TECH LEAD ACADEMY

INTERVIEW QUESTIONS AND ANSWERS

BOOSTING YOUR CAREER

Java™

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Chapter 1

Soft Skills

1. Tell me about yourself?

…… your own answer name experience and tools, personality….

2.Why are you looking for a job?

My current project is ending soon. My manager told me I should start looking for new opportunity.

3.How soon can you start?

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

(Note: If they insist you to start tomorrow don't get exited. They will ask everyone the same thing. If you are the only one saying " wait" then it means you are more valuable and expensive. Others will look cheap because they are desperate and you are confident.)

Well, our team won't be unhappy 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 member before I leave.

4.Why did you apply for this position?

After looking at the job description I think the job description is just match my day to day activity(or Experience) . I was confident with the job description that is why applied. Plus, I have done some research on the company and I am really exited about the companies product and services. I am exited about the company as well.

5.If you get hired how long are you planning to stay?

I think at least 5-6 years. As long as there is project to work I am willing to stay.

(the reason they ask is they don't want to hire a person and the person leaves in 3 month.)

6.Could you tell me about your day to day activity?

(Note: Companies don't care if you are saving the planet or not. They only care if your day to day activities match their position so they can get most out of you. So You have to see the job description before you are start talking to HR or recruiter. Once you know the job description you can talk accordingly.)

I am working as automation developer in my current project. I designed and created keyword driven framework for my project. I have automated most of the test cases from regression suite. When there is regression I

support functional team to execute automated regression test cases in multiple VM.After the execution I provide detailed run result and analysis to the team. Whenever I have time I am supporting functional testing as well by executing the test cases manually. I can say 20% of my job goes to manual testing support. Recently our company is transitioning from waterfall to Agile development. Since Agile requires cross functional team member, most of our manual testing team members were under little stress. I have started weekly test automation mentoring session for whoever wants to learn the test automation. So far we have a lot of progress. Many of them can automate basic smoke test and execute it. By the way, I would like to mention I create test data for manual testing team using automation scripts. Because there are a lot of test cases have data dependency. Creating test data itself will take a long time manually. Even though it was not my responsibility, I have proactively took the initiative. Now I think I am saving hundreds of hours for manual testing team by doing so.

I also do production support in every major release. Normally production support will be on the weekend. I will come and execute 'read only' test cases on production environment after the deployment. If there is any issue on the deployment I have to immediately contact with Dev and QA to fix the issue ASAP.

In sprint grooming meeting I always give feedback to the user stories to make sure it is something testable and measurable. For example: there were a user story said after doing so and so change in the application the

performance should improve. I have asked the business what do you mean by performance improvement? How do you measure the improvement. After that they have came up with better user stories(requirement in agile)

7. Why should we hire you?

I think you should hire the person if he or she has better qualification than me. Sine I don't know them I can talk about myself. I think my experience and technical expertise will bring a lot of value and benefit to the company and project. On top of my technical skill, I believe I enjoy working with others. Rather than being a highly productive individual I prefer to be highly productive team member. For me our team and project is my first priority. That is why people like generally like to work with me. I think that is why you should hire me.

8. Where do you see your self 5 years from now?

I can easily see myself in mirror 5 years from now.(don't say that, it is a joke) I want to learn as much as possible to be more technical. I would like to see my self as real Software Developer in Test. I want to be technically very competitive person 5 years from now.

(Note: Some mangers are already under stress. They are not comfortable to hire the person that is smarter than themselves. So you have to know how to make them comfortable by let them feel that you are technically good, but you will be 0 thread to their position.)

9.Why do you want to work for our company?

Based on my research, I liked the company's vision and mission(you have to know this). I think I believe in this company. That is why I want to work for X company.

10. How do you handle stress?

I handle stress by avoiding a stressful situation. For example, if there is a lot of work to do in very short period of time, I know how to prioritize my work. Do the most important things first. If you do know how to prioritize your work, you don't really have to multi task five things at the same time. Some times people can have stress at work because of their co-workers as well. I always maintain good relationship with my colleagues, so they trust me and they know I am a trustworthy person. If everybody trusts you in your team you can avoid a lot of miscommunication. I think I am a happy team member most of the time.

11. Can you work under pressure?

I don't remember any project that I worked had no pressure. Pressure is good thing some times. It forces you to work harder and smarter. In my current project we were migrating our operating system from Windows XP to Window 8.1. That was the change that is required corporate level. The problem is we had a major release in one month. When we migrated from

XP to Windows 8.1 non of our automated scripts worked due to the change. Because we have developed the scripts in XP and QTP11. Now we are trying to run the scripts in Windows 8.1

and UFT 12.02 version. As a team we were under extreme pressure because we can't have have release before finishing the regression. As a team we were almost working 7 days a week to meet the deadline. We were successfully able to convert and run our scripts on time.

