ID:WE item = driver.findElement(By.id("user")); 1-XPath:Syntax: //tag[@attribute='value'] 1-How to handle drop down box driver.get(baseUrl + "/"); Name: WE locator = driver.findElement(By.name("admin")); Relative xpath using single '/' for Login link Select / dropdown Thread.sleep(3000); **Link Text:** WE item = driver.findElement(By.linkText("How to use locators?")); //div[@id='navbar']/div/div/div/ul/li[2]/a driver.quit(); 1- inspect it **Partial Link Text**: WE item=driver.findElement(By.PartialLinkText("How to use locators?")); Relative xpath using double '//' for Login link. 2- If tag is Select \rightarrow locate that webElement **Tag Name:** String[] linkTexts = new String[linkElements.size()]; 1-Navigate method 3- create Select class and pass webElement //div[@id='navbar']//ul/li[2]/a Class Name: WE element=driver.findElement(By.className("sample")); driver.navigate().to(urlToNavigate); 3 options to select: **CSS Selector:** WE CheckElements = driver.findElements(By.cssSelector("input[id=email']")); Don't use "*", always use the tag name. driver.navigate().back(); **XPath:** 1.selectByIndex(). :sel.selectByIndex(2); Using Text of the element to build xpath driver.navigate().forward(); 1-What is absolute XPath: HTML/head/body/table/tr/td **Finding Login link:** Single slash '/' anywhere in xpath signifies to look for the element driver.navigate().refresh(); 2.selectByValue(). :sel.selectByValue("benz"); //div[@class='homepage-hero']//a[text()='Enroll now'] immediately inside the parent element. **Using Contains to find the elements:** 3.selectByVisibleText() :sel.selectByVisibleText("BMW"); 2-How to handle Radio Buttons 2-What is relative XPath: //tag[@attribute='value'] //tag[contains(attribute, 'value')] 1. First we verify default value(is Selected) **Finding Login link:** \rightarrow To get all options : getOptions() Double slash '//' signifies to look for any child or nested-//div[@id='navbar']//a[contains(text(),'Login')] //div[@id='navbar']//. child element inside the parent element. 2. We select and verify if it is selected → To find out multiple selectable drowpdown a[contains(@class,'navbar-link') and contains(@href,'sign in')] 3-CSS vs XPath? select.isMultiple() \rightarrow returns boolean 2-How to handle drop down box (second explanation ****** **Using Starts-With to find the elements:** 3. We select different option and verify previous option if not Css is html expression XPath java Script expression We can use the **select** class to test the dropdown menus. //tag[starts-with(attribute, 'value')] Select class provides method for selecting options, getting all the Css selectors are often easier to read than XPath. **For Listing Radio Buttons Finding Login link:** options, getting the selected option. But the select has to be passed **Store in boolean:** boolean isChecked = false; //div[@id='navbar']//a[starts-with(@class,'navbar-link')] CSS selectors work faster than XPath. a web element as constructor and that web element should have **Find element list:** List<WebElement> radioButtons=driver.find...... Xpath we can go back and forward it is benfit **Parent Syntax:** xpath-to-some-element//parent::<tag> the html tag select **Take size** :int size = radioButtons.size(); They have completely different syntax. **Preceding Sibling (coming before in position) Do for each loop**: for (int i=0; i<size; i++) { If the dropdown list does not have select tag: 4-How do we use xpath? **Syntax:** xpath-to-some-element//preceding-sibling::<tag> isChecked = radioButtons.get(i).isSelected(); 1. We have to locate the dropdown FireFox has Firebug and Fire path tool. It provides default 2. We have to click on that dropdown **Following Sibling** if (!isChecked) { Xpath and see element locater very easy to use and modify. 3. We have to locate the option that we want to select separately **Syntax:** xpath-to-some-element//following-sibling::<tag> radioButtons.get(i).click(); 4. We click on the option 5-Css base form? 2-Using wildcards in CSS Selectors Example: tag[attribute='value'] input[class='inputs'] -> Only 1 matching node 3. Element Displayed **3-Drop down multiple select (do for each loop)** "#" => Id "." => Class Texbox. —-HideButton — Dropdown input[class^='inputs'] -> Two matching nodes **6 Using wildcards in CSS Selectors:** List<WebElement> selectedOptions = sel.getAllSelectedOptions(); Example: input[class='displayed-class'] -> No matching nodes input => Represents the starting text WebElement textBox = driver.findElement(By.id("displayed-text")); "S" => Represents the ending text [class\$='class'] -> One matching node input for (WebElement option : selectedOptions) { System.out.println("Text Box Displayed: " + textBox.isDisplayed()); "*" -> Represents the text contained [class*='displayed-class']. -> One matching node System.out.println(option.getText()); **Syntax:** tag[attribute<special character>='value'] SWITCH IFRAME -ALERT POP UP **SELENIUM ADVANCE SWITCH WINDOW ACTIONS CLASS** 1-How to switch tabs/windows using selenium? 