|  |  |
| --- | --- |
| Assessment Title | Review and document the API |

## Competency Details

|  |  |
| --- | --- |
| Unit code/s and title/s | ICTPRG553 – Create and develop REST APIs |
| Qualification code/s and title/s | ICT50220 Diploma of Information Technology |
| Business unit/Work group | Business and Arts/IT Studies |

## Instructions

|  |  |
| --- | --- |
| Method/s of assessment | Questioning (Written)  Product (JavaScript Code)  Product (Screenshots as evidence) |
| Overview of assessment | This assessment will require you to:   * Complete written questions within this document * Provide screen captures for written questions within this document. |
| Task/s to be assessed | This assessment will require you to complete the following tasks  Task 1 – Review an API documentation tool  Task 2 – Document your API using the Postman tool |
| Time allowed | Refer to your schedule for submission dates |
| Location of assessment | Assessment can be completed anywhere with access to the resources required. (See Resources Required section below) |
| Decision making rules | To receive a satisfactory outcome for this assessment you must complete all parts correctly.  Word counts are provided as guidance only. |
| Assessment conditions | This assessment must be undertaken where conditions are typical of a work environment requiring cyber secure practices, processes, and procedures.  This is an unsupervised assessment, and you may access any required resources. |
| Resources required | To complete this assessment, you will require the following:   * Visual Studio Code * Internet access * Microsoft Word * Microsoft Windows 10/11 * Node.js * AdonisJS * Postman * ICTPRG533 - ASDS – Policy ID 191 - Rapid Application Development   You can complete on your own computers or laptops if you are able to source the above requirements. |
| Result notification and reassessment information | You will be provided feedback and the result for your assignment on TAFESA Learn. You will be and given the chance to resubmit with required corrections only once.  Refer to the TAFE SA assessment policy for more information <https://www.tafesa.edu.au/apply-enrol/before-starting/student-policies/assessment> |

**SCENARIO**

You have been employed by the ITWorks organisation as a junior programmer and you have previously done some work with JavaScript. A client has come to ITWorks with a large project which has a short time frame for completion. This project is a student enrolment system where students can register themselves into their studies using a web application.

This sort of application will be back end heavy as a great deal of data will be stored and retrieved from back-end systems.

ITWorks senior developers believe that an Application Programming Interface (API) would be valuable for this project for retrieving backend information and you have been tasked with doing some preliminary research and implementation for the enrolment system API. The work that you do will be built upon in the future should the client and senior developers be happy with your results.

You have now created your API endpoints, added extra functionality to the appropriate methods and added authentication to your API. To ensure that your API is understood and fully usable by all stakeholders you must implement adequate documentation into your API project using a supported API documentation tool.

**Task 1: Review an API documentation tool**

The policy, ICTPRG533 - ASDS – Policy ID 191 - Rapid Application Development, has information regarding approved API testing and documentation tools for ITWorks.

**Question 1:**

We need to review and select an appropriate API documentation tool for our project.

Provide a description of the following API tools.

In your description include:

* how the tool would be able to assist ITWorks with generating API documentation for this project

Give minimum three features of each tool. (Approximately 50 words each tool)

Swagger

1. Interactive Documentation: Swagger provides a user-friendly UI for exploring and testing APIs, enhancing understanding and developer productivity.
2. API Design Tools: Swagger offers intuitive tools to design and define APIs, ensuring standardized and well-documented specifications.
3. Validation and Testing: Swagger allows for automatic validation of API requests and responses, ensuring adherence to the defined specifications. It also facilitates testing by providing tools to simulate API calls and evaluate their outcomes.

Postman

1. API Testing: Postman offers a comprehensive testing environment for API endpoints, allowing developers to send requests, validate responses, and automate testing workflows for increased efficiency and reliability.
2. API Documentation: Postman enables the generation of detailed documentation from API requests, responses, and examples, making it easier for developers and consumers to understand and consume the API.
3. Collaboration and Teamwork: Postman provides collaboration features, such as shared workspaces and team libraries, enabling seamless collaboration between team members during API development, testing, and documentation.

**Question 2:**

Describe what the OpenAPI specification is. Include in your description why it is important for ITWorks to follow this standard. (Approximately 40 words)

The OpenAPI specification is a standardized format for documenting and defining RESTful APIs. It is important for ITWorks to follow it as it enhances interoperability, enables automated API client generation, facilitates collaboration, and simplifies API development and maintenance.

**Question 3:**

According to the documentation at [Swagger,](https://swagger.io/docs/specification/paths-and-operations/) what is the convention for marking parts of path URLs as Path Parameters? (Approximately 20 words).

 In Swagger/OpenAPI, path parameters are marked using curly braces {} within the path URL, e.g., "/users/{userId}".