12. How much are you expecting from us? or For how much you are willing to work us?

My current hourly rate is $47/hr. It will be big motivation for me to have some amount of increase. (remember that 47 is depended on you confidence level. You can increase it if you want. The reason they ask you is they want to confirm the rate. They will have specific budget and consulting firm has to mark up a couple dollars to make some money. So it is always negotiable.If you say too low it means you are not confident.)

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

Since all the IT projects have start and end date once the project is completed I had to find another position. That is why there are many

14 . May I contact your current employer for reference?

Please go ahead if you would like to submit my resume. But I am receiving a lot of phone calls from other recruiters. I don't want to let anyone to call my employer if they are not sure to submit my resume or not. (if they say they will submit your resume then tell them you will send out asap after work.)

15. What do you do if I hire you?

In first week I will get done all the paperwork. 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 and it is processes and it is current states are very important if I want to be more productive. If the project is very busy project I can start working with minimal direction asap.

1.1 Tell me about yourself

My name is ....

1.2 Why should I hire you?

As fresher, I don't have any experience. If you hire me, it is a great opportunity for me to learn something new and achieve my goals. This is only possible if you hire me and I assure you that I will give my best to this company.

1.3 What is your Strength and Weakness?

Strength: My strength is that I am a self-learner & have a positive mind.

Weakness: I don't take rest until my work finished.

1.4 Why do you want to work for our company?

It is a great honor for me to work in a reputed company likes yours because it is a great multinational company. It has many branches across the world. Employee satisfaction is good in your company. It's a good platform for me to improve my talent and enhance my skill and knowledge.

1.5 What is the difference between Confidence and Over-Confidence?

Confidence means I will win and Overconfidence means I will win at all the time.

1.6 What is the difference between Hard-work and Smart work?

Hard work is very necessary for your life because, without practice, you can’t be able to do smart work.

1.7 How do you feel about working night and weekends?

If the company needs me then I am ready to work at any time.

1.8 Can you work under Pressure?

Yes, it is a Great Honor for me to work in a presumed organization like yours on the grounds that it is an incredible multinational organization. It has numerous branches over the world.

Worker fulfillment is great in your organization. It's a decent stage for me to stand my ability and upgrade my expertise and knowledge.

1.9 What is your goals?

My short term goal is to be a part of your company and my long-term goal is to be successful in every parameter of this company.

1.10 How much salary do you expect?

I can expect something which I can meet my expenses.

1.11 Where do you see yourself five years now?

I can see myself growing with this company and reaching a position where I become a valuable asset to this organization.

Chapter 2

JAVA QUESTIONS

2.1 What if I write static public void instead of public static void?

The program compiles and runs correctly because the order of specifiers doesn't matter in Java.

2.2 What is the default value of the local variables?

The local variables are not initialized to any default value, neither primitives nor object references.

2.3 What are the various access specifiers in Java?

In Java, access specifiers are the keywords which are used to define the access scope of the method, class, or a variable. In Java, there are four access specifiers given below.

Public The classes, methods, or variables which are defined as public, can be accessed by any class or method.

Protected Protected can be accessed by the class of the same package, or by the sub-class of this class, or within the same class.

Default Default are accessible within the package only. By default, all the classes, methods, and variables are of default scope.

Private The private class, methods, or variables defined as private can be accessed within the class only.

2.4 What is the purpose of static methods and variables?

The methods or variables defined as static are shared among all the objects of the class. The static is the part of the class and not of the object. The static variables are stored in the class area, and we do not need to create the object to access such variables. Therefore, static is used in the case, where we need to define variables or methods which are common to all the objects of the class.

For example, In the class simulating the collection of the students in a college, the name of the college is the common attribute to all the students. Therefore, the college name will be defined as static.

2.5 What are the advantages of Packages in Java?

There are various advantages of defining packages in Java.

Packages avoid the name clashes.
The Package provides easier access control.
We can also have the hidden classes that are not visible outside and used by the package.
It is easier to locate the related classes.

2.6 What is the output of the following Java program?

```
class Test
{
   public static void main (String args[])
   {
      System.out.println(10 + 20 + "Javatpoint");
      System.out.println("Javatpoint" + 10 + 20);
   }
}
```

The output of the above code will be

30Javatpoint
Javatpoint1020

Explanation

In the first case, 10 and 20 are treated as numbers and added to be 30. Now, their sum 30 is treated as the string and concatenated with the string Javatpoint. Therefore, the output will be 30Javatpoint.

