas Aziz	Representative of AJK-TEVTA	AJK-TEVTA
6.	Ms. Tehmina Amanat	Representative of PVTC	PVTC
7.	Mr. Muhammad Imran Shafi	Assistant Professor CS/Expert	The University of Lahore
8.	Mr. Rehan Ahmad	Assistant Professor CS/Expert	The University of Lahore
9.	Ms. Syeda Farah Rehman	Sr. Instructor IT/Expert	P-TEVTA
10.	Mr. Arsalan Chaudhry	Project Manager/ Industry	Tower Technologies
11.	Mr. Mohammad Noman	Web Developer/Industry	Corvit Systems Lahore
12.	Mr. Muzammil Hassan	Assistant Manager Research (Software Systems)/Industry	Sumico Technologies/KICS UET
13.	Mr. Aijaz Ahmed Zia	DACUM Facilitator/D&A Engr.	INTECH/UET Lahore
14.	Mr. Sikandar Masood	Director SS&C	NAVTTC



8. Minutes of Meetings



Report Regarding Validation of Competency Standards for National Vocational Qualifications Level 5 for Mobile App, Web and Game Development



Minutes of Meeting

A meeting of Qualification Review and Validation Committee for the trade of "Mobile App, Web and Game Development" was held at Pakistan Industrial Technical Assistance Center, Lahore from 4th – 8th August, 2020. The following activities took place during meeting:

1. Introduction of OP & CS file to the new participants
2. Detailed discussion regarding validation process
3. Consultation was made with the relevant industry experts to confirm the accuracy of the competency standards
4. Levels of competency standards were defined according to NVQF Level Descriptor
5. Prepared the mapping and packaging of CS as per expert's guidelines.
6. Assigned the credit hours for CS as per PBTE & NVQF guidelines.
7. Revision of competency standards as per Industry/TEVTAs /BTEs requirements.
8. Tools and equipment lists were revised as per industry requirements.
9. Time allocation for contact hours was discussed with the industry and academia representatives and adjusted accordingly.
10. Competency standards were packed in National Occupational Standards in 4 certifications of Levels 2, 3, 4 and 5 according to NVQF guidelines

The following experts has participated in the CS Review and Validation Committee meeting and showed their consent to validated competency standards as found them according to the requirements of the industry:

S#	Name	Status in Committee	Signatures
1)	Syeda Farah Rehman	Senior Instructor (IT), PTEVTA /Expert	Farah
2)	Mr. Rehan Ahmad	CEO, ShopVilla.com /Expert	Rehan
3)	Muhammad Imran Shafi	Asstt. Prof.(CS Deptt) UOL/Expert	Imran
4)	Mr. Amanullah Ch.	Representative of PBTE	Amanullah
5)	Mr. Liaqat Jhamro	Representative of Sindh TEVTA	Liaqat
6)	Mr. Shadab Ali Shah	Representative KP TEVTA	Shadab
7)	Mr. Mushtaq Ahmad	Representative of Punjab TEVTA	Mushtaq
8)	Engg. Waqas Aziz	Representative of AJK TEVTA	Waqas
9)	Ms. Tehmina Amanat	Representative of PVTC	Tehmina
10)	Mr. Arsalan Ch.	Project Manager, Web Development Punjab Group of Colleges /Freelancer	Arsalan
11)	Mr. Muhammad Noman	Web Developer / Industry	Noman
12)	Mr. Muzzamil Hassan	Sumico Technologies / Industry	Muzzamil
13)	Mr. Aijaz Ahmed Zia	DACUM Facilitator	Aijaz
14)	Mr. Sikandar Masood	Coordinator	Sikandar



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9. Entry Requirements

The entry for D.A. E National Certificate level 3, in ‘**Mobile App, Web & Game Development**’ are:

1. A person having **National Vocational Certificate level 2, in Mobile App, Web & Game Development**’
2. A person having **Matric certificate with Science/Arts subjects**

10. Regulation of the qualification and schedule of units

Not Applicable



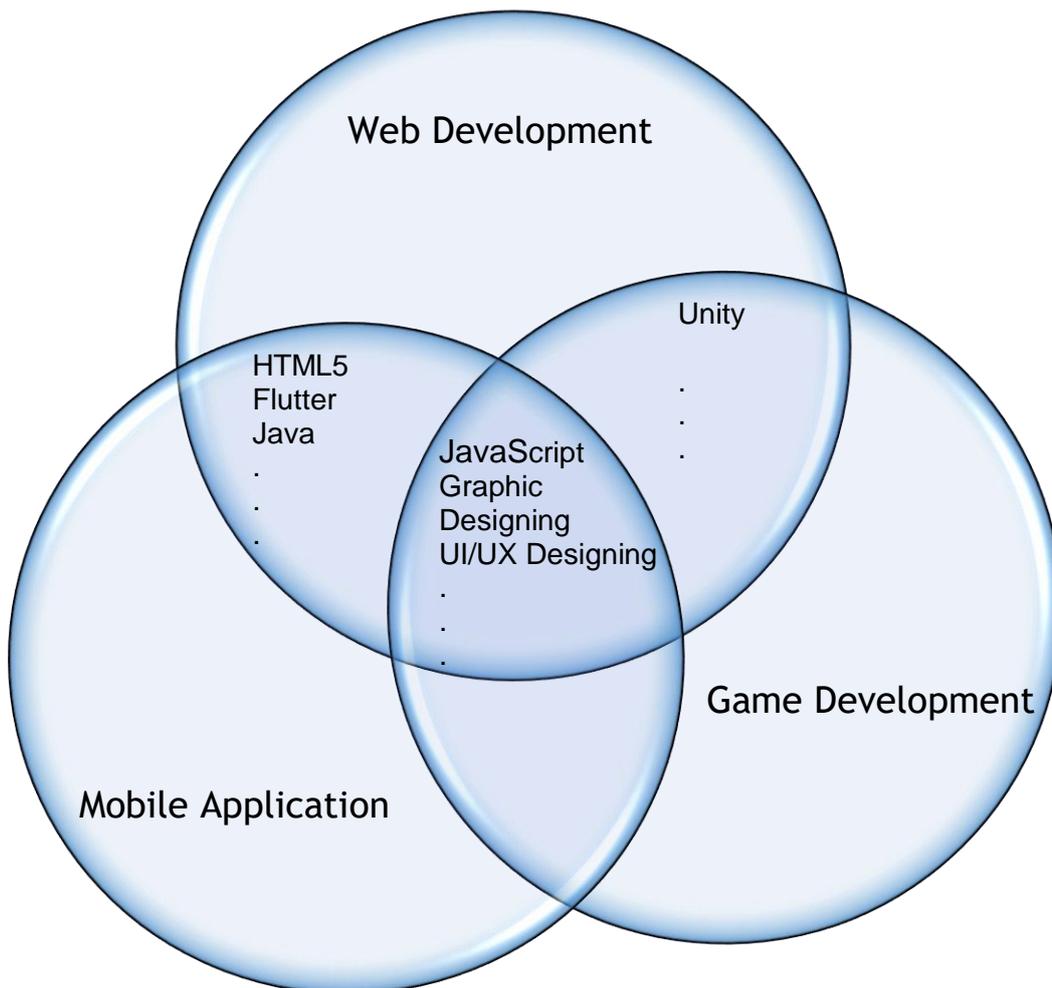
11. Generic Modules with respective levels

