Test Object:	https://api.nasa.gov/
User Interface (UI):	* Ensure that the UI of the NASA API website is user-friendly, efficient, and error-free, providing a seamless experience for users accessing various space-related data. The testing will focus on validating functionality, performance, compatibility, and visual consistency across different platforms and devices.
API-Objectives:	* Verify that the NASA API functions correctly and meets specified criteria.
Key Goals:	* Functionality Testing: Verify that all UI elements such as buttons, links, forms, and navigation menus work as intended. * Usability Testing: Assess the ease of use and intuitiveness of the UI, ensuring that users can accomplish their tasks without confusion or difficulty. * Performance Testing: Check the responsiveness of the UI under various conditions, including load times and data retrieval efficiency. * Compatibility Testing: Ensure the UI displays correctly and functions on different browsers, operating systems, and devices. * Visual Testing: Confirm that the UI maintains visual consistency and alignment with NASA's branding guidelines. * Security Tests: Security testing focuses on identifying vulnerabilities and ensuring data protection.
Description:	* The testing will be conducted systematically, with detailed documentation of test cases and results to support continuous improvement of the website's UI. * The requirements should align with the overall goals of the NASA API website and contribute to its success in serving users and the broader community. * Each requirement is categorized, and additional details are provided where necessary.

Category/Module	Objective	Requirement ID	Requirements
	Create an engaging and user-friendly landing	REQ 1	- A visually appealing homepage with easy navigation.
Homepage	page that effectively communicates the website's purpose and provides easy access to key features and content.	REQ 2	- Quick access to key features and services offered by the website.
User Authentication and	Ensure secure access to the website's features and data by implementing robust	REQ 3	Different levels of access should be implemented based on user roles (e.g., DEMO, regular user).
Authorization	authentication and authorization mechanisms.	REQ 4	- Users should be able to create accounts and log in securely.
API Accessibility and Usability	Ensure that the API is accessible and user-friendly,	REQ 5	The API should be publicly accessible without authentication for exploration purposes. Users should be able to easily navigate and understand the available.
Osdomy	addi mondiy.	REQ 6	endpoints.
		REQ 7	- Users should be able to generate their own API keys.
API Key Management	Manage API keys efficiently.	REQ 8	 Rate limits should be set to prevent abuse while allowing legitimate usage.
		REQ 9	 Users should be able to check their current rate limit and usage details.
Search Functionality	Enable users to quickly find relevant information or content within the website by implementing a powerful and intuitive search	REQ 10	Users should be able to search for content, services, or information efficiently.
	functionality.	REQ 11	 Search results should be relevant and displayed in a user-friendly manner.
User Profile Management	Empower users to manage their profiles effectively, update personal information, and customize preferences to enhance their overall experience on the website.	REQ 12	Users should be able to manage their profiles, including updating personal information and preferences.
Responsive Design	Ensure that the website is accessible and user-friendly across various devices and screen	REQ 13	The website should be responsive and compatible with various devices (desktops, tablets, smartphones).
Responsive Design	sizes, providing a consistent experience to all users regardless of the device they use.	REQ 14	Compatibility with different web browsers should be ensured.
Performance and	Optimize website performance to deliver fast loading times and minimal latency, while also	REQ 15	-The website should be optimized for performance, with fast loading times and minimal latency.
Scalability	ensuring scalability to accommodate increasing traffic and user load.	REQ 16	 Scalability should be considered to handle varying levels of traffic and user load.
Security	Safeguard user data and prevent unauthorized access by implementing robust security measures, thereby building trust and	REQ 17	- Implementation of security measures to protect user data and prevent unauthorized access.
occurry	confidence among users regarding the website's security.	REQ 18	Regular security audits and updates to address potential vulnerabilities.
		REQ 19	- Display the latest APOD prominently on the website.
Astronomy Picture of the Day (APOD)	Showcase daily astronomy pictures.	REQ 20	- Provide image details, descriptions, and relevant metadata.