In the second case, the string Javatpoint is concatenated with 10 to be the string Javatpoint10 which will then be concatenated with 20 to be Javatpoint1020.

2.7 What is the output of the following Java program?

```
class Test
{
   public static void main (String args[])
   {
      System.out.println(10 * 20 + "Javatpoint");
      System.out.println("Javatpoint" + 10 * 20);
   }
}
```

The output of the above code will be

200Javatpoint
Javatpoint200
Explanation

In the first case, The numbers 10 and 20 will be multiplied first and then the result 200 is treated as the string and concatenated with the string Javatpoint to produce the output 200Javatpoint.

In the second case, The numbers 10 and 20 will be multiplied first to be 200 because the precedence of the multiplication is higher than addition. The result 200 will be treated as the string and concatenated with the string Javatpointto produce the output as Javatpoint200.

2.8 What is the constructor?

The constructor can be defined as the special type of method that is used to initialize the state of an object. It is invoked when the class is instantiated, and the memory is allocated for the object. Every time, an object is created using the new keyword, the default constructor of the class is called. The name of the constructor must be similar to the class name. The constructor must not have an explicit return type.

2.9 How many types of constructors are used in Java?

Based on the parameters passed in the constructors, there are two types of constructors in Java.

Default Constructor: default constructor is the one which does not accept any value. The default constructor is mainly used to initialize the instance variable with the default values. It can also be used for performing some useful task on object creation. A default constructor is invoked implicitly by the compiler if there is no constructor defined in the class.

Parameterized Constructor: The parameterized constructor is the one which can initialize the instance variables with the given values. In other words, we can say that the constructors which can accept the arguments are called parameterized constructors.

2.10 What is the purpose of a default constructor?

The purpose of the default constructor is to assign the default value to the objects. The java compiler creates a default constructor implicitly if there is no constructor in the class.

2.11 Does constructor return any value?

Ans: yes, The constructor implicitly returns the current instance of the class (You can't use an explicit return type with the constructor)

2.12 Can you make a constructor final?

No, the constructor can't be final

2.13 Can we overload the constructors?

Yes, the constructors can be overloaded by changing the number of arguments accepted by the constructor or by changing the data type of the parameters.

2.14 What are the differences between the constructors and methods?

There are many differences between constructors and methods. They are given below.

Java Constructor	Java Method
A constructor is used to initialize the state of an object.	**A method is used to expose the behavior of an object.**
A constructor must not have a return type.	A method must have a return type.
The constructor is invoked implicitly.	**The method is invoked explicitly.**
The Java compiler provides a default constructor if you don't have any constructor in a class.	The method is not provided by the compiler in any case
The constructor name must be same as the class name.	**The method name may or may not bee same as class name.**

2.15 What is the static variable?

The static variable is used to refer to the common property of all objects (that is not unique for each object), e.g., The company name of employees, college name of students, etc. Static variable gets memory only once in the class area at the time of class loading. Using a static variable makes your program more memory efficient (it saves memory). Static variable belongs to the class rather than the object.

2.16 What is the static method?

A static method belongs to the class rather than the object.
There is no need to create the object to call the static methods.

A static method can access and change the value of the static variable.

2.17 Why is the main method static?

Because the object is not required to call the static method. If we make the main method non-static, JVM will have to create its object first and then call main() method which will lead to the extra memory allocation

2.18 Can we override the static methods?

No, we can't override static methods.

2.19 Can we execute a program without main() method?

Ans) Yes, one of the ways to execute the program without the main method is using static block

2.20 What if the static modifier is removed from the signature of the main method?

Program compiles. However, at runtime, It throws an error "NoSuchMethodError."

2.21 Can we make constructors static?

As we know that the static context (method, block, or variable) belongs to the class, not the object. Since Constructors are invoked only when the object is created, there is no sense to make the constructors static. However, if you try to do so, the compiler will show the compiler error.

2.22 Can we make the abstract methods static in Java?

In Java, if we make the abstract methods static, It will become the part of the class, and we can directly call it which is unnecessary. Calling an undefined method is completely useless therefore it is not allowed.

2.23 Can we declare the static variables and methods in an abstract class?

Yes, we can declare static variables and methods in an abstract method. As we know that there is no requirement to make the object to access the static context, therefore, we can access the static context declared inside the abstract class by using the name of the abstract class

2.24 difference between Path and classPath?

- Path:
  is used to define where the executables are .exe files
  java.exe, javac.exe etc
  - Class path:
  is used to specify location of Java.class files

  - java source code -> compile (javac) -> bytecode .class extension

versions of java you worked with?
what is the difference between Java 7 and 8?