- | | |
|-----------------------------|---------|
| ▪ Health and Safety | LEVEL 2 |
| ▪ Digital Skills | LEVEL 3 |
| ▪ Soft Skills & Freelancing | LEVEL 4 |
| ▪ Entrepreneurship | LEVEL 5 |



12. Mapping of the Qualification

Mapping of the Qualifications





13. Summary of competencies

Sr No	Competency Standards	Occupation	NVQF Level	Category	Estimated Contact Hours			Cr Hr
					Th	Pr	Total	
Level 3								
1	Operate digital media technology	Digital Skills	3	Generic	6	21	27	2.7
2	Perform computer operations		3	Generic	6	21	27	2.7
3	Use computer applications		3	Generic	3	12	15	1.5
4	Create technical documentation		3	Generic	3	21	24	2.4
5	Create basic databases		3	Generic	3	12	15	1.5
6	Use social media tools for collaboration and engagement		3	Generic	3	12	15	1.5
7	Create Environment for javascript programming	JavaScript Programmer	3	Technical	3	12	15	1.5
8	Develop Logic in javascript programming		3	Technical	6	24	30	3
9	Implement Logic in Javascript		3	Technical	12	36	48	4.8
10	Implement Form Validation in Javascript		3	Technical	6	24	30	3
11	Fix Error/Bugs in Program		3	Technical	6	15	21	2.1
12	Install Content Management System	CMS Professional	3	Technical	6	15	21	2.1
13	Write/Edit Posts and Pages		3	Technical	3	12	15	1.5
14	Perform Basic Administration		3	Technical	6	21	27	2.7
15	Customize/Deploy Theme		3	Technical	6	21	27	2.7
16	Add Plugins to the Website		3	Technical	3	12	15	1.5
17	Manage CMS Website		3	Technical	6	21	27	2.7
18	Perform troubleshooting		3	Technical	6	21	27	2.7
19	Create environment for Java programming	Jr. programmer (Java)	3	Technical	3	12	15	1.5
20	Develop programming logic in java		3	Technical	16	45	61	6.1
21	Remove errors/bugs in Java programs		3	Technical	3	12	15	1.5
22	Create static webpages.	UI/UX developer	3	Technical	6	24	30	3
23	Apply cascading style sheets (CSS)		3	Technical	3	9	12	1.2
24	Convert mockups into web pages		3	Technical	3	9	12	1.2



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25	Convert Designs into mobile application mockups	3	Technical	3	9	12	1.2
26	Create mockups for mobile games	3	Technical	3	9	12	1.2
27	Apply validations to web forms	3	Technical	8	27	35	3.5
Total					141	489	630
Percentage					22.38	77.61	
					0952	9047	
					38	6	

OCCUPATIONS AND LEVELS DESCRIPTOR-MOBILE APP,WEB & GAME DEVELOPMENT

Level 2 Level 3 Level 4 Level 5

S #	Occupations	No of Modules/CS	Level	Occupation Credit Hours	Training duration
1.	JavaScript Programmer	5	3	14	3 Months
2.	CMS Professional	7	3	16	3 Months
3.	Jr. Programmer (Java)	3	3	9	3 Months
4.	UI/UX developer	6	3	11	3 Months



14. Qualification Levelling and Packaging

Level 3

(Digital Skills, JavaScript Programmer, CMS Professional, Jr. Programmer -Java, UI/UX developer)

Digital Skills

1. Operate digital media technology
2. Perform computer operations
3. Use computer applications
4. Create technical documentation
5. Create basic databases
6. Use social media tools for collaboration and engagement

JavaScript Programmer

1. Create Environment for javascript programming
2. Develop Logic in javascript programming
3. Implement Logic in Javascript
4. Implement Form Validation in Javascript
5. Fix Error/Bugs in Program

CMS Professional

1. Install Content Management System
2. Write/Edit Posts and Pages
3. Perform Basic Administration
4. Customize/Deploy Theme
5. Add Plugins to the Website
6. Manage CMS Website
7. Perform troubleshooting

Jr. Programmer (Java)

1. Create environment for Java programming
2. Develop programming logic in java
3. Remove errors/bugs in Java programs

UI/UX developer

1. Create static webpages.
2. Apply cascading style sheets (CSS)
3. Convert mockups into web pages
4. Convert Designs into mobile application mockups
5. Create mockups for mobile games
6. Apply validations to web forms



15. Detail of Qualifications and its Competency Standards

A. Technical Competencies

1. *Java Script Programmer*

0613-S&AD&A-1. Create Environment for javascript programming

Overview: This competency standard covers the skills and knowledge required to create java script environment to run program successfully.

