

## Tell me about yourself?

- ① First of all, I'd like to thank you for giving me this opportunity and I really appreciate your time.
- ② My name is H.G, As you can see my resume, I've been working in IT industry for about more than 6 years and throughout my career.
- ③ I have domain knowledge in the Communication and health insurance.
- ④ I have specialized in automation but I was also involved in comfortable in manual and back-end testing.  
I have expertise in Selenium with Java programming language, Cucumber, Maven, Jenkins, Jira, SQL ... so on.
- ⑤ I have developed and worked with Data-Driven and BehavDD  
I developed "testing framework" from scratch base on the POM
- ⑥ Throughout my career, I worked in different industries, so I am familiar with both Waterfall and Agile environments.

- As far as soft skill concerned, I consider myself,
- a positive person,
- who is a quick learner and adaptable to changing circumstances
- I can work well individually and in a team.
- I always make sure I meet deadline.

That's pretty much about myself.

## What is your current Project?

- My project is about Caller ID solutions. We call it the Smart <sup>1D</sup> <sub>sdns</sub>
  - The subject of my project is to help our customers to understand if a call or text is reliable or not and to combat illegal robo-calling and caller ID spoofing.
  - When customer receive a call or text, if caller name and caller ID are displayed accurately, response rate will increase.
  - That great,  
Customer can see who's calling, plus if the number has a scam history, harassment or other abusses.
  - Yeah, this is my project..
- you know, every day, the world generates around 2.5 quadrillion bits of data. My company isolates certain elements and analyzes, edits them to make valuable decisions that drive results.  
My company is working on many projects..

→ Environment: Java - Selenium WebDriver, Maven, Cucumber, JUNIT  
Jenkins, Git, Jira, MySQL

→ Client: Verizon wireless, Sprint, privacyster.... many communication company

→ Agile-Scrum: Sprint 4 weeks

Sprint Gromming → Monday.  
Sprint Planning → Monday.  
Sprint Demo → Friday  
Sprint Retro → Friday  
daily stand-up → 9:45

Sprint: 28

finish: 30 days  
end of the year

Release: 9

[10'uncu hazırlık]

→ Smoke Test: 14

Regression suit: over then 700

→ Address: 21575 Ridgeway Circle, Sterling VA 21575 [3rd floor]

→ BA:

PO:

| Lead Developer:

| Test Lead:

SM

| DEV1

| DEV2

| DEV3

| DEV4

| SDET (me)

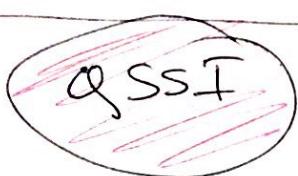
| Man. tester

near by restaurants



Jully 2015 - Present.

- Sterling, VA [21575 Ridgetop Circle, Sterling VA]
- Selenium, Java, Maven, Cucumber, JUnit, Jira, Jenkins, Git, MySQL
- Agile-Scrum
- Test Automation Engineer.



April 2013 - July 2015

on Oct 25, 2013

QSSI was named general contractor for healthcare.gov.

- ? - McLean, VA [8270 Greensboro, Suite 600, 601] 6. locat
- Selenium, Java, Maven, TestNG, Jira, Jenkins, Git, Oracle.
- Agile-Scrum
- Test Automation Engineer.
- QA developed and tested it, QSSF again tested it in different environment.



August 2011 - April 2013

- Bowie, MD [4321 Collington Road] 4. locat
- Selenium, Java, Maven, TestNG, HP ALM, Git, Oracle
- Waterfall
- QA ANALYST, TEST AUTOMATION ENGIN.

## QSSI

- Tyson's Corner  
8270 Greensboro Drive, Suite 600/601, McLean VA [6th floor]
- Environment: Java-Selenium, Maven, TestNG, Jenkins, Git, Jira, Oracle
- Client: Government, healthcare.gov [CMS - Centers for Medicare Service]
- Agile-Scrum: Sprint 4 weeks.
- Obamacare (Affordable Care Act - ACA), healthcare.gov.
- Proj: CGI /Accenture Vendor

## Inovalon

- Bowie, Maryland [4th floor]
- Environment: Java-Selenium, Maven, TestNG, Git, HP ALM, Oracle.
- Client:
- Waterfall
- We were working on the project called "CCS Advantage", it is a "call center" application, used by call nurses to log the patient data, provide suggestions to people with chronic diseases and
  - people prone to visit Emerg. Room the most, so Inovalon can drive down the cost Emerg Room visits (which is one of the biggest expenses for any insurance company)
  - When they call to patient, if the number was reached, system automatically generate the assessment for the member.
  - For example, if the member has diabetes, diabetes assessment will be generated, nurse will start asking questions and recording the answers to the app,

## Describe your role?

- As an automation engineer, I developed my "testing framework" from scratch based on the POM.
- I performed various types of testing. Like : functional testing, smoke testing, regression testing, Backend testing.
- I am responsible execute Regression test when developers add new functionality to the application or end of the Sprint.
- I am also responsible to check report of Smoke test to make sure that environment is up and running first thing in the morning.
- If there are any issues, I will analyze them
  - If it is service issue, I will immediately contact developers.
  - If it is about my scripts, I will debug my scripts.
  - If it is a bug, I will re-produce it and log the defect.
- I'm using JIRA as bug tracking tool. Once the bug reports were fixed by developers, I retest it and if it is passed, close it. if the defect is not fixed, I re-open it.
- Also, as a part of the Agile-Scrum team, I participate in the several walkthroughs meeting for requirement reviews and provide valuable feedback to the BA.
- Lastly, I'm a cross-functional team member that is always willing to help my team in any way to achieve our sprint goal.

{ that's pretty much about my role as an automation engineer in my current project.