		REQ 21	- Allow users to explore past APOD images.
1111177	20,000,000,000,000	REQ 22	- Implement a search bar for asteroid names or IDs.
Asteroid Information	Enable users to search for asteroid data.	REQ 23	Display accurate information about asteroids, including size, distance, and impact risks.
		REQ 24	- Provide sections for each rover (Curlosity, Opportunity, Spirit).
Mars Rover Photos	Allow users to explore Mars rover photos.	REQ 25	- Display rover photos in a grid format with captions and dates.
		REQ 26	- Enable users to view photos in larger sizes.
		REQ 27	- Implement a map interface for selecting locations.
Earth Imagery	Provide access to satellite imagery of Earth.	REQ 28	- Display recent satellite images for selected areas.
		REQ 29	 - Allow users to toggle between different layers (e.g., cloud cover, vegetation).
		REQ 30	- Organize missions by type (robotic, crewed, planetary).

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	Project Name:	NASA		NASA	<u>APIs</u>						
	Type of Testing:	Positive Testing									
	Test prepared by:	Sergei Orlov									
	Test prepared Date:	3/16/2024									
	Test Executed by:	Sergei Orlov									
	Test Execution Date:	3/16/2024									
	Device:	Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.59 GHz		Browser:	Google Chro	me					
		Windows 11 Home/64		Version:	122.0.6261.	129 (Official Bui					
	Version:	22H2									
Key	Test Name	Objective	Precondition	Priority	Estimated Time	Coverage (Issues)	Test Script (Step-by-Step)	Test Script (Step-by-Step) - Test Data	Expected Result	Actual Results	Status: Pass/Fail
	Evaluate the performance of the https://api.nasa.gov/ website using the GTMetrix tool.	To assess the performance of the https://api.nasa.gov/ website using GTMetrix performance indicators, ensuring that it meets or exceeds the specified benchmarks.	* Access to the GTMetrix tool: https://gtmetrix.com/ * A stable internet connection.	Normal	0:20	REQ-15	Navigate to the GTMetrix website.	https://gtmetrix. com/	The website is accessible.	Same as expected.	
							2. Enter the URL "https://api.nasa.gov/" in the provided field.	Input: https://api.nasa. gov/	The entered URL is visible in the input field.	Same as expected.	
TC-15.1	Automated						3. Initiate the performance test.		The test is running.	Same as expected.	FAIL
							Observe the performance indicators.		* "Performance Score" is 80% or above it; * "First Contentful Paint" is 0.9s or less; * "Speed Index" is 1.3s or less; * "Largest Contentful Paint" is 1.2s or less; * "Time to Interactive" is 2.5s or less; * "Total Blocking Time" is 150ms or less;	Performance Score = 85% First Contentful Paint = 11ms Speed Index = 626ms Largest Contentful Paint = 759ms Time to Interactive = 1.3s Total Blocking Time = 29ms	
									* "Cumulative Layout Shift" score is 0.1 or less.	Cumulative Layout Shift = 0.29 > 0.1	
	https://api. Report generate Test Server Locato Usin	d: Set, Mar 16, 2004 2:37 PM -07000 n: MF Vercouse; Carabs g; (b) Chonne 1170.0.0. Lightnose 11.0.0	Sunnary Performance Structure Performance Metrics	Waterfall Video	History	Merc datal	is impacting your performance. Total size was 11.3MB				
_	B 85% Souther 77%	Vob Vitals # Lague Contented Face # Total Biology Tree # Cumulative Lague Call # # 759ms 29ms 0.29		181ms	Time to interactive Howing it takes for your page to become interactive. A good user experience is 2 Learn more.	Good - Nothing to do Pene	Large network payloads cost users real money a URL - http://aci.nasa.cov/ase/fis/molosera/insicht.christ - http://aci.nasa.cov/EPIC/archive/natical/21/305/00	.009			