Competency Unit	Performance Criteria
CU1. Download Java Script IDE	<p>P1. Search for suitable IDE</p> <p>P2. Explore the features of available Java Script IDEs</p> <p>P3. Download the Java Script IDE</p>
CU 2. Install Java Script IDE	<p>P1. Choose suitable Java Script IDE e.g. (Komodo, Atom, VS Code)</p> <p>P2. Install the required IDE</p>
CU 3. Check the Development Environment.	<p>P1. Write first program on installed IDE</p> <p>P2. Run the Program in browser</p>



Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- List down different types of IDEs

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Script enabled browser
4.	IDE (Integrated Development Environment)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Show the execution the program successfully in browser.



0613-S&AD&A-2. Develop Logic in javascript programming

Overview: This competency standard covers the skills and knowledge required to build logic in programming.

Competency Unit	Performance Criteria
CU1. Visualize the Logic	<p>P1. Analyse the problem to visualize</p> <p>P2. Solve problem using flowchart</p>
CU 2. Write Generalized Logic	<p>P1. Select a problem to provide generalized solution</p> <p>P2. Convert the problem into pseudo-code</p> <p>P3. Convert the pseudo-code to generalize algorithm</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Knowledge of drawing the flow charts for specific problem.
- Define Pseudo Code

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Enabled browser
4.	IDE (Integrated Development Environment)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Present skills to convert Flowchart/Pseudo-code to algorithm



0613-S&AD&A-3. Implement logic in Javascript

Overview: This competency standard covers the skills and knowledge required to build logic in programming.

Competency Unit	Performance Criteria
CU1. Use fundamentals of Javascript	P1. Declare variables and arrays P2. Perform some calculation P3. Display calculation in alert box
CU 2. Solve complex programming problems	P1. Implement sequential structure P2. Implement conditional structure P3. Implement iterative structure P4. Implement structured programming (Functions)
CU3. Explore JS DOM(Document Object Model) tasks	P1. Change the content of HTML P2. Add the styling to HTML element P3. Remove the HTML element.

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- What is Variable?
- What are the loops in JavaScript?
- Define Structured Programming?
- Define DOM.
- Explain the ways to output data using JavaScript

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Enabled browser
4.	IDE (Integrated Development Environment)



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Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Show how alert boxes use to take input and show output



0613-S&AD&A-4. Implement Form Validation in Javascript

Overview: This competency standard covers the skills and knowledge required to implement form validation in Javascript

Competency Unit	Performance Criteria
CU1. Implement Javascript validation	<p>P1. Write validation functions in javascript</p> <p>P2. Search different libraries of javascript that provides validation features</p> <p>P3. Search different javascript frameworks</p> <p>P4. Select appropriate library/framework to write JS code</p>
CU2. Deploy validation into a web form	<p>P1. Identify elements where to apply validations</p> <p>P2. Explore validation functions for different purposes like email address, NAN (not a number) etc.</p> <p>P3. Apply suitable validation functions for required element</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Understanding of checking basic and data format validation
- Define regular expression

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Enabled browser
4.	IDE (Integrated Development Environment)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Show how the form submission is possible.



0613-S&AD&A-5. Fix Error/Bugs in Program

Overview: This competency standard covers the skills and knowledge required to remove the different types of errors in a program.

Competency Unit	Performance Criteria
CU1. Identify the error/bug	P1. Identify the immediate line of code where bug occurs P2. Identify the line of code where bug actually occurs P3. Identify the Specie/Type of bug.
CU 2. Remove the Sytax Error	P1. Identify the line of code where bug actually occurs. P2. Correct the error according to Java Script Syntax.
CU3. Remove the Logical Error	P1. Identify the error logic P2. Make a hypothesis without looking at code P3. Identify key variables and Conditions P4. Re-check suspicious code P5. Re-Write the suspicious code
CU4. Remove the Runtime Error	P1. Change the input values P2. Make sure you have enough memory/storage P3. Re-start your program/Browser (if required)

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Explain different types of programming errors.
- Understanding of error removal methods.



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Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Enabled browser
4.	IDE (Integrated Development Environment)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Show skills to differentiate among different types of errors
- Prove skills to remove syntax error, Logical and Run time error.



2. CMS Professional

0613-S&AD&A-6. Install Content Management System

Overview: This competency standard covers the skills and knowledge required to install a Content Management System.

Competency Unit	Performance Criteria
CU1. Identify System Requirements for local CMS development	<p>P1. Identify local Requirements (System Requirements)</p> <p>P2. Enlist Server-Side Requirements</p> <p>P3. Check for security vulnerabilities for the version to be installed.</p> <p>P4. Install an open-source cross platform web server solution software</p> <p>P5. Setup Server & Database environment of server solution software for the CMS based website to be run on it.</p>
CU2. Perform Installation	<p>P1. Download and Extract files</p> <p>P2. Create the Database and a User</p> <p>P3. Upload Files in root directory & subdirectory</p> <p>P4. Setup the configuration</p> <p>P5. Run Install script</p> <p>P6. Troubleshoot common installation problems</p>
CU3. Install multiple instances	<p>P1. Install Single CMS instance with a single database</p> <p>P2. Install Multiple CMS instances with a single database</p> <p>P3. Install Multiple instances with multiple databases</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Describe steps for downloading a CMS.
- Understanding a Content Management System environment.
- Write down the steps to install CMS successfully on a local computer system



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Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Browser
4.	Database Software
5.	Text Editor, XAMP, MAMP
6.	CMS Softwares: Wordpress, Joomla, Wix etc

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Download and Install CMS software.



0613-S&AD&A-7. Write/Edit posts and pages

Overview: This competency standard covers the skills and knowledge required to write and edit posts and create pages on a CMS based website.