## Can you describe your daily activity?

My daily activities at work, I go to work early in the morning and check result report of SMOKE test to make sure that the environment is up and running and the application is stable or not for the day.

If something goes wrong, I will send out email to my team so they can take care of it asap, before everyone comes to work, to reach maximum productivity.

And then I check my email if there are any important tasks or notices, also I check my schedule if there are any meetings for the day.

Then I go to attend daily standup meeting with my scrum team to talk about what [- - -] the meeting takes about 15 minutes.

After that, I go back to my desk and start automating test cases from regression suits.

And also, I automate test case from sprint backlog after doing manually if it is passed.

That's pretty much about my daily activities at work.

## Tell me about your framework?

① In my framework, I was developing my testing code using Java programming language and Selenium WebDriver.

② I used Maven to manage and centralize my dependencies which I have pom.xml.

③ My framework was structured based on the POM that every page element go to one class and it makes easy to maintenance and to keep my code organized and clean.

- Also, I have separate classes where I keep my implemented steps
- I created other separate folders for my drivers, for my runners and for some useful methods.

④ My framework supports Data-Driven testing using Apache POI and scenario outline, also supports Database testing using JDBC driver

⑤ I am using Cucumber with Gherkin keywords in feature file to make sure that my test cases are understandable for each mem. in my team.

⑥ I am using Jira as bug tracking tool.

⑦ And I achieve Continuous Integration and schedule my tests using Jenkins.

## Some behavioral Questions

(1)

→ Why are you looking for a job?  
(Why are you in the market?)

I am looking for a job because my current project is ending soon.  
My manager told me I should start looking for new opportunity.

→ How soon can you start?

(When can you start?)

(When do you want to start?)

I can start in 2 weeks after getting offer letter and start date.

→ Can you start tomorrow?

Well, my team won't be happy with me if I leave tomorrow,  
but I don't think it is professional and I have never done that  
before.

I have to transfer the automation framework knowledge to other team  
members before I leave.

→ Why did you apply this position? / Why do you want to work for our company?

After looking at the job description I think it matches my day-to-day  
activity and my experience.

I was confident with the job description that's why I applied.  
Also, I have done some research on the company and I am  
really excited about the company's product and services.

→ If you get hired how long are you planning to stay?

As long as there is a project to work, I am willing to stay  
as long as possible.

→ I see so many companies in your resume, why are you changing  
job so frequently?

Since all IT projects have start and end date, once project is complete  
I had to find another position. That is why there are many companies  
on my resume.

Since I worked in different projects, I think it is good think.

Because, I keep my skills up to date.

## Some behavioral Questions

(2)

→ Where do you see yourself 5 years from now?

I want to learn as much as possible to be more technical.

I would like to see myself SDET.

I want to be technically very competitive person 5 years from now.

→ Why should we hire you?

I think you should hire the candidate that has the best qualification for this position.

Since I don't know other candidates I can represent only myself.

I think my experience and technical expertise will bring a lot of values and benefits to the company and project. I think that is why you should hire me.

→ What is your weakness?

Well, I think my weakness is that whenever I am given some responsibilities and there is a deadline for it, I work day and night, maybe 7 days a week. This is probably bad for my family life, but I can not sleep unless I am done with my assignments.

→ What is your strengths?

Well, I am a very detail oriented person. I have the sense of urgency. I can prioritize my job according to the deadline. I am very much dedicated towards my job. I am honest. I have the skills and expertise in QA process.

These are some of my strengths.

→ What do you do If I hire you?

In first week, you know, I will get done all the paper works, getting the machines and necessary access to the project, databases etc. Then I will have to learn the company culture. I have to learn more about my projects and my teammates. I think, understanding what the project is doing, it is very important if I want to be more productive..

## Some behavioral Questions

(3)

→ Describe a challenge you faced during your last project?

- ① I think, one of the biggest challenge that I faced with in my current project is that..
- ② .. everytime I found a bug, the developer disagreed to accept it.
- ③ Most of time, we had to ask BA for clarification.
- ④ Then, I realize the requirement itself was not specific enough so I understood it differently than the developer.
- ⑤ In the sprint retro, I said we should spend more time on requirement clarification because that is the key to the project success.
- ⑥ We did so, and this issue was solved.
- ⑦ I think the most important problem is misunderstanding and lack of communication. If we come together as a group and discuss there is nothing we can not solve.

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The challenge I have faced is locating dynamic elements by retrieving right html code from the web pages. Ids were problem sometimes it appears on the page while sometimes it just disappears. Then I had to put either implicit or explicit wait to locate them.

## Waterfall ?

- Waterfall methodology is the sequential method using for Software Development.  
You can not go back, and have to finish the phase before you move on.

## Agile Methodology ?

- Agile is a flexible methodology using for SDev.  
In Agile, you can go back. It keeps on changing.

Scrum  
Kanban

## When will you Automate?

- if it is taking a lot of manual effort.  
I run at least once manually and after that I automate it.
- Automation is good for most repetitive functionality

## When will you not Automate?

- if functionality keeps changing
- if functionality is used only once during the entire project
- Ad-hoc test can not be automated.

## → Software Testing Life Cycle (STLC)

defines the phases in testing of software

- Requirements / Design Review
- Test Planning
- Test Designing
- Test Environment Setup
- Test Execution
- Test Reporting.

## → Software Development Life Cycle (SDLC)

defines the phases in the building of software.

- ① Project Planning
- ② Requirements Development
- ③ Design
- ④ Coding
- ⑤ Testing
- ⑥ Production      ⑦ Maintenance

[Waterfall and Agile]

## What is the Test plan?

- Test plan is a word document, that described the testing scope
  - high level test cycle
  - defect life cycle
  - entrance criteria → defines what all need to start the testing.
  - exit criteria → defines when the testing is finished.  
    ★ If you don't know where to start and where to finish then your goals are not clear.