1-How to switch frames using selenium? 1-How to use Action class what is common action? 1- Finding all link For selenium there is no difference between window and a tab. We can switch to frames using three methods Aseptically during the **regression testing** finding all link buttons with those method its very useful this method can e use **Syntax:** Actions action = new Actions(driver); To switch between them we need to pass the window 1-By passing the frame web element to the switchToFrame() method \rightarrow Move to element \rightarrow moveToElement() It help the Broke link, link moved different location problem handles to the driver.switchTo.Window(). 2-By passing the id or **name** of the frame element to the SwitchTo method \rightarrow right click \rightarrow contextClick() @Test 3= Than find the all link and test it We can get the window handles by driver.getWindowhandles() method. 3- By passing **index** to the driver.switchToFrame method \rightarrow drag and drop \rightarrow dragAndDrop(src, target); public void testFindLinks() { To verify a certain tab, we need to first switch to the tab. Selenium can When yo work the framework don't forgot Maximize the browser's window driver.get(baseUrl); \rightarrow double click \rightarrow doubleClick() only control/see the current tab SearchPage.navigateToFlightsTab(driver); public void test() throws InterruptedException { \rightarrow click and hold \rightarrow clickAndHold() @Tes. public void test() throws InterruptedException { List<WebElement> linksList = clickableLinks(driver); // Switch to frame by Id for (WebElement link : linksList) { // Get the handle \rightarrow release() \rightarrow let go mouse off. driver.switchTo().frame("courses-iframe"); String href = link.getAttribute("href"); String parentHandle = driver.getWindowHandle(); WebElement searchBox = driver.findElement(By.id("abcs")); **build()** \rightarrow builds all the steps in Actions System.out.println("Parent Handle: " + parentHandle); searchBox.sendKeys("python"); System.out.println("URL" + href + " returned" + $perform() \rightarrow Executes those steps as ONE statement$ // Find Open Window button //driver.switchTo().defaultContent(); linkStatus(new URL(href))): action.contextClick(); \rightarrow right click driver.findElement(By.id("name")).sendKeys("Test Successful"); WebElement openWindow =driver.findElement(By.id catch (Exception e) { A- Example drag and drop actions // Get all handles. ("openwindow"));openWindow.click(); System.out.println(e.getMessage()); }}} Set<String> handles = driver.getWindowHandles(); driver.switchTo().frame(0); 2-How to handle SwitchAlert? Two kind of alert? 1-Find all clickable link / // Switching between handles WebElement fromElement = driver.findElement(By.id("draggable")); **Alert pop up:** Only pop up say something just you should say ok public static List<WebElement> clickableLinks(WebDriver driver) { WebElement toElement = driver.findElement(By.id("droppable")); for (String handle: handles) { Confirm pop up: Confirm usually ask ok or cancel button List<WebElement> linksToClick = new ArrayList<WebElement>(); Actions action = new Actions(driver); System.out.println(handle); } List<WebElement> elements = driver.findElements(By.tagName("a")); action.clickAndHold(fromElement). // Switch back to the parent window. } - We can not locate the popup because it is not element, it is java script elements.addAll(driver.findElements(By.tagName("img"))); for (WebElement e : elements) { action.moveToElement(toElement) function.we can not find inside the html code, we need different class. 2-Switch between handles? if (e.getAttribute("href") != null) { -You can find in **Script** tag, like alert function, displayed confirm action .release().build().perform(); for (String handle: handles) { linksToClick.add(e); }} Steps:Locate related button-crest alert class, it is going to give option System.out.println(handle); return linksToClick;} **B-Mouse hover** if (!handle.equals(parentHandle)) @Test. public void test1() throws InterruptedException { 2-Find the link status driver.get(baseUrl); driver.switchTo().window(handle); public static String linkStatus(URL url) { driver.findElement(By.id("name")).sendKeys("Anil"); jse.executeScript("window.scrollBy(0, 600)"); WebElement searchBox = driver.findElement(By.id("search-courses")); driver.findElement(By.id("alertbtn")).click(); HttpURLConnection http = (HttpURLConnection) searchBox.sendKeys("python"); Alert alert = driver.switchTo().alert(); WebElement mainElement = driver.findElement(By.id("mousehover")); driver.close(); alert.accept(); dismiss/sendkey/. } http.connect(); Actions action = new Actions(driver); 3-Java script execute get the current iframe break; String responseMessage = http.getResponseMessage(); action.moveToElement(mainElement).perform(); JavascriptExecutor jsExecutor = (JavascriptExecutor)driver; } // Switch back to the parent window http.disconnect(); action.moveToElement(subElement).click().perform(); return responseMessage: } String currentFrame = jsExecutor.executeScript("return self.name"); C-Slider. Actions action = new Actions(driver); catch (Exception e) { **Tips**: Firefox fire path tools if there is airfare shows the iframe return e.getMessage(); }} action.dragAndDropBy(element, 100, 0).perform(); left side on the search box easy to see and locate **GIT** HANDLING AND SYNCHRONIZATION IN SELENIUM **COMMUN QUESTIONS** TYPE OF FRAMEWORK $close() \rightarrow closes$ current page and does not kill obj 1- Maximize the browser's window? 