Competency Unit	Performance Criteria
CU1. Write Posts	<p>P1. Check for the tools available on the admin panel for creating a post.</p> <p>P2. Use block editor for adding contents.</p>
CU2. Create Pages	<p>P1. Login to your CMS, go to the Page section.</p> <p>P2. Insert Content</p> <p>P3. Set the page hierarchy</p> <p>P4. Update URL for your page.</p> <p>P5. Generate permalink</p>
CU3. Adjust Media Library	<p>P1. Upload Images, Videos and Audios to the media library</p> <p>P2. Set media library views</p> <p>P3. Delete the unwanted media items from the library</p>
CU4. Manage Comments on posts/pages	<p>P1. Setup comment rules</p> <p>P2. Enable comments for the site</p> <p>P3. Manage incoming comments</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Define a CMS.
- Describe qualities of good Blog posts.
- Enlist attributes of a webpages
- Differentiate between a post and a page
- Describe comments management on a post/pag

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Browser Software
4.	Database



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5.	Text Editor, XAMP, MAMP
6.	CMS Softwares: Wordpress, Joomla, Wix etc

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Create and Publish a Blog Post.
- Create a Webpage and a subpage
- Approve and Delete Comments



0613-S&AD&A-8. Perform Basic Administration

Overview: This competency standard covers the skills and knowledge required to perform basic administration of a CMS based website.

Competency Unit	Performance Criteria
CU1. Navigate in CMS Environment	P1. Use different features available in the CMS P2. Explore the Dashboard for updating themes and plugins
CU2. Change the look & Feel of the Website	P1. Use widgets as per requirement P2. Create Navigational structure/Menu P3. Insert Header P4. Insert Footer

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Understand Dashboard of CMS
- Describe briefly widgets, header and menus of a CMS

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Browser Software
4.	Database
5.	Text Editor, XAMP, MAMP
6.	Elementor
7.	CMS Softwares: Wordpress, Joomla, Wix etc



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Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Insert & Edit Header in post.
- Add a desired widget.



0613-S&AD&A-9. Customize/Deploy theme

Overview: This competency standard covers the skills and knowledge required to customize/Deploy theme.

Competency Unit	Performance Criteria
CU1. Search for Themes	P1. Explore a variety of CMS themes (ready to use) P2. Search for a specific theme type from available free theme directory P3. Use selected theme
CU2. Add Theme	P1. Add new theme using the administration screen P2. Add new theme using CPanel P3. Add new theme using FTP
CU3. Activate/Update the Theme	P1. Log in to Administration Screen P2. Go to theme section P3. Select the desired theme P4. Generate the live preview P5. Click Activate

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Differentiate between free and paid themes.
- Describe characteristic of good theme
- Write down the steps to activate a theme



Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Browser Software
4.	Database
5.	Text Editor, XAMP, MAMP, Cpanel, FTP
6.	CMS Softwares: Wordpress, Joomla, Wix etc

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Search and apply the required theme.
- Customize theme as per given instructions/requirements



0613-S&AD&A-10. Add Plugins to Website

Overview: This competency standard covers the skills and knowledge required to add plugins to a website.

Competency Unit	Performance Criteria
CU1. Manage plugins	<p>P1. Enlist the popular plugins</p> <p>P2. Search plugin directory for Spam Control, SEO, E-Commerce and Security Plugins</p>
CU2. Install/Update Plugins	<p>P1. Navigate to the Plugins section</p> <p>P2. Perform search for the desired plugin and add it.</p> <p>P3. Click the plugin link and view its version</p> <p>P4. Click update if an update is available</p> <p>P5. Activate the plugin</p>
CU3. Upload Plugins Manually	<p>P1. Unzip the plugin file</p> <p>P2. Connect to your CMS server with SFTP client</p> <p>P3. Copy the plugin folder to your CMS site plugins directory</p> <p>P4. Go to the plugin admin screen and locate the newly added plugin</p> <p>P5. Click the plugin's Activate link.</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Describe the purpose of plugins
- Define the role of security plugins



Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Browser Software
4.	Database
5.	Text Editor, XAMP, MAMP, Cpanel, FTP
6.	CMS Softwares: Wordpress, Joomla, Wix etc

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Install & Update a security plugin in your website.
- Install & Update an E-Commerce plugin for a business website.



0613-S&AD&A-11. Manage CMS website

Overview: This competency standard covers the skills and knowledge required to maintain & optimize the CMS website.

Competency Unit	Performance Criteria
CU1. Create Backups	P1. Create backup for the website P2. Initialize restoration process P3. Restore the site from backup using MySQL commands
CU2. Move website to a new server	P1. Move website keeping Domain Names and URLs P2. Change Domain Names and URLs P3. Move directories from existing server
CU3. Perform SEO & Caching	P1. Add Keyword, Link, Titles P2. Insert content in links and images P3. Perform caching for browser & server

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Understand importance of preparing website backups
- Describe steps for retrieving site from backup
- Write down steps to move a website to a new server
- Define SEO tricks.



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Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Browser Software
4.	Database
5.	Text Editor, XAMP, MAMP, CPanel, FTP
6.	CMS Softwares: Wordpress, Joomla, Wix etc.

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Prepare backup for your site
- Restore a website from backup
- Create a highly optimized webpage.



0613-S&AD&A-12. Perform troubleshooting

Overview: This competency standard covers the skills and knowledge required to perform troubleshooting & check for security issues.

Competency Unit	Performance Criteria
CU1. Resolve Login Problems	<p>P1. Refresh your browser</p> <p>P2. Check for the authorization access</p>
CU2. Manage Content Module	<p>P1. Make sure to use the recommended browser.</p> <p>P2. Check your file name doesn't contain any special characters</p> <p>P3. Make sure to resize the image to avoid image upload failure</p>
CU3. Manage Navigation Module	<p>P1. Clear web browser cache</p> <p>P2. Click “Publish” after creating a post/page</p> <p>P3. Check the “Stop Publishing Date”, and set it too far in future</p>
CU4. Resolve Security Issues	<p>P1. Administer security over SSL</p> <p>P2. Perform two-step authentication</p> <p>P3. Demonstrate best password practices</p> <p>P4. Use an encrypted communication protocol like https</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Highlight some of the login problems faced by CMS website users
- Differentiate between content management problems and navigation problems of CMS based website
- Describe how to maintain security of a CMS based website

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Browser Software (Chrome, Firefox etc.)