## What is the Test Case?

- Test case describes the functionality and test steps.
  - Test Case ID
  - Step number
  - description of the functionality
  - Expected result
  - Actual result.

## What is the RTM?

- Requirement Traceability Matrix

It is used ~~for~~ to make sure that all test cases cover Requirements or not.  
It likes Excel sheet.

## What is a defect?

- When expected result does not match Actual Result

## What is the Defect Life Cycle?

- New, Assigned, Open, Fixed, Retested, Close

(1)

# JAVA ✓

- JVM (Java Virtual Machine) is an abstract machine. It actually runs ~~java~~ bytecode.
- JRE (Java Runtime Environment) is what you need to run a ~~java~~ program and contains set of libraries and other files that JVM uses at ~~run~~ time.  
JRE = JVM + library classes
- JDK (Java Development Kit) is what you need to compile java source code and contains JRE, development tools.  
JDK = JRE + development tools

## → Object Oriented Programming (OOP)

OOP is a programming language model organized around object rather than ~~function~~.

- it makes development and maintenance easier
- it provides data hiding
- it provides ability to simulate real-world.

OOP language must follow 4 principles :

(1) Encapsulation : We can hide direct access to the data by using private key and we can access private data by using getter and setter methods.

(2) Abstraction : It is a process of hiding implementation details and showing only functionality to the user. Abstraction, lets you focus on what the object does instead of how it does it.

(3) Inheritance : It is used to define the relationship between two classes. When a child class acquires all properties and behaviours of parent class known as inheritance. Child class can reuse all the codes written in Parent class. It provides code reusability.

(4) Polymorphism : It is an ability of object to behave in multiple forms. The most common use of polymorphism in Java, when a parent class reference type of variable is used to refer to a child class object.

For example : `WebDriver driver=new ChromeDriver();`

We use method overloading and overriding to achieve Polymorphism.

(2)

→ Can you tell me about concept of abstraction?

In OOP, abstraction is a process of hiding the implementation details from the user, only the functionality will be provided to the user.

In other words, the user will have the information on what the object does instead of how it does it.

In Java, abstraction is achieved using Abstract classes and Interfaces.

For example, when you login to your bank account online, you enter your user-id and password and press login, what happens when you press login, how the input data sent to server, how it gets verified is all abstracted away from the you

→ What is difference between Abstraction and Encapsulation?

[ Abstraction lets you focus on what the object does instead of how it does it. ]

[ Encapsulation means hiding the internal details of how the object does something ]

[ Abstraction is used for hiding the unwanted data and giving relevant data. ]

[ Encapsulation means hiding the code and data, and to protect the data from outside ]

[ Abstraction can be achieved by using Abstract class and Interfaces ]

[ Encapsulation can be achieved by using "private" keyword ]

→ What is difference between Abstract Class and Interface.

[ A class that is declared with abstract keyword, is known as abstract class.  
It can have abstract and non-abstract methods. ]

[ An Interface is a blueprint of a class. It is a template!  
It can have abstract methods, default methods, static methods and public final static variables. ]

• When we want to use Abstract class, we use "extend" keyword.  
When we want to use an Interface, we use "implement" keyword.

- Abstract class and interface both are used to achieve abstraction
- Abstract class and interface both can not be instantiated. We can not create an object.

(3)

→ What is difference between Polymorphism and Inheritance in Java

- Like in real world, Inheritance is used to define the relationship between two classes. It's similar to Father-Son relationship. In Java, we have Parent class (also known as Super class) and Child class (also known as subclass). Similar to the real-world, Child inherits Parents qualities, <sup>neither</sup> code.
- A Child class can reuse all the codes written in Parent class, and only write code for behaviour which is different than the Parent.
- Inheritance is actually meant for cod-reuse.
- On the other hand, Polymorphism is an ability of Object to behave in <sup>multiple</sup> form.
- Polymorphism is classified as overloading and overriding.
- By the way, they are actually related to each other, because its inheritance which makes Polymorphism possible, without any relationship between two classes it is not possible to write polymorphic code.

→ Difference between Public, Private and Protected modifier in Java?

In Java, access modifier which specifies accessibility of class, methods <sup>and variables</sup>

There are four access modifier in Java namely public, private, protected and default.

The difference between these access modifiers is that :

- the most important difference is the level of accessibility.
  - public is accessible to anywhere
  - private is only accessible in the same class which is declared.
  - default is accessible only inside the same package
  - protected is accessible inside the same package and also outside the package but only the child classes.

\* you can not use private or protected modifier with a top level class.

\* you should also keep in mind that access modifier can ~~not~~ be applied for local variable public, private or protected in Java.

\*

→ What is the difference between a constructor and a method?

- Constructor:
- > doesn't have a return type and the name of the constructor must be same as the name of the class.
  - > constructor is called automatically when a new object is created. constructor is invoked implicitly.
  - > The java compiler provides a default constructor if you don't have any constructor

Method:

- > have a return type and the method name may or may not be same as class name

- > method is invoked explicitly.
  - > method is not provided by compiler in any case
- > Constructors are not inherited by child classes but methods are inherited by child classes.

→ Difference between method overloading and method overriding?

(1) First and most important difference between overloading and overriding is that, in case of overloading, method name must be same but parameters must be different; in case of overriding, method name and also parameters must be same.

(2) Second major difference between method overloading and overriding is that you can overload method in same class but method overriding occurs in two classes that have inheritance relationship.

(3) You can not override static, final and private method in Java but you can overload static, final and private method in Java.

(4) In method overloading, return type can be same or different.  
In method overriding, return type must be same or covariant type.

