AWT API PROJECT

BUILT USING PHP

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CMPS4191: Advanced Web-Technologies

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Business Entity

This API allows requests to be performed on a database for a hypothetical laptop store's inventory listings on its e-commerce website. With its associated documentation, this API informs developers how to automate the execution of processes for this API's associated database. Clients, or customers in this context, request data from the database using GET requests. In addition, authorized individuals such as employees can perform special operations/requests such as PUT, POST, and DELETE on resources in the database such as laptops, customers, and employees(for employees). By utilizing this API, the laptop store can provide better web application service.

Justification for Using an API

Growing businesses that plan to scale their services may implement additional systems that may need to interoperate with the e-commerce system. Therefore, an API is a better pivot for the system scalability. Also, the development of this API is modular. It allows developers to create new endpoints easily and support handling requests for new resources. This can be further enhanced with versioning of this API. Furthermore, modularity brings more flexibility, easier integration, and updates. Leveraging pre-built functionalities in subsequent developments of the API enables rapid development. An extension of this API may expand functionality with third-party services, thus improving their web service.

Benefits of Using an API

Through standardized methods of accessing and automating specific functionalities, the streamlined development of an API increases the efficiency of business operations. As mentioned, an API can allow the monitoring, use, and development of features without affecting the system. This better informs businesses of trends and grants the ability to be proactive with how their clients use their services. An API offers greater customization in-service functionality, enabling businesses to extend features in their services. Next, APIs enhance security by providing controlled access to specific functionalities and data. As stated in the "Description of API features" for this project, there are many techniques used to authenticate and authorize the access of different resources. For these reasons, an API helps a business be efficient, cost-effective, and reliable in providing its services.

Description of API features

The API features seek to automate the processes for an employee who may need to update the system with new information or remove information. Information being handled by the API includes laptop specifications and users' personal information. There are two types of users: employees and customers.

Customers are permitted to perform GET requests for laptops only. Additionally, requests can be sent to sort and return a range of results from the list of laptops.

Results are permitted for GET requests of laptops and all system users for administrative and employee requests. By specifying an ID, employees can search for a user using a POST request or delete a user with a DELETE request. Employees may also update an existing user through PUT requests by specifying an ID.

The documentation provides a variety of response codes and logs from the API, which informs developers of the status of requests made by any client. This improves the adaptability and comprehensibility of the API.

For security reasons, multiple measures are in place to prevent endpoint attacks. Those measures include:

- Authentication method: API Keys with assigned permissions
- Rate limiting
- Only accepting data in JSON format using the header: Content-Type: application/json
- Hashing of passwords with a unique key and secure encryption method
- Filtering of requests not using the HTTP METHODS: GET, POST, PUT, or DELETE.
- Using Prepared Statements in SQL
- Error handling
- Logging