1-What is GIT? $quite() \rightarrow closes$ all pages and kills the driver ob driver.manage().window().maximize(); 1- Data-Driven Testing Framework.: Git is a version control system. Git allows a team of people to work together, In Selenium two type of wait all using the same files. And it helps the team cope with the confusion that Test Scripts, the Test Data is separated and kept outside $getText() \rightarrow gets$ the text which is outside of diamond brackets **2-Implicit Wait?** If elements are not immediately available, an implicit wait tends to happen when multiple people are editing the same files. Test Data is read from the external files (Excel Files. Scenario Outline-Data Pr tells Web Driver to poll the DOM for a certain amount of time. The default setting is 0. **Once set, the implicit wait is set for the duration **getAttribute()-->** gets the attribute value which is inside of brackets 2-How to share a project on Git using Eclipse? ++Changes to the Test Scripts do not affect the Test Data Create a local repository first of the Web Driver object. **Assert** → if test fails execution fail .use for critical things.Like hard assert ++Test Cases can be executed with multiple Sets of Data Verify → When it fails continues execution .We use for non_critical things. Like soft Assertion in testNG driver.manage().timeouts().implicitlyWait(3, TimeUnit.SECONDS); Team \rightarrow Share project ++A Variety of Test Scenarios can be executed by just varying the Test Select the your project **3-Explicit Wait?** An explicit waits is what we can define to wait for a ++Data in the External Data File Click on Create repository certain condition to occur before proceeding further in the code. Handling multiple tabs: Use for each loop —More time is needed to plan and prepare Test Scripts and Test Data : returns ID for current page () :returns IDs for all open windows and return as WebDriverWait wait = new WebDriverWait(driver, 3); 3-On the Git perspective, we will use two views? WebElement emailField=wait.until Set<String> 3-Behavior Driven Automation Framework. (ExpectedConditions.elementToBeSelected (By.id("user email"))) **Upload in Selenium** ⇒ **using sendKeys**- locate upload bo Then using webElement and sendKeys and pass path of the file. Git Repositories \rightarrow shows what repos we have Tips: 1 Some common use Is an Agile software development technique that encourages collaboration Git Staging \rightarrow shows whats staged and what is not, allows us to stage, between developers QA and non-technical or business participant - elementToBeClickable -elementToBeSelected software development process based on test-driven development based on commit and push changes' -visibilityOfElementLocated -presenceOfElementLocated How can we <u>download</u> using Selenium? TDD with ideas from domain-driven design and object-oriented **Untagged changes** → this is the working directory, files we changes will analysis and design to provide software development and management Tips 2: Wait selenium method, Tread. Sleep is a java method, show up here first. WEB TABLE HANDLING **Popular Tools:** Cucumber (Cucumber Company)-JBehave(github project) to ignore file : right click \rightarrow ignore (do it in the unstanged changes) Approaching to web tables using selenium: **SAME DVANCE Use** SpecFlow(github- techtalk project) 4- Git Basic Work Flow for Testers Pull: A pull any changes from the Git repository and merges them into Calender selection:Locate send or click 1.Locate the table local repository **Auto suggest/complete:** Locate box, create option list, find the list size 3-Keyword-Driven /Table-Driven Testing Framework. **Commit:** move from staged to local repo-Committing is the process 2.Inspect it if thead or tbody under the table Put your select inside the if condition and take inside the for each loop. Type of Functional Automation Testing Framework which is also known which records changes in the repository. . And do iterate with for loop as or Action Word based testing .Basically divide the Test Case in 4 format **Push:** move from local repo to remote -Pushing sends the recent commit 3. If there are <thead> or then locate them too Test Step: It is a very small description of the Test Step Windows size : use java script history from your local repository up toGi $close() \rightarrow closes$ current page and does not kill obj Test Object: Web Page object/element, name like Username & Password. long height = (Long) js.executeScript("return window.innerHeight;"); $quite() \rightarrow closes$ all pages and kills the driver object 5-Code Review over git? Action: Name of the action, which is going to perform click, open browser, long width = (Long) js.executeScript("return window.innerWidth;"); 1-Developer makes changes. 