## → Difference between Set, List and Map in Java? (5)

- Set, List and Map are three important interface of Java Collection framework.
- List provides ordered and indexed collection which may contain duplicates.

Set provides un-ordered collection of unique objects. Set doesn't allow duplicates and, List and Set are both extend Collection interface.

Map provides a data structure based on Key Value. Key is always unique and Value can be duplicate.

## → What is difference between List and Set?

- Most important difference between them is that
  - List allows duplicates and maintain order
  - Set doesn't allow duplicates and doesn't maintain any order.
- List and Set are interface and both extend Collection interface

## → How do you find if ArrayList contains duplicates or not?

- Well, I think, quick way of checking if an ArrayList contains duplicates or not is to convert that ArrayList into Set. Since Set doesn't allow duplicates. So, when I converted it, set will be smaller than original Array/ArrayList if ArrayList contains duplicates.

```
List inputList = Arrays.asList(array.input...);  
Set inputSet = new HashSet(inputList);  
if (inputSet.size() < inputList.size()) {  
    return true;  
}  
return false;
```

- for(int i=0; i<input.length; i++) {  
 for(int j=0; j<input.length; j++) {  
 if (input[i].equals(input[j]) && i!=j) {  
 return true;  
 }  
 }  
}

Compare each element of Array to all other elements and returns true if it finds duplicates.

→ What is the difference between Arrays and ArrayList in Java?

- Array is part of Core Java programming and has special syntax,  
ArrayList is part of Collection framework and implement List interface.
- Major difference between Array and ArrayList is that  
Array is a fixed length data structure. You can not change length of Array once created.  
ArrayList is re-sizeable.
- The other major difference between Array and ArrayList is that  
Array can contain both primitives and Objects in Java.  
ArrayList can only contain objects. It can not contain primitive types.
- Also, we can compare Array and ArrayList on how to calculate length of  
Array or size of ArrayList. We use length for an Array, we use size() method for an ArrayList.

→ What is difference between Hashtable and HashMap in Java?

- Both Hashtable and HashMap implements Map interface and both are store Key and Value.
- HashMap is not thread-safe while Hashtable is a thread-safe collection
- The second important difference is performance since HashMap is not synchronized. It performed better than Hashtable.  
→ Collections.synchronizedMap()

→ When to use List, Set, and Map in Java?

- If you need to access elements frequently by using index, then List is a way to go. ArrayList provides faster access if you know index.
- If you want to store elements and want them to maintain an order, then go for List again. List is an ordered collection and maintain order.
- If you want to create collection of unique elements and don't want any duplicate then choose any Set implementation. (HashSet...)
- If you store data in form key and Value then Map is the way to go. You can choose from HashMap, Hashtable..

## → Difference between Error and Exception in Java? (7)

- Both Error and Exception are derived from Throwable in Java.
- Error represent errors which are generally can not be handled.  
For examples: OutOfMemoryError, NoClassDefFoundError.
- On the other hand, exception represent errors which can be catch and dealt.  
For examples: IOException, NullPointerException.
- Exception is divided in two categories checked and unchecked Exception.  
Checked Exception require a mandatory try-catch code block to handle it.  
Unchecked Exception mostly represent programming errors (NullPointerException)  
(or Runtime Exception)

## → Difference between RuntimeException and Checked Exception in Java?

- Exception are divided in two categories Runtime (also known unchecked) Exception and Checked Exception.
- Main difference between Runtime Exception and Checked Exception is that, It is mandatory to provide try-catch to handle checked exception, while in case of RuntimeException this is not mandatory.
- Some of the most common Exception like NullPointerException, ArrayIndexOutOfBoundsException, ClassNotFoundException, IOException.

## → Difference between throw and throws in Java?

- throw and throws are two keyword related to Exception feature of Java Prop. Language.
- throw keyword is used to throw an exception explicitly, on the other hand throws keyword is used to declare an exception which means it works similar to the try-catch block.  

```
throw new ArithmeticException ("Arithmetic Exception");  
throws ArithmeticException;
```
- if we see syntax wise than throw is followed by an instance of Exception class  
throws is followed by Exception class names.  

```
throw new ArithmeticException ("Arithmetic Exception");  
throws ArithmeticException;
```
- throw keyword is used in the method body,  
while throws is used in method signature to declare the exception.

(8)

→ How would you handle exception?

- try-catch blocks is placed around the code that might generate an exception. Every try block should be followed either by catch or finally block.
- the finally block follows a try block or a catch block. Finally block always executes, no matter what happened.
- throws keyword. If a method does not handle a checked exception, the method must declare it using the throws keyword. The throws keyword appears at the end of method's signature.
- throw keyword. You can throw an exception by using the throw keyword inside method body.

→ final is a keyword and used to apply restrictions on class, method variable  
(final class can not be inherited, final method can not be overridden and final variable value can not be changed.)

finally is a block and used to place important code, it will be executed whether exception is handled or not

finalize is a method and used to perform clean up processing before object is garbage collected.

→ What is difference between Object and Class?

- Class is a blueprint or template which you can create as many objects as you like.
- Object is a member or an instance of a class.
- Class is declared using class keyword,
- Object is created through new keyword mainly.

## StringBuffer and StringBuilder

- 1) StringBuffer is synchronized, StringBuilder is non-synchronized
  - 2) StringBuilder is more efficient than StringBuffer.

## Constructor

`StringBuilder()` → creates an empty string with the initial capacity of 16.

`StringBuilder(String str)` → creates a string Builder with the specified string.