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4.	Text Editor, XAMP, MAMP, CPanel, FTP
5.	CMS Softwares: Wordpress, Joomla, Wix etc.

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Resolve content uploading failure issues.
- Perform two-step authentication to ensure website is secure



3. Jr. Programmer (Java)

0613-S&AD&A-13. Create Environment for java programming

Overview: This competency standard covers the skills and knowledge required to create java environment to run java successfully.

Competency Unit	Performance Criteria
CU1. Download Java Development Kit (JDK)	P1. Find the URL to Download JDK P2. Check the JDK Version P3. See the Compatibility of JDK for required Operating System P4. Download the JDK
CU2. Install Java IDE	P1. Search the different JAVA IDEs P2. Explore the features of available IDEs P3. Choose suitable Java IDE e.g. Eclipse, NetBeans, Notepad++ etc. P4. Install the required IDE
CU3. Set Up a Development Environment.	P1. Set the environment variables according to OS P2. Write first program on installed IDE P3. Compile the Java Source Code P4. Run the Byte Code

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Different types of IDEs
- JDKs Versions
- Setting up environment variables if JDK Install separate from IDE



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Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Development Kit (JDK)
4.	IDE (Integrated Development Environment)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Show skills to install JDK
- Demonstrate skills to install IDE.
- Show the execution the program successfully.



0613-S&AD&A-14. Develop Java based solutions

Overview: This competency standard covers the skills and knowledge required to build logic in programming.

Competency Unit	Performance Criteria
CU1. Learn Java Libraries	P1. List important Java libraries. P2. List the library features offering useful functionalities
CU2. Solve the Problem using Java	P1. Create new java project P2. Implement sequential structure P3. Implement conditional structure P4. Implement iterative structure P5. Define/write user define functions P6. Create the classes / interfaces as per program requirement P7. Write java code solving the problem

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Define object oriented programming
- Define classes and interfaces

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Blank Paper
4.	Pen

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:



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- Write a Java program solving the given problem



0613-S&AD&A-15. Fix errors/bugs in Program

Overview: This competency standard covers the skills and knowledge required to remove the different types of errors in a program.

Competency Unit	Performance Criteria
CU1. Identify the error/bug	P1. Identify the immediate line of code where bug occurs P2. Identify the line of code where bug actually occurs P3. Identify the Specie/Type of bug.
CU2. Remove the Sytax Error	P1. Identify the line of code where bug actually occurs. P2. Correct the error according to Java Syntax.
CU3. Remove the Logical Error	P1. Understand what you actually trying to accomplish P2. Understand what your code actually did P3. Make a hypothesis without looking at code P4. Identify key variables and Conditions P5. Concentrate on suspicious code only P6. Re-Write the suspicious code
CU4. Remove the Runtime Error	P1. Change the input values P2. Make sure you have enough memory/storage P3. Recompile and run the code

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Different types of programming errors.
- Removing the errors.



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Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Development Kit (JDK)
4.	IDE (Integrated Development Environment)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Show skills to differentiate among different types of errors
- Prove skills to remove syntax error, Logical and Run time error.



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Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer/Laptop
2.	Internet Connection
3.	Java Development Kit (JDK)
4.	IDE (Integrated Development Environment)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Show skills to differentiate among different types of errors
- Prove skills to remove syntax error, Logical and Run time error.



4. UI/UX Developer

0613-S&AD&A-16. Create Static Webpages

Overview: After this competency standard candidate will be able to design static web pages for the application.

Competency Unit	Performance Criteria
CU1. Set-up environment	P1. Explore different platforms P2. Explore their features and compare them P3. Choose the most suitable platform P4. Install the selected platform/software
CU2. Plan to design web page	P1. Gather requirements of design P2. Identify important elements P3. Create basic Skelton
CU3. Design Webpage	P1. Explore HTML tags and their attributes P2. Code HTML for the web page P3. Add text to the web page P4. Add images to the web page P5. Manage data in tables and divs through HTML or any Web designing software P6. Apply formatting P7. Add links(hyperlinks) if needed P8. Explore and use WYSIWYG to add contents in a web page

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Describe the use of HTML
- Differentiate between Table and Divs
- Define Tags and their attributes
- Explain WYSIWYG

Tools and Equipment

The tools and equipment required for this competency standard are given below:



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S. No.	Items
1.	Computer System
2.	Web designing Tool (Dream viewer etc)
3.	Website Builder like (WIX etc)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Design a complete web page for a given scenario



0613-S&AD&A-17. Apply Cascading stylesheet

Overview: After this competency standard candidate will be able to define and apply cascading stylesheet (CSS) in web site.

Competency Unit	Performance Criteria
CU1. Explore CSS	P1. Explore the ways to insert CSS P2. Identify required way to insert CSS
CU2. Define CSS	P1. Explore the syntax to define CSS P2. Explore the properties in CSS P3. Explore the possible values of different properties P4. Define/code styles for tags in CSS P5. Define/code styles for classes in CSS P6. Define/code styles for IDs in CSS P7. Explore and use media query for different screen sizes (Responsiveness)
CU3. Apply CSS	P1. Select suitable place where to apply formatting/stylesheets P2. Call CSS as a class/ID P3. Use style tags
CU4. Explore CSS frameworks (Like Bootstrap, SASS, foundation etc.)	P1. Search available CSS frameworks P2. Install most suitable framework P3. Configure framework with IDE and modules P4. Explore defined classes of framework P5. Use classes/features of framework

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Define the all three ways to insert CSS
- What is responsive design and how frameworks make it easy
- Differentiate between Class and ID in CSS
- Understand three tier responsive layout



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Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	IDE (Notepad++, Sublime, visual studio code etc)
3.	Web browsers
4.	Internet connection

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Design a responsive web page for a particular scenario



0613-S&AD&A-18. Convert mockups into web pages

Overview: After this competency standard candidate will be able to convert design mock-ups into web pages.