1. Finding rows in webTable? Test Data: Data can be any value which is needed by the Object to perform 2-Developer packs changes into some archive file **Scrolling element into view:** → Locate the table ,Then using tagName() pass "tr" any action, like Username value for Username field. 3-Developer sends file to development team is.executeScript("window.scrollBy(0, 1900);"); 4-Random member of development team, opens change-file ++Keywords are re-usable. 2) Finding data in WebTables? js.executeScript("window.scrollBy(0, -1900);"); automagically in diffing utility, makes notes → Locate the table, Then using tagName() pass "td" Screen shot: We use under the @After annotation 5-If code is good, random member says so, otherwise replies with The Hybrid Test Automation Framework. **@**After public void tearDown() throws Exception { requested notes Do you write javaScript code? (JSExecutor:) framework is the combination of one or more frameworks String fileName = getRandomString(10) + ".png"; \rightarrow I google it and pass it. String directory = "//Users//anil.tomar//Desktop//"; File sourceFile = ((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE); FileUtils.copyFile(sourceFile, new File(directory + fileName)); **REPORTIING + SCREENSHOT** REPORTING **JENKIN** RERUN THE FAIL TEST How to take **SCREENSHOTS** using selenium? Selenium+Cucumber+Jenkin: 1-What is Jenkins? 1-How to RERUN failed tests in Cucumber? 1-Basic pretty html: html:target/site/cucmber/-pretty Jenkins is an open source tool with plugin built for continuous You can use the TakeScreenshot interface to take the screenshots. Step 1: We can use the rerun:target/rerun.txt option to rerun failed Write the code in future pile inside option, It create basic report in target file integration purpose. In our framework, the logic for taking screen shot is in after hook method tests. This will create a text file with the list of failed tests. **2-Html plugin (jenkins)**: Json:target/cucumber.json, 2-Continuous integration? if any scenario fails screenshot will be captured and it will be include in Step 2: Then we can create another runner to run feature files from that list We put this code in future file ,also add pom plugin,—>it is going to create In software development, when multiple developers or teams are working the html report. pie chat report report inside the target, and also jerkin is going to generate Like login runner, Order runner, Seach runner... on different segments of same web application for integration porpuse If scenario fails it going to take screen shoot. There is a possibility can take report. By using this plugin <testFailureIgnore>true</testFailureIgnore> -If we add both of the runner to the pom file, this project will always 3-What are the two components Jenkins is mainly integrated with? picture for all feature steps but we don't want to full then memort=y for each If any test fail it is going to continue the run and generate report and email. execute the all tests, then it will re run the failed tests once more Version Control system like GIT, (necessary) details.. In Hook Class. Selenium+junit+Jenkins report: in pom write the report type "xml" And build tools like Apache Maven. (necessary) And configure jenkins it is going to give a report @After 2-How to RERUN failed tests in Junit or TestNG? 4-Jenkins server configuration: public void tearDown(Scenario scenario) { 1. Jenkins has an option to rerun failed tests. Jenkins runs the tests on some server. And that server needs to have **Selenium Testng Report generating:** But it applies to **junit** or **Testng** tests. This feature does not work with if (scenario.isFailed()) { everything needed to run the tests: browsers, java, maven, git. Create test -run with testing-go project box-refresh the project and there is cucumber because all cucumber is on bir junit test. This only applies to As a tester, it is not out job to configure that server. All installations are final byte[] screenshot = ((TakesScreenshot) 1-Default suit (if you did not give different name) report generated in Junit or Testng tests. Driver.getInstance()).getScreenshotAs(OutputType.BYTES); site name is "Default Test" <testFailureIgnore>true</testFailureIgnore> → this option will make out by team responsible for server maintenance team. scenario.embed(screenshot, "image/png"); }} It creates basic report, test case name result time " maven continue to run the tests even if sth fails so that we can generate a 5- Configuration of the Jenkins (How do we congfigurate Jenkins) **** Scenario.embed(takescreenshot)driver.getscreenshot **2-Emailable report**: this is second one this is also in