`StringBuilder(int length)` → creates an empty string with the specified capacity as length

## Methods

```
StringBuilder str = new StringBuilder("Hello");
```

str.append("Java"); // original string is changed. → prints Hello Java ↑ added end.

str.insert(1, "Java"); // → prints > HJavaello

`str.replace(1, 3, "Java"); //` → prints > H Java lo  
                  ↓      ↙  
          Initial.

str.delete(1,3); // → prints > Hlo

str. reverse(); // → prints >olleH

→ //reverse string

```
String str = "Hello";
String reversed = "";
for(int i=str.length()-1 ; i>=0 ; i--) {
    reversed += str.charAt(i);
}
System.out.println(reversed);
```

# SELENIUM

(1)

→ What is Selenium and what is composed of?

Selenium is a suit of tools for automated web testing.

It is composed of:

- ① Selenium IDE, a firefox plugin that works for recording and playing back
- ② Selenium RC, is a test tool and it used to work on javascript to automate the web applications.
- ③ WebDriver, is a web automation framework and <sup>that allows you to execute</sup> your tests in different browsers.
- ④ Selenium Grid, allows tests to run in parallel across multiple machines.

→ Selenium 1.0 or Selenium RC → 2004

→ Selenium 2.0 or Selenium WebDriver → 2011

→ Selenium 3.0 → 2016

→ What are advantages of Selenium?

- Selenium is open source and free to use without any licensing cost.
- It supports multiple languages like Java, ruby, python ...
- It supports multi browser testing.
- ✓ It has good amount of resources and helping community..
- ✓ It supports many operating systems like windows, Mac, Linux ..

→ What are disadvantages of Selenium?

- Selenium supports only web based applications, does not support <sup>windows based application</sup>.
- Selenium needs third party tools for report generation activity.
- ④ Selenium does not support file upload facility.

→ What are limitations of Selenium?

- We can not test desktop application using Selenium
- We can not test Web services using Selenium.
- We have to use external libraries and tools for performing tasks like testing framework (TestNG, JUnit), reading from external files (Apache POI for excel).
- Automating Captcha is not possible using Selenium

## → Implicit wait vs Explicit wait ?

(2)

- Implicit wait is a type of wait, which waits for a specified time while locating an element before throwing "NoSuchElementException".
  - As by default Selenium tries to find elements immediately without any wait. So, it is good to use implicit wait. This wait applied to all elements of the current driver instance.
- Explicit wait is a type of wait which is applied to a particular web element until the ExpectedCondition specified is met.
- Implicit wait, if condition is met before the timeout, it will continue to next step, if condition is not met within timeout throw "NoSuchElement" exception.
- Explicit wait, if condition is met before timeout, it will continue to next step, if condition is not met within timeout, throw "TimeoutException" failed.
- `driver.manage().timeouts().implicitlyWait(5, TimeUnit.SECONDS);`
- `WebDriverWait wait = new WebDriverWait(driver, 5);`  
`wait.until(ExpectedConditions.visibilityOf(element));`

→ What are expected conditions that can be used in explicit waits?

- `visibilityOf(element)`, `elementToBeClickable(element)`, `alertIsPresent()`.

→ What are some commonly encountered exceptions in selenium?

- ① `NoSuchElementException` —
- ② `ElementNotVisibleException` —
- ③ `NoAlertPresentException` —
- ④ `TimeoutException` —
- ⑤ `WebDriverException` —

→ What are various ways of locating an element in Selenium? (5)

- ① Id ② Name ③ className ④ Xpath ⑤ css selector ⑥ linkText ⑦ partialLinkText  
⑧ tagname

→ What is XPath?

- XPath is used to find the location of any element on a webpage using HTML syntax

→ What is difference between single slash (/) and double slash (//) in XPath?  
( " " absolute XPath and Relative XPath " " )

- Absolute XPath starts with single slash (/), starting from root element and all the way to the element.
- Relative XPath starts with double slash (//), starts selection matching anywhere in the document.

→ Syntax for XPath?

// tagname [② attribute = 'value']  
select current node      current node      select attribute      attribute name of the node      value of the attribute

→ How do you handle dynamic elements? - I'm using some methods.

- contains() → //\*[contains(② name, 'btn')]
- start-with() → //label [starts-with(② id, 'message')]
- text() → //td [text() = 'UserID']
- OR & AND → //input [② type = 'submit' AND ② name = 'btnLogin']

→ How can we move to parent element using XPath?

- Using (..) expression in XPath we can move to parent element.

→ How can we move to nth child element using XPath?

- There are two ways:- Using square brackets with index position  
For ex: div[2] will find the second div element

- Using position() method.

For ex: div [position()=2] will find the second div element

(4)

→ What is difference between Xpath and CSS selector?

- with Xpath, we can search elements backward or forward ~ while CSS works only in forward direction.
- Xpath can work with text ; CSS can not work with text.
- XPath has more combination and can search by index CSS cannot search by index. But css is working faster than Xpath.

---

→ Explain the difference between close and quit command?

- driver.close() - used to close the current browser
  - driver.quit() - used to close all the browser instances
-

## → What is Selenium Framework?

(5)

Selenium framework is a code structure that helps to make code maintenance easy, code readability and code reusage.

There are mainly 3 type of frameworks created by Selenium WebDriver to automate test cases:

- Data Driven Framework
- Keyword Driven Framework
- Hybrid Framework

## → Data Driven Framework

- Data Driven Framework is one of the popular automation frameworks in the market.
- All of our test data is generated from some external files like Excel (or scenario outline in feature file.) (or TestNG Data Provider) (or connect with Database)
- Selenium WebDriver is a great tool to automate web-based applications. But it does not support read and write operations on excel files. Therefore, we use third party APIs like Apache POI.

## → Keyword Driven Framework

- Keyword driven testing is a scripting technique that uses data files to contain the keywords related to the application being tested.
- Keywords are written in some external files like excel file and java code will call this file and execute test cases.