		PARKED BY	Speed index Now quide the common of none page are widely processed to the common of none page are widely processed in the common of the commo				https://inci.nass.cov/asserla/impoless.cov/asserla/impoless.cov/asserla/impoless.cov/asserla/impolesser.cov/a	GukToZ0VoKa8GbTSwhecaptcha en.ig GukToZ0VoKa8GbTSwhecaptcha en.ig	2.41MB 1.00MB 199KB 199KB 199KB 65.34B		
	Good	### 1.3s Time to Interective #	Largest Contentful Paint	Total Markes Unit have Countidable Layout Shift Have many you pept in your of his in treate A your expension and propried a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a sorrer of 3 to rise. A your expension as a your e				85.3KB 54.3KB 47.6KB			
	Largest Contentful Paint III 7	Cumulative Layout Shift # 0.29			A large DOM will increase memory usage, cause longer style calculations, and produce costly layout reflows. Lavin how to						

Project Name:	NASA	NASA APIs	TC ID:	Positive / Negative	Test Priority:	Module Name:	Test Title (REQ):	Precondition	Steps Description:	Test Data:	Expected Result:	Actual Result:	AUTOMATED	STATUS (Pass/Fali):
Type of Testing:	Positive / Negative						Verify the form is titled "Generate API Key".	https://api.nasa.gov is accessible.	1. Open Website https://api.nasa.gov	Homepage	The form is titled "Generate API Key".	Same as expected.		
Test prepared by:	Sergei Orlov					API Key			2. Scroll down to the signup form.				AUTOMATED	
Test prepared Date:	3/18/2024		TC-7.2	Positive	High	Management			3. Observe the form title.					PASS
Test Executed by:	Sergei Orlov													
Test Execution Date:	3/20/2024													
Device:	Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.59 GHz													
OS:	Windows 11 Home/64	4												
Version:	22H2													
Browser:	Google Chrome							https://api.nasa.gov is accessible.	1. Open Website https://api.nasa.gov	Homepage	The mandatory input fields for "First Name",	Same as expected	i.	
Version:	122.0.6261.129 (Office	cial Build) (64-bit)	TC-7.3	Positive	High	API Key Management	mandatory input helds		2. Scroll down to the signup form.		"Last Name", and "Email" are displayed.		AUTOMATED	PASS
									3. Observe the input fields.					
	REQUIREMENT:	REO-7												
	KEGOIKEMENT.	TLEGET			High								I. AUTOMATED	
							Verify that mandatory input fields are marked	https://api.nasa.gov is accessible.	1. Open Website https://api.nasa.gov	Homepage	Each of these fields is marked with an asterisk	Same as expected		
			TC-7.4	Positive High		High API Key Management	with an asterisk (*) to		2. Scroll down to the signup form.		(*).			PASS
			10-1.4		iligii		indicate that they are		3. Observe the input fields.					IAGO
							required.							
								https://api.nasa.gov		Homepage	The optional text field	Same as expected	i.	
							an optional text field	is accessible.	https://api.nasa.gov		labeled "How will you use the APIs?" is displayed.			
			TC-7.5	Positive	High	API Key	labeled "How will you use		2. Scroll down to the signup form.		ule APIS! IS displayed.		AUTOMATED	PASS
			10-1.5	OSILIVE	High	Management	the APIs?".		3. Observe the optional text				AUTOMATED	
									field.					

Project Name:	NASA	NASA APIs	TC ID:	Positive / Negative	Test Priority:	Module Name:	Test Title (REQ):	Precondition	Steps Description:	Test Data:	Expected Result:	Actual Result:	AUTOMATED	STATUS (Pass/Fali):
							Verify that the form has the "Signup" button.	https://api.nasa.gov is accessible.	Open Website https://api.nasa.gov Scroll down to the signup	Homepage	The form includes a "Signup" button for submission.	Same as expected		
			TC-7.6	Positive	High	API Key Management			form.		Capinicoloni		AUTOMATED	PASS
						Management			3. Observe the "Signup" button.					