project folder it has link report at the end -First we need to set the java path and maven path and little bit detail report method take the screens shot -Jenkins use our maven the built our project because we want to do that:) - We are gonna tell the Jenkins where is my java where is my maven **3-Index report**. In same folder you ll see" index" file. This is the third one - Go to—>menage system —->configure system—-> basic index. style test. - School down on terminal find the java and maven path and pass the related area https://www.youtube.com/watch?v=-tcYdgFDXuw -You can add the "E-mail notification" if you want to send email (usually company has email and their setup before) **AUTOMATION + FUTURE FILE CUCUMBER JUNIT** (junit version 5) September 2017 **TESTNG.** (version 6.11 February 2017) 1-How do you automate one test case? all steps involved? 1- Annotations for Junit testing 1- In TestNG how can you disable a test? **Feature**: Describe the current test script which has to be executed. @BeforeClass method will be invoked only once, before starting all the tests. -I go through the scenario. We first have to manually execute the To disable the test case you don't want, you can use annotations **Scenario**: Describes the steps and expected outcome for a particular @Before that method will be invoked before each test. test to make sure it hows its work to functionality (because it is a new @Test(enabled = false) test case **Scenario Outline+Example**: Same scenario can be executed for 2-Mention what does the "suite test" does in TestNG? We are not going to decide is it can be automated or not because we @Test that method is the test method already did that in print planning multiple sets of data using scenario outline. "Suite Test" is done when you have to run few unit test together, "Suite **@**After that method will be invoked after each test. **Background**: Step needs to be perform before in each scenario like **-write the feature file**. In the feature I try to reuse the steps @AfterClass that method will be invoked only once, after all the tests. Test" bundle this unit test together. XML file is used to run the suite test. **Given** user logged in as databases administrator from other. scenario/feature files. This makes writing tests very easy 2-The common methods of Assert class are as follows: 3-Explain what is parametric testing? And all the junk values are cleared 1-void assertEquals(boolean expected, boolean actual): Parameterized testing allows developers to execute the same test over and in my framework. checks that two primitives/objects are equal. It is overloaded. over again using different values. In two different ways TestNG allows you **-Then I implement the new steps** (which is underline yellow it is new @Tags:(@Smoke,@Login,@Regression to pass parameters directly to your test methods. **2-void assertTrue(boolean condition)**: checks that a condition is true. because) in the feature file. Then do a dry run. Then get the new Cucumber by default runs all scenarios in all the feature files • With testing.xm. • With Data Providers **3-void assertFalse(boolean condition)**: checks that a condition is false. step defs from the console and copy into the step definitions java file. In real time projects there could be hundreds of feature file 4-Explain what is Group Test in TestNG? 3-Required jar files which are not required to run at all times. Then we write the necessary logic to implement the step. You need to load junit4.jar and hamcrest-core.jar files. Groups are determined in your testing.xml file using the group test. -We can call our page objects, call our utilities. ***FeautureFile ***StepDefinition Explain what it means when you have to pass parameters using data-Runner (a) RunWith(Cucumber.class) -Once the test passes, we check in the code to git, create a review. 4-JUNIT VS TESTNG providers in TestNG?— //This method will provide data to any test method that declares that its Data Once it is reviewed by a team member, I can close the jira story and **Testng:** More annotations, has built-it parallel running, @Cucumber.Options (move on to another one. Provider is named "provider1". Support data Provide ¶meterized testing supports dependencies etc.. format={"SimpleHtmlReport:report/.smokeTest.html"},tags={"@smokeTest","}) @DataProvider(name = "provider1") Junit: Supported by many other tools, does not support group test glue—>Step dean path dryRun:True/false Scenario: Login with valid credential public Object[][] createData1() { TESTNG ANNOTATION: Before & After (Suit-Class-TESTreturn new Object[][] { **Given** I am on the home page Public class JUnitRunner { }&Junit GroupsMethod-{ "Cedric", new Integer(36) }, When I login using valid credentials Public class Runner extends AbstractTestNGCucumberTest{} —>& TestNg { "Anne", new Integer(37) @DataProvider—>It is alone -**Then** I should be able to verify I am logged in

NAVIGATE ACTIONS- RADIO BUTTONS

DROP DONW HANDLING

CSS XPTH TIPS

LOCATORS