## → Hybrid -Driven Framework

- a combination of the DDF and KDF is commonly said to be HDF.
- both the test data and test action are kept in external files.

# API vs Webservices

Selenium WebDriver, JDBC, Apache POI  
↓ browser      ↓ Database      ↓ MS Office

(1) if an API uses internet for communication  
it is a webservices  
\*\* All webservices are API, but not all APIs are webservices.

## API / Webservices

- no UI. ( web application with UI and we use selenium webdriver )

- we use:

SOAP → XML

REST → JSON, XML, TEXT

Postman, Rest Assured Library

→ Name some of commonly used HTTP methods used in REST based Architecture?

Create → POST

Read → GET

Update → PUT

Delete → DELETE

→ what is API?

- API is the acronym for Application Programming Interface which is (software) intermediary that allows two applications to talk to each other.

## STATUS CODES

1XX → Informational

2XX → Success  
(request was accepted successfully)

3XX → Redirection

4XX → Client Error

5XX → Server error

✓ 200 → OK

201 → Created

202 → Accepted

✓ 204 → No Content

✗ 400 → Bad Request

401 → Unauthorized

403 → Forbidden

✗ 404 → Not Found [service is down or URL is bad]

405 → Method not allowed

## API / Webservices with Fest Assured Library

(2)

→ import static io.restassured.RestAssured.\*;

→ URI uri = new URI("...../methods"); get, post, all, add ..

→ **GET**

Response response = given().accept(ContentType.JSON)  
when().get(uri);

response.then().assertThat().statusCode(200)  
.and().assertThat().contentType(ContentType.JSON);

→ **POST**

Response response = given().contentType(ContentType.JSON)  
.with().accept(ContentType.JSON)  
.and().body(jsonbody)  
.when().post(uri);

response.then().assertThat().statusCode(200);

→ import static org.hamcrest.Matchers.\*;

↳ then().assertThat().body("Id", Matchers.equalTo(123));

→ JsonPath json = new JsonPath(jsonbody);

json.getString("key");

json.getInt("key");

json.getList("key1+key2");

XmlPath xml = new XmlPath(xml);

WTFASMR

(3)

API

?

There are 2 types of Authentication

- Basic
- Pre-emptive

## SERIALIZATION / DESERIALIZATION

(when we map a Java object to API JSON format)

Serialization : Java object (POJO, BEANS) → Map it to API JSON/XML

Deserialization : API JSON/XML → Map it to Java object

Serialization : When you have an Object from a class and Map it to a JSON format in your RESTful API.

{  
make : "Toyota"  
model : "Camry"  
}

Car car = new Car();  
car.setMake("Toyota");  
car.setModel("Camry");  
given().body(car).when().post(uri).

De serialization :

Car car2 = new Car();  
car2 = when().get(uri).body.as(Car.class);

car2.getMake() → "Toyota"  
car2.getModel() → "Camry"

\* POJO = Plain Old Java Object

# API

(4)

→ What is the Endpoint?

<protocol>://<service-name>/<ResourceType>/Resource ID → URL

(Uniform  
Resource Identifier)

Base URL / resource ? Parameters

(http://www.google.com / search ? source=book...)

query parameters

→ How do you verify a value in your Response body?

(for ex: verify ID contains correct number)

① Hamcrest Matcher that is assertion library.

```
then().assertThat().body("Id", Matchers.equalTo(123));
```

② Parse into JsonPath and use ~~getList()~~ <sup>getString()</sup> methods.  
to read Id value.

And, I can use JUnit Assertion:

```
String body = ...thenReturn().body().asString();
JsonPath json = new JsonPath(body);
assertEquals(123, json.getInt("Id"));
```

③ De-serialize into a (POJO) object (or Object Mapping)

(Pojo) myPojo = ....when().post(url).  
thenReturn().body().as((Pojo).class);

↳ assertEquals(123, myPojo.getId());

(And, I can use JUnit Assertion)

How cool it is !!

# API

6

→ There are 2 types of Authentication

## • Basic

→ Pre-Emptive

If a service is configured to be Pre-Emptive, It will not request credentials from a client - even though it requires it.

If a request does not contain credentials, it will return 401 Unauthorized status code.

→ Challenged

When request reaches the API then API will tell that it requires credentials. Then Client will provide credentials

## • Digest

→ is more encrypted than basic

→ https

# RESTful Web Service / API Interview Questions

(6)

→ What is REST and RESTful?

- REST stands for Representational State Transfer.
- RESTful is referred for web services written by applying REST architectural concept are called RESTful service.
- In RESTful, webservices http methods like GET, POST, PUT, DELETE can be used to perform CRUD operations

→ What is difference between SOAP and RESTful web services?

- RESTful supports JSON, XML, TEXT  
SOAP supports only XML
- REST is faster than SOAP based webservices.

→ How do you verify a value in your Response body? ↗  
sayfa 4

→ What is endpoint? ↗  
sayfa 4

→ What is HTTP Basic Authentication and how it works? ↗  
sayfa 5

→ What is API? ↗  
sayfa 1

→ Name some of commonly used Http methods used in REST based architecture ↗  
sayfa 1

→ Which protocol is used by RESTful webservices?

- RESTful web services use of HTTP protocol as a medium of communication between client and server.

→ What is URI? Purpose and format?

- URI stands for Uniform Resource Identifier.
- The purpose of URI is to locate a resource on the server hosting the web service.
- A URL is of the following format

<protocol>://<service-name>/<ResourceType>/<ResourceID>

# ~~SQL~~

How can we connect db?

①

~~Java API~~

MySQL 5.7

Oracle 11g

- `java.sql`, `java.x.sql`

Connection  
(interface)

`connection = DriverManager.getConnection (URL, user, pass)`

Statement  
(interface)

`statement = connection.createStatement ()`

ResultSet  
(interface)

`resultSet = statement.executeQuery ("query")`

`resultSet.close();`  
`statement.close();`  
`connection.close();`

After connection

DatabaseMetaData `db = connection.getMetaData();`

After resultSet.