Competency Unit	Performance Criteria
CU1. Create mockups	<p>P1. Use suitable tool to design a mockup</p> <p>P2. Design mockups</p> <p>P3. Save it in appropriate format e.g. PSD</p>
CU2. Convert design in HTML5 and CSS3	<p>P1. Slice image/mockup using designing tool</p> <p>P2. Write HTML against each sliced image</p> <p>P3. Write CSS against HTML</p> <p>P4. Use any framework for responsiveness of webpage</p>
CU3. Make web page interactive	<p>P1. Add JS if needed for interactive part for slider</p> <p>P2. Apply JS for interactive web forms if needed</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Understand the important tags and attributes of HTML
- Define CSS and ways to insert in HTML

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Internet Connection
3.	Designing Tool (e.g. Adobe XD, Adobe Photoshop etc.)
4.	Frontend frameworks (bootstrap, foundation etc.)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Convert a given mockup into a responsive web page



0613-S&AD&A-19. Convert Designs into mobile application mockups

Overview: After this competency standard candidate will be able to convert a design into a mobile application screen/mockups.

Competency Unit	Performance Criteria
CU1. Design screens	<p>P1. Use suitable tool to create wireframe</p> <p>P2. Use suitable tool to design mobile screens</p> <p>P3. Design mockups/screens</p> <p>P4. Save it in appropriate format e.g. XD</p>
CU2. Create mockups	<p>P1. Patch different screens with each other in a appropriate sequence</p> <p>P2. Add functionalities against different elements like button, menu, forms etc.</p> <p>P3. Create animations of different elements</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Understanding of prototyping/wireframing

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Designing Tool (e.g. Adobe XD)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Create a complete mobile application mockup for a particular scenario



0613-S&AD&A-20. Create mockups for mobile game

Overview: After this competency standard candidate will be able to create designs and convert designs into a game screen mock-up.

Competency Unit	Performance Criteria
CU1. Plan to create mockups	P1. Select suitable tool/s to design different components P2. Identify player needs P3. Identify Game objectives P4. Wireframe mobile app interface player needs and game objectives
CU2. Design UI	P1. Use suitable tool/s to design P2. Design characters P3. Design UI elements like buttons, menus, maps etc. P4. Create Environment P5. Add assets in environment P6. Design infographics like GIFs
CU3. Design UX	P1. Explore and select the appropriate color schemes for the screens P2. Inculcate different UI components in game P3. Finalize the layout P4. Manage screen flow as per requirements (prototype)

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Define color theory
- Explain different UI components

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Designing Tool (e.g. Adobe XD, Adobe illustrator)
3.	Animation tool (e.g. Unity)

Critical Evidence(s) Required



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The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Create a complete mobile game mockup for a particular scenario



0613-S&AD&A-21. Apply validations to web forms

Overview: After this competency standard candidate will be able to apply different validations in web forms

Competency Unit	Performance Criteria
CU1. Explore Javascript	<p>P1. Explore how to write validation functions in javascript</p> <p>P2. Search different libraries of javascript that provides validation features</p> <p>P3. Search different javascript frameworks</p> <p>P4. Select appropriate library/framework to write JS code</p>
CU2. Apply validation into a web form	<p>P1. Design a web form</p> <p>P2. Identify elements where to apply validations</p> <p>P3. Explore validation functions for different purposes like email address, NAN (not a number) etc.</p> <p>P4. Apply suitable validation functions for required element</p>

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes:

- Describe different validation functions available in javascript
- Explain different JS libraries
- Enlist different javascript frameworks

Tools and Equipment

The tools and equipment required for this competency standard are given below:

S. No.	Items
1.	Computer System
2.	Web Browser
3.	IDE (notepad++,visual studio code,)
4.	Js Frameworks (ANGULAR, VUE, VUEX etc.)

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** in order to be competent in this competency standard:

- Apply validations on a web form



5. Digital Skills

0613-S&AD&A-22. Operate digital media technology

Overview: This unit describes the performance outcomes, skills and knowledge required to identify, select and use a digital media package and supporting technologies.

Unit of Competency	Performance Criteria
CU1. Use appropriate OHS office work practices	P1. Use safe work practices P2. Use wrist rests and document holders where appropriate P3. Use monitor anti-glare and radiation reduction screens where appropriate
CU2. Identify and select appropriate digital media package	P1. Identify the basic requirements of a design brief, including user environment P2. Research and review suitable available digital media packages P3. Select an appropriate digital media package to meet design brief requirements
CU3. Use digital media package	P1. Procure or create suitable data to meet requirements of the brief P2. Manipulate data using digital media package tools P3. Ensure naming and storing of documents in appropriate file format in directories or folders
CU4. Review digital media design	P1. Evaluate design for creative, dramatic and technical quality, file size, and suitability to meet the brief P2. Test and run any incorporated graphics, video or sound as part of a digital media presentation and present designs in the appropriate format P3. Review final product against the design

Knowledge & Understanding

K1: Basic principles of visual design

K2: Functions and features of digital media packages and technologies

K3: Graphic design and stylistic language conventions

K4: OHS principles and responsibilities for ergonomics, such as work periods and breaks

K5: Principles of digital imaging and file formats, video and sound file formats, file management and transfer systems



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K6: Vendor product directions in digital media hardware and software

K7: Visualization and interpreting creative information, scripts (text) and images

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to identify, select and use a digital media package and supporting technologies. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Performance requirements

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints. Demonstrated evidence of the ability to:

- Identify basic requirements of a design brief
- Use digital media package to meet organizational requirements
- Use OHS principles and responsibilities for ergonomics, such as work periods and breaks
- Use help manuals and online help when appropriate
- Use digital media technologies to support design brief requirements.