							Verify The system	https://api.nasa.gov is accessible.	1. Open Website https://api.nasa.gov	Homepage	The system generates an API key for the user and	Same as expected		
						API Key	generates an API key for the user and the user can		2. Scroll down to the signup form.		the user can view and copy this API key.			
			TC-7.7	Positive	Positive High	Management	view and copy this API key.		3. Fill in all the required fields with valid data	Faker.com			AUTOMATED	PASS
							icy.		4. Click the "Signup" button.					
						ADLKov	Verify that an error	https://api.nasa.gov is accessible.	1. Open Website https://api.nasa.gov	Homepage	An error message "Fill out this field" is displayed	Same as expected	d. AUTOMATED	
							nessage is displayed if a required field "First Name" left empty.		2. Scroll down to the signup form.					
			TC-7.8	Negative	High				3. Leave the required field "First Name" empty.					PASS
									4. Enter the valid information	Faker.com				
									in the other input fields. 5. Click the "Signup" button.					
									5. Click the Signap button.					
							Verify that an error	https://api.nasa.gov is accessible.	1. Open Website https://api.nasa.gov	Homepage	An error message is displayed.	Same as expected		
				C-7.9 Negative Hig			message is displayed if a		2. Scroll down to the signup		displayed.			
			TC 7.0		Ulianh	API Key	required field "Last Name" left empty.		form. 3. Leave the required field				AUTOMATED	DACC
			10-7.9		nign	Management	ivanie ien empty.		"Last Name" empty.				AUTOMATED	PASS
									4. Enter the valid information in the other input fields.	Faker.com				
									5. Click the "Signup" button.					

Project Name:	NASA	NASA APIs		TC ID:	Positive / Negative	Test Priority:	Module Name:	Test Title (REQ):	Precondition	Steps Description:	Test Data:	Expected Result:	Actual Result:	AUTOMATED	STATUS (Pass/Fali):
				TC-7.10	Negative	High	API Key Management	Verify that an error message is displayed if a required field "Email" left empty.	https://api.nasa.gov is accessible.	1. Open Website https://api.nasa.gov 2. Scroll down to the signup form. 3. Leave the required field "Email" empty. 4. Enter the valid information in the other input fields. 5. Click the "Signup" button.	Homepage Faker.com	An error message "Enter an email address." is displayed.	Same as expected	I. AUTOMATED) Pass
				TC-7.11	Negative	High	API Key Management			1. Open Website https://api.nasa.gov 2. Scroll down to the signup form. 3. Enter an invalid email address in the "Email" field. 4. Enter the valid information in the other input fields. 5. Click the "Signup" button.	Faker.com 1. john.doe.example.c 2. jane_smith123@ (n 3. @company.com (m 4. bob smith@com (in 5. john.doe@example	С	Some invalid email formats were accepted.	AUTOMATED	FAIL

Project Name:	NASA APIs		<u>http</u>	s://api.na	sa.gov/															
Traceability Ma	trix:																			
Test prepared by:	Sergei Orlov																			
Test prepared Date:	18/3/2024																			
Test Executed by:	Sergei Orlov																			
Test Execution Date:	20/3/2024																			
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Device:	Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz 2.59 GHz		Browse	rowse Google Chrome																
os:	Windows 11 Home/64		Version	122.0.62	61.129 (0	fficial Build	d) (64-bit)													
Version:	22H2																			
Requ			Requirements																	
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		TC-15.1	F														Т	est Summ	ary:	
		TC-7.2		Р												Tota				44
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		TC-7.4				Р											Tests Pass	eod:		9
		TC-7.5					Р										icolo Fasi	seu.		9
		TC-7.6						Р									Tests Fai	ld:		2
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		TC-7.8								Р										
		TC-7.9									Р									
		TC-7.10										Р								
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		TC-7.11											F							