ResultSetMetaData `rs = resultSet.getMetaData();`

~~Failure to connect will throw an exception:~~

- SQLException (bad url or credentials)
- ClassNotFoundException (JDB driver not in classpath)

Versions

Java 8 → 2014 - present

Java 7 → 2011 - 2014

Java 6 → 2006 - 2011

Selenium 3.5.3

## SQL Review (2)

RDBMS : Relational Database Management System.

Data is organized into tables that are related to each other.

- How are they related?

Primary key and foreign key.

Primary key : unique and not Null

Foreign key : duplicate, null.

- What type database system you have exper. with?

RDBMS. such as MySQL and Oracle

Database schema?

- it is like a diagram with all tables and column names, datatypes and PK, FK and how tables are related to each other.

SQL?

- Structured query language. used for managing and manipulating data in db

→ What are constraints?

- properties that table column must comply with.

Columns have constraints that defined how data can be stored.

PK → unique, not null

PK → null, duplicated, can not add data which is not in PK

unique key → only unique value

null → can have null

not null → can not have null

- NUL
- NOT NULL
- UNIQUE
- PK
- FK

Data types in SQL?

- Number(9)

- Integers

- char → char(20) : 20 spaces are taken from memory, you used only 8 → Bob

- varchar → varchar(30) : Smith 5 spaces from memory.

varchar2

- boolean

- date

- currency

## SQL Review ③

### DML vs DDL

DML : Data Manipulation Language.

DML command actions can be restored.

DML commands are :

- SELECT from tablename; (read)
- INSERT into tablename values (----); (add)
- (keys)
- UPDATE tablename SET value WHERE location;
- DELETE from tablename WHERE location; (rows)

DDL : Data Definition Language.

DDL commands actions can not be restore / undone.

DDL commands are:

- CREATE table tablename (column1, column2....);
- ALTER table tablename Modify value;
- TRUNCATE table tablename; (delete whole table data)
- DROP table; (delete whole table with structure)

PL/SQL functions and Triggers in Oracle?

- A trigger is triggered automatically when a DML statement is executed.

- There are 2 types functions :

Procedure (like a void method in java)

Function (like a non-void method in java)

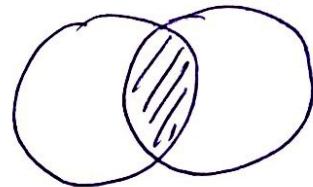
# SQL Reviews

2

## JOIN / INNER JOIN

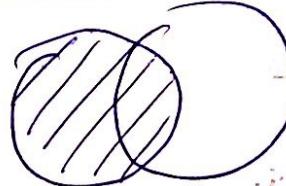
- (INNER) JOIN is used when retrieving data from multiple tables and will return only matching data

```
SELECT employee-id, department-id
FROM employees JOIN departments
ON e.department-id = d.department-id;
```



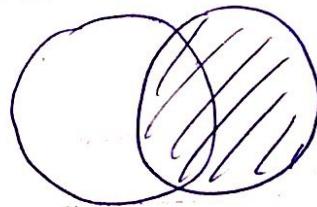
## LEFT (OUTER) JOIN

- LEFT (OUTER) JOIN is used when retrieving data from multiple tables and will return left table and any matching right table records



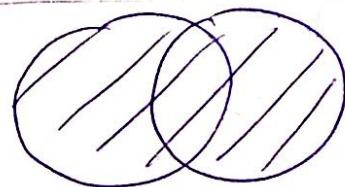
## RIGHT (OUTER) JOIN

- RIGHT (OUTER) JOIN is used when retrieving data from multiple tables and will return right table and any matching left table records



## FULL (OUTER) JOIN (only Oracle)

- FULL (OUTER) JOIN is used when retrieving data from multiple tables and will return both tables records, [matching and non-matching]



## UNION

- union combines the resultsets of two queries

1 select column-names  
from table-name  
+ UNION  
2 select column-names  
from table name

# SQL Review

(5)

(1) How to find top 3 high paid employees?

in MySQL \* oracle has ROWNUM

```
use hr;  
SELECT salary, first-name, last-name  
FROM employees  
ORDER BY salary DESC  
LIMIT 3
```

(2) How to find duplicate names in employees?

```
SELECT first-name, COUNT(first-name)  
FROM employees  
GROUP BY first-name  
HAVING (COUNT(first-name) > 1);
```

(3) How to find employees whose salaries are below the average?

```
SELECT first-name, salary  
FROM employees  
WHERE salary <= (SELECT AVG(salary) FROM employees);
```

(4) How to find maximum salaries in each department?

```
SELECT first-name, MAX(salary)  
FROM department d LEFT OUTER JOIN employee e  
ON (d.department-id = e.department-id)  
Group By department-id;
```

(5) How to find second highest salary of Employee? (without limit)

```
SELECT MAX(salary)  
FROM employees  
WHERE salary NOT IN (SELECT MAX(salary) FROM employees);
```

## Maven project

### ► src / test / java

- ▷ com.myproject.pages → HomePage.java, SearchPage.java...
- ▷ com.myproject.runners → CukesRunner.java
- ▷ com.myproject.step-definitions → Hook.java, LoginTestStepDef.java...
- ▷ com.myproject.utilities → Driver.java

### ► src / test / resources

- ▷ drivers → chromedriver, geckodriver.
- ▷ features → test.feature
- ▷ test-data → configuration.properties

Excelutils.java  
DBUtility.java  
ConfigurationReader.java

► JRE System Library

► Maven Dependencies

► Referenced Libraries

► .