0613-S&AD&A-23. Perform computer operations

Overview: This unit covers the knowledge, skills and attitudes and values needed to perform computer operations which include inputting, accessing, producing and transferring data using the appropriate hardware and software.

Unit of Competency	Performance Criteria
CU1. Plan and prepare for task to be undertaken	<p>P1. Requirements of task are determined as per standard Start with action word !!!</p> <p>P2. operating the procedures</p> <p>P3. Appropriate hardware and software is selected according to task assigned and required outcome</p> <p>P4. Task is planned to ensure</p>
CU2. Input data into computer	<p>P5. Data are entered into the computer using appropriate Start with action word !!!</p> <p>P1. program/application in accordance with company procedures</p> <p>P2. Accuracy of information is checked and information is saved in accordance with standard operating procedures</p> <p>P3. Inputted data are stored in storage media according to requirements</p> <p>P4. Work is performed within ergonomic guidelines</p>
CU3. Access information using computer	<p>P1. Correct program/application is selected based on job requirements</p> <p>P2. Program/application containing the information required is accessed according to company procedures</p> <p>P3. Desktop icons are correctly selected, opened and</p> <p>P4. closed for navigation purposes</p> <p>P5. Keyboard techniques are carried out in line with OH & S requirements for safe use of keyboards</p>
CU4. Produce/output data using computer system	<p>P1. Entered data are processed using appropriate software commands</p> <p>P2. Data are printed out as required using computer hardware/peripheral devices in accordance with standard operating procedures</p> <p>P3. Files and data are transferred between compatible</p> <p>P4. systems using computer software, hardware/ eripheral</p> <p>P5. devices in accordance with standard operating</p>
CU5. Maintain	<p>P1. Systems for cleaning, minor maintenance and replacement of</p>



computer equipment and systems

consumables are implemented correct as above

P2. Procedures for ensuring security of data, including regular back-ups and virus checks are implemented in accordance with standard operating procedures

P3. Basic file maintenance procedures are implemented in line with the standard operating procedures

Knowledge & Understanding

K1: Basic ergonomics of keyboard and computer use

K2: Main types of computers and basic features of different operating systems

K3: Main parts of a computer

K4: Storage devices and basic categories of memory

K5: Relevant types of software

K6: General security

K7: Viruses

K8: OH & S principles and responsibilities

K9: Calculating computer capacity

Critical Evidence(s) Required

The candidate needs to produce following **Critical Evidence(s)** to be competent in this competency standard:

Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Selected and used hardware components correctly and according to the task requirement
- Identified and explain the functions of both hardware and software used, their general features and capabilities
- Produced accurate and complete data in accordance with the requirements
- Used appropriate devices and procedures to transfer files/data accurately
- Maintained computer system



0613-S&AD&A-24. Use computer applications

Overview: This unit describes the performance outcomes, skills and knowledge required to identify, select and operate three commercial software packages, including a word-processing, a spreadsheet and presentation application package.

Unit of Competency	Performance Criteria
1. Use appropriate OHS office work practices	<ul style="list-style-type: none">1.1 Use safe work practices1.2 Use appropriate wrist rests and document holders1.3 Use monitor anti-glare and radiation reduction screens where appropriate
2. Install and remove software	<ul style="list-style-type: none">2.1 Select software to be installed2.2 Follow installation instructions2.3 Delete unwanted software
3. Use appropriate word-processing software	<ul style="list-style-type: none">3.1 Select word-processing software appropriate to perform activity3.2 Identify document purpose, audience and presentation requirements, and clarify with the concern personnel3.3 Identify organizational requirements for text-based business documents and design document structure and layout to ensure consistency of style and image3.4 Match document requirements with software functions to provide efficient production of documents3.5 Use technical functions, other data and formatting to finalize documents3.6 Ensure the naming and storing of documents in appropriate directories or folders and the printing of documents to the required specifications
4. Use appropriate spreadsheet software	<ul style="list-style-type: none">4.1 Select spreadsheet software appropriate to perform activity4.2 Identify document purpose, audience and presentation requirements, and clarify with personnel as required4.3 Enter simple formulas and functions using cell referencing where required4.4 Customize spreadsheet settings and format documents to meet requirements4.5 Ensure the naming and storing of documents in appropriate



	directories or folders and the printing of documents to the required specifications
5. Use appropriate presentation software	<p>5.1 Select software application package appropriate to perform activity</p> <p>5.2 Identify purpose, audience and presentation requirements, and clarify with personnel as required</p> <p>5.3 Use technical functions, other data and formatting to finalize documents</p> <p>5.4 Ensure documents are named and stored in appropriate directories or folders and printed to required specifications</p> <p>5.5 Make a presentation</p>

Knowledge & Understanding

K1: Application software packages used by the organization

K2: Basic technical terminology related to reading help files and responding to system help prompts

K3: Basic knowledge of system usage

K4: Current business practices related to using software to prepare reports

K5: Features and functions of commercial computing packages

K6: Import and export software functions

K7: Linking documents

K8: OHS principles and responsibilities for ergonomics, such as work periods and breaks

K9: Purpose, use and functions of applications

K10: Use of input and output devices

K11: Functions and uses of word processing, spreadsheet and presentation software

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to identify, select and operate three commercial software packages, including a word-processing and a spreadsheet application package. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Evidence of the ability to:

- Produce workplace documents using a minimum of three different software application packages



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- Open, amend and save files and documents according to organizational requirements
- Use OHS principles and responsibilities for ergonomics, such as work periods and breaks
- Use help manuals and online help.

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Use an operating system in a variety of scenarios and across functions, including:
 - scheduling, loading, initiating, and supervising the execution of programs
 - allocating storage
 - initiating and controlling input and output operations
 - handling errors
- Identify and install suitable hardware components
- Install and upgrade application software.



0613-S&AD&A-25. Create technical documentation

Overview: This unit describes the performance outcomes, skills and knowledge required to create technical documentation that is clear to the target audience and easy to navigate.