Why is it important for ITWorks to follow the conventions outlined in the standards? (Approximately 40 words)

 It is important for ITWorks to follow the conventions outlined in standards because it ensures consistency and compatibility across different systems and tools. It simplifies integration, promotes interoperability, and reduces errors.

**Task 2: Create the API documentation**

**Question 4:**

We now need to document our API so that ITWorks personnel may understand our API and the available endpoints. As per the policy, ICTPRG533 - ASDS – Policy ID 191 - Rapid Application Development, the ITWorks supported API documentation tool is Postman. Create the documentation for all your endpoints using the Postman software. Provide screenshots of your documentation for each endpoint. Ensure your documentation includes:

* A Description
* Any path variables
* Descriptions of successful responses and failed responses

Screenshot of the /students/ endpoint documentation

|  |  |
| --- | --- |
| A screenshot of a computer program  Description automatically generated with medium confidence | A screenshot of a black screen  Description automatically generated with low confidence |

Screenshot of the /students/{id} GET endpoint documentation

|  |  |
| --- | --- |
| A screenshot of a black screen  Description automatically generated with low confidence | A screenshot of a black screen  Description automatically generated with low confidence |

Screenshot of the /students/{id} POST endpoint documentation

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

Screenshot of the /students/{id} PUT endpoint documentation

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

Screenshot of the /students/{id} DELETE endpoint documentation

|  |  |
| --- | --- |
|  |  |

**Question 5:**

You must check to ensure that all required endpoints have been documented and contain the required sections.

List all your endpoints for your API and for each endpoint describe if all the required information is included. The first endpoint has been partially completed for you as a guide.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-

Endpoint: /students/

Request used: GET

Is the documentation accurate? (Approximately 25 words):

The document is accurate as it describes the retrieve ALL students from the sps database, the documentation also has a description for both successful and an unsuccessful response

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Endpoint: /students/{id}

Request used: GET

Is the documentation accurate? (Approximately 25 words):

The document is accurate as it describes the retrieve One student from the sps database, the documentation also has a description for both successful and an unsuccessful response

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Endpoint: /students/{id}

Request used: POST

Is the documentation accurate? (Approximately 25 words):

The document is accurate as it describes the add One student to the sps database, the documentation also has a description for both successful and an unsuccessful response for each of the field that are required

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Endpoint: /students/{id}

Request used: PUT

Is the documentation accurate? (Approximately 25 words):

The document is accurate as it describes the update One student on the sps database, the documentation also has a description for both successful and an unsuccessful response for each of the field that are required and if a student isn’t found

Endpoint: /students/{id}

Request used: Delete

Is the documentation accurate? (Approximately 25 words):

The document is accurate as it describes the add One student to the sps database, the documentation also has a description for both successful and an unsuccessful response if the student isn’t found

**Question 6:**

You must now submit your API documentation to your manager at ITWorks.

Export your Postman API documentation to JSON.

Create an email to [ITManager@ITWorks.com.au](mailto:ITManager@ITWorks.com.au) and include your JSON file(s) as an attachment. Make sure in your email to include:

* Greeting line
* Email body which contains that you are formally submitting the API documentation for review
* Email signature with name and job role included

Take a screenshot of your completed email with the attached JSON files visible.

**Question 7:**

Now that you have completed your API and its documentation, provide some details about the underlying protocol that it utilises.

List three features of the Hypertext transfer protocol:

1. HTTP is stateless, allowing independent requests and responses without the need for server-side session management.
2. It is based on a client-server model, where clients (web browsers) request resources from servers (web servers).
3. HTTP supports various methods, such as GET, POST, and PUT, allowing different types of interactions with web resources.

List three applications of the Hypertext transfer protocol:

1. HTTP is used for fetching web pages in web browsers.
2. HTTP is employed in RESTful APIs to exchange data between clients and servers.
3. HTTP facilitates communication in web-based applications, such as online shopping or social media platforms.

Describe the purpose of the HTTP headers (Approximately 25 words):

 HTTP headers provide additional information about the request or response, such as content type, caching directives, authentication credentials, and session management, enabling effective communication between clients and servers.

What are the five parts of a HTTP request?

1. Method
2. URL
3. Headers
4. Request Body
5. Query Parameters

What are the five parts of a HTTP response?

1. Status Line
2. Headers
3. Empty Line
4. Response Body
5. Cookies

**Third API Application Submission:**

You are required to upload 2 files to Learn for your submission for assessment 3:

* A link to your Postman documentation.

https://documenter.getpostman.com/view/26085702/2s93zCa1w5

* Word document containing the screenshots and answers to the written questions listed in this assessment document. The answer document should be named ***Assignment3\_YourIDNo.docx***.