► .

### ► target

- ▷ cucumber-reports
- ▷ generated-test-sources
- ▷ maven-status
- ▷ surefire-reports
- ▷ cucumber.json

### l pom.xml

## POM.XML

<project ....>

<modelVersion> 4.0.0 </modelVersion>

<groupId> com.myProject </groupId>

<artifactId> MyProject-uat </artifactId>

<version> 0.0.1-SNAPSHOT </version>

<properties>

<maven.compiler.source> 1.8 </maven.compiler.source>

<maven.compiler.target> 1.8 </maven.compiler.target>

</properties>

<dependencies>

<dependency>

<groupId> org.apache.poi </groupId>

<artifactId> poi-ooxml </artifactId>

<version> 3.16 </version>

</dependency>

:

cucumber-java

cucumber-junit

selenium-java

</dependencies>

<build>

<plugin>

- maven-compiler-plugin

- maven-surefire-plugin

<configuration>

<testFailureIgnore> true </testFailureIgnore>

<includes>

<include> \*\*/\* CukesRunner.java </include>

<includes>

</configuration>

</plugin>

</build>

</project>

## Runner Class

```
package mypackage;

import cucumber.api.CucumberOptions;
import cucumber.api.junit.Cucumber;
import org.junit.runner.RunWith;
```

② RunWith (Cucumber.class)

③ CucumberOptions (

```
    plugin = {"pretty", "html:target/cucumber-reports",
              "json:target/cucumber.json"}
```

```
    features = "src/test/resources/features",
```

```
    glue = "com/myproject/step-definitions",
```

```
    tags = "@smoke",
```

```
    dryRun = false
```

)

```
public class CukesRunner { }
```

mvn test -Dcucumber.options="--tags

@smoke"

Cucumber

in Jenkins: Command-Line

## Pages

```
package mypackage;
```

```
public class mypage { }
```

```
public myPage() { }
```

```
    PageFactory.initElements(driver, this);
```

}

→ Driver.getInstance()

④ FindBy (css=....)

```
public WebElement myelement;
```

## feature file

Feature: Withdraw Money from ATM

Scenario: A user withdraws money from an ATM

Given Eric has a valid credit or debit card

→ Describes the precondition and initial state

And his account balance is \$100

When he inserts his card

→ describes actions

And withdraws \$45

Then the ATM should return \$45

→ describes the outcome resulting from actions

And his account balance is \$55

\* In some cases, we want to test multiple scenarios at once to perform Equivalence partitioning and boundary-value analysis:

Scenario Outline: A user withdraws money from an ATM

Given <Name> has a valid credit or debit card.

And their account balance is <OriginalBalance>

When they insert their card

And withdraw <WithdrawalAmount>

Then the ATM should return <WithdrawalAmount>

And their account balance is <NewBalance>

Examples:

Iname	OriginalBalance	WithdrawlAmount	NewBalance
Eric	100	45	55
Gaurav	100	40	60
Ed	1000	200	800

→ at runtime the scenario is run against each row in the table.  
column values are substituted for each of the named placeholders in the scenario.

```
public class MyStepDefs {  
    @Given("(.*) has a valid credit or debit card")  
    public void hasCard(String name) {  
    }  
};  
}
```

### Hook

```
public class Hook {  
    @Before → import cucumber.api;  
    (Runs before a scenario)  
    public void setup() {  
        Driver.getInstance().manage.timeouts().implicitlyWait(5, TimeUnit.SECONDS);  
    }  
    @After → import cucumber.api;  
    (Runs after a scenario)  
    public void tearDown(Scenario scenario) {  
        if (scenario.isFailed()) {  
            final byte[] screenshot = ((TakesScreenshot) Driver.getInstance()).  
                getScreenshotAs(OutputType.BYTES);  
            scenario.embed(screenshot, "image/png");  
        }  
        Driver.closeDriver();  
    }  
}
```

### configuration.properties

```
url = http://myproject.com  
browser = chrome  
chrome.driver.path = ./src/test/resources/drivers/chromedriver  
username =  
password =
```

## Excel

### Data Driven Testing with Excel

org.apache.poi > 3.16

FileInputStream ex = new FileInputStream(path);

XSSFWorkbook wb = new XSSFWorkbook(ex);

XSSFSheet es = wb.getSheet("SheetName");

XSSFCell cell = es.getRow(rownum).getCell(column);

XSSFRow row = es.getRow(rownum);

cell = row.createCell(column);

cell.setCellValue(value);

FileOutputStream fo = new FileOutputStream(path);

wb.write(fo);

fo.close();

## Versions

8-10 → Selenium 3.5.0 (August 10, 2017)  
(license → Apache License 2.0)

Selenium 1.0 or Selenium RC ) 2004  
Selenium 2.0 or Selenium Webdriver ) 2011  
Selenium 3.0 ) 2016

8-10 → Java SE 7 (July 28, 2011)

Java SE 8 (March 18, 2014)

Java SE 9 (Sept 21, 2017)

6-10 → API  
7-10 → SQL

→ Maven 3.5.0 (April, 2017)

Maven 2 (until → 2014)

7-10 → Cucumber 1.3.15 (May, 2014)

→ TestNG 6.11 (Feb, 2017) (-)

↳ esklusive?

→ JUnit 5.0.1 (October 3, 2017)

→ Jenkins 2.82 (Oct. 1, 2017) [starts before 2011]

→ Git 2.14 (Sept. 22, 2017) [starts before 2011]

→ Jira 6.4 ( - 2017 ) [starts before 2011]

→ MySQL 5.7.19 (July 2017)

→ Oracle DB 11G (2008), 12C (2013 → present)

→ org.apache.poi 3.16

→ Postman 5.3.0 (Oct 6 2017)