

Error Handling

Assignment Questions



1. You are developing the error handling mechanism for an online shopping cart application. The application allows users to add products to their cart and proceed to checkout. Implement error handling to address different types of errors that might occur during the shopping process.

Task 1: Add Product to Cart Function

Create a function `addToCart` that simulates adding a product to the shopping cart. The function should take the product details (name, price, quantity) as parameters and throw errors under certain conditions:

- If the product name is not provided, throw an error indicating "Product name is required."
- If the product price is not a positive number, throw an error indicating "Invalid product price."
- If the quantity is not a positive integer, throw an error indicating "Invalid quantity."

Task 2: Checkout Function

Create a function `checkout` that simulates the checkout process. This function should throw an error if the cart is empty, indicating "Cart is empty. Add items before checkout."

```
try {
  addToCart("Laptop", 1200, 2);
  addToCart("", 30, 1); // Should throw an error: "Product name is required."
  addToCart("Mouse", -15, 3); // Should throw an error: "Invalid product price."
  addToCart("Keyboard", 50, "abc"); // Should throw an error: "Invalid quantity."

  checkout(); // Should throw an error: "Cart is empty. Add items before checkout."
} catch (error) {
  console.error(error.message);
}
```

2. You are working on a user authentication module for a web application. Implement error handling for the login process. Create a function `login` that simulates the user login process. The function should take the username and password as parameters and throw errors under certain conditions:

- If the username is not provided, throw an error indicating "Username is required."
- If the password is not provided, throw an error indicating "Password is required."
- If the username and password do not match any valid credentials, throw an error indicating "Invalid username or password."

```
try {
  login("user123", "password123");
  login("", "password456"); // Should throw an error: "Username is required."
  login("user456", ""); // Should throw an error: "Password is required."
  login("invalidUser", "invalidPassword"); // Should throw an error: "Invalid username or password."
} catch (error) {
  console.error(error.message);
}
```

3. You are developing a payment processing module for an e-commerce platform. Implement error handling for the payment transaction process. Create a function `processPayment` that simulates processing a payment transaction. The function should take payment details (amount, card number, expiration date) as parameters and throw errors under certain conditions:
- If the payment amount is not a positive number, throw an error indicating "Invalid payment amount."
 - If the card number is not provided or is not a valid credit card number, throw an error indicating "Invalid card number."
 - If the expiration date is not provided or is in the past, throw an error indicating "Invalid expiration date."

```
try {
  processPayment(50.25, "1234-5678-9012-3456", "12/25");
  processPayment(-10, "invalidCardNumber", "05/22"); // Should throw an error: "Invalid payment amount." and "Invalid card number."
  processPayment(100.75, "9876-5432-1098-7654", "01/20"); // Should throw an error: "Invalid expiration date."
} catch (error) {
  console.error(error.message);
}
```