Unit of Competency	Performance Criteria
1. Identify and analyze documentation requirements and client needs	<ul style="list-style-type: none">1.1 Consult with client to identify documentation requirements1.2 Interpret and evaluate documentation requirements and confirm details with client1.3 Investigate industry and documentation standards for requirements1.4 Define and document the scope of work to be produced1.5 Consult with client to validate and confirm the scope of work
2. Design documentation	<ul style="list-style-type: none">2.1 Identify information requirements with reference to layout and document structure2.2 Create document templates and style guides consistent with information requirements2.3 Conduct a review of the system in order to understand its functionality2.4 Extract content that meets information requirements according to copyright restrictions2.5 Develop the structure of the technical documentation giving focus to the flow of information, style, tone and content format2.6 Validate the technical documentation structure with the client
3. Develop documentation	<ul style="list-style-type: none">3.1 Write technical documentation based on the template and scope of work using the information gathered3.2 Translate technical terminology into simple / plain English where appropriate3.3 Apply content format and style according to documentation standards and templates
4. Evaluate and edit documentation	<ul style="list-style-type: none">4.1 Submit technical documentation to appropriate person for review4.2 Gather and analyze feedback4.3 Incorporate alterations into the technical documentation4.4 Edit the technical documentation for technical and grammatical errors.
5. Prepare documentation for	<ul style="list-style-type: none">5.1 Check that the completed technical documentation meets client



publication	requirements and scope of work 5.2 Submit the technical documentation to appropriate person for approval correct as previous 5.3 Prepare the technical documentation for publication and distribution using appropriate channels
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Knowledge & Understanding

K1: Content features, such as clarity and readability

K2: Document design, web design and usability

K3: Functions and features of templates and style guides

K4: Instructional design principles

K5: Organizational policies, procedures and standards that cover document design.

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to create technical documentation that is clear to the target audience and easy to navigate. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Establish customer needs
- Design and develop technical documentation, such as system, procedures, training material and user guides, incorporating appropriate standards
- Update document with client feedback
- Prepare documentation for publication.



0613-S&AD&A-26. Create basic databases

Overview: This unit describes the skills and knowledge required to design, develop and test a database in order to meet a specification. It applies to individuals who may be either database, or web designers, required to create a simple database to store information for an online application, using a simple entity relational database.

Unit of Competency	Performance Criteria
1. Analyze the requirements for the database	1.1 Determine the information that the database is required to hold 1.2 Develop a written requirement report for the functionality of the database 1.3 Complete the documentation, and submit it to an appropriate person in order to be approved
2. Use data modeling to design the database to suit requirements	2.1 Design an entity-relationship (ER) diagram to model the relationships between the entities and the attributes that the database will hold 2.2 Develop primary and foreign keys to link the entities 2.3 Develop a data dictionary 2.4 Complete the documentation, and submit it to the appropriate person for approval correct as above
3. Create a database on a web or database server	3.1 Use the appropriate language on a web or database server to create few databases 3.2 Use the appropriate language on a web or database server to create few tables 3.3 Populate the database fields
4. Test the database and debug	4.1 Test the database on the web or a database server 4.2 Ensure that the information represented matches the requirements

Knowledge & Understanding

K1: outline the principles of open platforms, including browsers and databases

K2: list the processes associated with the creation of entities, attributes, and I populating fields, using both software solutions and script- based input

K3: describe data-modeling techniques to design a database

K4: outline the steps in database design, modeling and implementation

K5: describe the internet operation related to web servers and clients

K6: identify the naming conventions appropriate to database design

K7: identify security restrictions on servers, incorporating some theoretical concepts



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K8: describe best practice communication, and accessibility, for audiences with special needs.

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to create technical documentation that is clear to the target audience and easy to navigate. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- research client requirements for a database solution
- design a database that meets client requirements
- create a database on a web hosting service or server to meet client requirements by a due date
- Test and debug the database.



0613-S&AD&A-27. Use social media tools for collaboration and engagement

Overview: This unit describes the performance outcomes, skills and knowledge required to establish a social networking presence using social media tools and applications. The unit specifically identifies the requirement to review, compare and use different types of social networking tools and applications.

Unit of Competency	Performance Criteria
1. Describe different types of social media tools and applications	1.1 Explain characteristics of the term social media 1.2 Identify different types of social-media tools and applications 1.3 Illustrate various issues associated with the use of social media tools and applications
2. Compare different types of social media tools and applications	2.1 Select one social media type for review 2.2 Review most popular tools and applications within that social media 2.3 Itemize benefits across a range of the most popular tools and applications 2.4 Select most appropriate social media tool or application
3. Set up and use popular social media tools and applications	3.1 Identify social media tools and applications for possible implementation 3.2 Initiate preferred social media tools and applications 3.3 Establish social media interface using text and file content 3.4 Initiate social network interaction 3.5 Test and evaluate tools and applications for ease of use 3.6 Report and elaborate the findings

Knowledge & Understanding

K1: Basic technical terminology in relation to social networking and social media applications and tools

K2: Basic knowledge of uploading images, text files, pdf files, audio files, video files and link associated files

K3: Features and functions of social media applications

K4: Import and export software functions

K5: Linking documents

K6: OHS principles and responsibilities for ergonomics, including work periods and breaks

K7: Tagging to facilitate collaborative folksonomy

K8: Social media applications and procedures for connecting to social networking sites



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K9: Use of input and output devices

K10: Use of RSS feeds to connect a social network.

Critical Evidence(s) Required

A person who demonstrates competency in this unit must be able to provide evidence of the ability to create technical documentation that is clear to the target audience and easy to navigate. The evidence should integrate employability skills with workplace tasks and job roles and verify competency is able to be transferred to other circumstances and environments.

Performance requirements

This competency is to be assessed using standard and authorized work practices, safety requirements and environmental constraints. Demonstrated evidence is required of the ability to:

- Establish customer needs
- Design and develop technical documentation, such as system, procedures, training material and user guides, incorporating appropriate standards
- Update document with client feedback
- Prepare documentation for publication.