Class	Category	Symptoms (Where to find?)	Solution
BaseTest	Temp Variable	Line#13 Symptom: Temp variable smell occurs between loadConfig and initDriver. Why driver object is not a temp variable here? Because driver object has been used by more than one method & class	Refactor loadConfig() to return prop object. Pass as a Prop parameter to initDriver()
	Duplicate Code	Line# 41 and 48 Symptom: Same line of code used in multiple places. driver.manage().window().maximize()	Remove two places and move the statement after switch case
	Comments	Line# 24,25 and 36,37 Symptom: Comments are used to describe the behaviour of the code which is not recommended	Create isDriverNull() method and replace in both the conditions at 25 and 37
		Line #35 Hungarion Notation - strBrowser	Rename variable by removing prefix which tells what type it has
		Switch case formatting in intiDriver() method	Use IDE formatting to make method cleaner
	Indecent Exposure	Line#13 Exposing prop instance as it is in default access modifier	Encapsulate the variable i.e. change to private
	Hardcoded data	url is hardcoded inside launchApplication()	Fetch from any external file or have as env variable

SauceDemoTest	Hardcoded data	All test data are hardcoded directly in test methods	Extract from any external file and pass test data Secrets like username & password must have as environment variable

<table>
<tr><td colspan="4" align="center">Pages</td></tr>
</table>

HomePage	Comments	Line#16 Improper naming convention which resulted in adding comments Line#20 strPageTitle hungarion Notation	Remove Comments and rename the method Name Rename variable by removing prefix which tells what type it has
	Multiple point of failures	Line# 21 Assertion added in checkTitleExist()	Move the assertion to LoginTest class and change this method to return the actual string from UI
	InEfficient wait	Method login() contains Thread.sleep()	Refactor the login method and use dynamic wait
	Duplicate Code	Dupliate code in enterUsername() and enterPassword()	Remove duplicate code and use appropriate method from WebElementHandler - If helper method is not available create one
	Dead Code	getCurrentPageUrl() dead code not used any where	Remove ununsed method class

	Indecent Exposure	All by type variables are not Private. Its exposed to test class	Encapsulate the variable i.e. change to private
	Divergent Change	Class performs multiple responsibility. Logout method is added as part of login page	Move logout method from login page to product page
	Duplicate Code	Duplicate code for click an element in logout()	Remove duplicate code and use appropriate method from WebElementHandler
	Hungarian notation	enterUsername(), enterPassword() methods parameters	Rename variable by removing prefix which tells what type it has
LoginPage	Flaky locater	except password others are flakey locaters	Use locators based on its hierarchy
	Formatting	Indentation/Formatting in loadPropertyFile() method	Use IDE formatting to make method cleaner
PropertyFileHandler	Dead Code	loadpropertyFile() method has Arithmetic excpetion catch block will not execute on any condiiton	Remove Arithmetic exception catch block
	Flaky locater	continueButton is flakey locater	Use locators based on its hierarchy
	Comments	Improper naming convention which resulted in adding comments on checkTitle() and hungarian notation used for strProductPageTitle	Remove Comments and rename the method Name, remove hungarian notation Extract method related to product details in a separate page

CheckoutPage	Long Parameter list	testAddShippingInformation test has enterPostalInformation() method which takes in many parameter. It has both locator and test data passed inside page class	Remove all the Locators from enterPostalInformation parameter and create it inside checkoutPage. And extract the methods as it is doing multiple tasks
	Flaky locater	except cartIcon others are flakey locaters	Use locators based on its hierarchy
	Comments	Improper naming convention which resulted in adding comments on checkTitle() and hungarian notation used for strProductPageTitle	Remove Comments and rename the method Name, remove hungarian notation Extract method related to product details in a separate page
	Duplicate Code	methods checkTitle and addToCart has duplicate code related to finding the element and getting the text	Extract the code and create a generic function in WebElementHandler class and reuse it
	Multiple point of failures	addToCart method uses Assertion inside the page class	Move the assertion to test class and change this method to return the actual string from UI
	comments (good to have)	addToCard validating product price with regex	good to have comments as it reduce misunderstanding
	deadCode	illegal argument exception in add to cart method will not reach the catch block at any cause	remove the dead code in catch block
ProductPage	Long Method	addToCart has multiple comments and has smell of long method	Extract the long method and ensure it perforns single action

	Duplicate Code	methods checkTitle() & checkProductDisplayed() duplic finding the element and getting the text	Extract the code and create a generic function in WebElementHandler class and reuse it
	Multiple point of failures	checkProductDisplayed() method uses Assertion inside the page class	Move the assertion to test class and change this method to return the actual string from UI
	Long Method	checkProductDisplayed() has multiple comments and has smell of long method	Extract the long method and ensure it performs single action
	InEfficient wait	clickCheckout() method using Thread.sleep()	Refactor the method and use dynamic wait
	Divergent change or large class	checkCompleteExistance() and isOrderSuccess() both are in same class	Has to be extracted to a separate class (participant can create the name on own)
checkoutOverviewPa ge	Comments	Improper naming convention which resulted in adding comments on checkTitle() and hungarian notation used for strProductPageTitle	Remove Comments and rename the method Name, remove hungarian notation Extract method related to product details in a separate page