- Version	Release	end public dates
- Java SE 7	2011	
- Java SE 8	2014	january 2019, december 2020
- Java SE 9	2017	March 2018
- Java SE 10	2018	September 2018

JAVA 7	vs	JAVA 8
- String in Switch statement - Multiple Exception Handling		- Lambda Expression - pipelines and Streams - date and time API - Java 8 interface changes Static Method, Default

* What is garbage collector and how many types?

- Automatic garbage collection is the process of looking at heap memory identifying which objects are in use and which are not and deleting unused objects
- An in use object or a referenced object means that some part of your program still maintains a pointer to that object

* Garbage Collectors

- serial : works with a single thread works for single

threaded apps
- parallel: uses multiple threads for managing heap space
- CSM: (current mark sweep) uses multiple GC threads
- G1: is designed for application running on multiprocessor machines with large memory space. breaks heap into smaller regions

* how to call Garbage Collector?
- System.gc();

* Explain Public Static void main (String args[])

- public:
public is an access modifies which is used to specify who can access this method. Public means that this method will be accessible by any Class.
- static:
It is a keyword in java which identifies it is class bases i.e it can be accessed without creating the instance of a class
- void:
it is the return type of the method void defines the method which will not return any value
- main:
it is the name of the method which is searched by JVM as a starting point for an application with a particular signature only.
it is the method where the main executions occurs
- String args:
it is the parameter passed to the main method

* can one class call another class main method?

- yes a main method can be called in another class main method
- code will compile without main method but will not run

* what are the primitives and wrapper classes?

- every primitive data type has a class dedicated to it
- these are known as wrapper classes because they wrap the primitive data type into an object of that class.

- we can convert from one type to another using casting

* PRIMITIVE	* WRAPPER CLASS	* CONSTRUCTOR ARGUMENT
boolean	Boolean	boolean or String
byte	Byte	byte or String
char	Character	char
int	Integer	int or String
float	Float	float double or String
double	Double	double or String
long	Long	long or String
short	Short	short or String

* implicit casting vs explicit casting?

- Implicit Casting:

```
int i = 100;
double d = i;
```

- Explicit Casting:

```
int n = 12;
byte b = (byte)n;
```

- Auto - Boxing

```
Integer num = n;
```

- Un - Boxing

```
int j = num;
```

DON'T WORK:

```
Integer i = new Integer(100);
double d = i ; // will not work
```

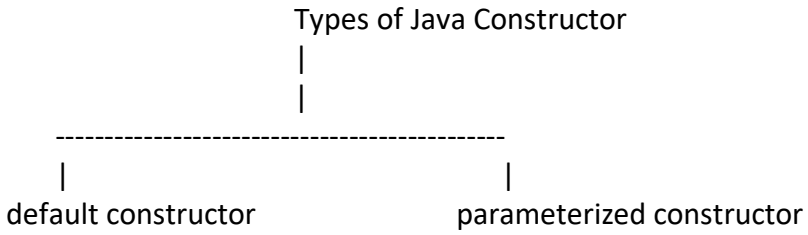
* difference between Instance Variable and static Variable?

- Static Variables:
  belongs to the class itself not to objects
  of the class, different objecst can not have different values for a static variable. only one copy of static variable for everyone. Every object instance of a class has its own copy of each instance variable declared in the class

* What is constructor in java

* what is the difference between constructor and method?

- A constructor in java is a block of code similar to a method thats called when an instance of an object is created. Difference between constructor and method:
- A constructor doesnt have a return type
- the name of the constructor must be the same as the name of the class
- unlike methods constructors are not considered members of a class
- a constructor is called automatically when a new instance of object is created
- the purpose of a constructor is to initialize the object of a class while the purpose of a method is to perform a task by executing java code
- default constructor is added if programmer did not add a constructor.



* Can a super() and this() keywords be in same constructor?

- public computer(){
this();
super();
//code
}
- NO they both need to be in first line within constructor.

* Super. VS Super()

- super.
is used to access parent/super class members vars, methods
- super()
is used to call super class constructor

* this. VS this()

- this.

this object by using this. we can access instance variables and method. to differentiate between instance and argument variable

- this()
  call a constructor from another constructor in same class

Example:

```
public class computer{
        private String brand;

                public computer(){
                  this("apple");
        }
        public computer (String brand){
          this.brand = brand;
        }
}
```

* What is the difference between access modifiers in java?

Modifier	Class	Package		Subclass	World
- public	Y	Y	Y	Y	
- protected	Y	Y	Y	N	
- no modifier	Y	Y	N	N	
- private	Y	N	N	N	

* what is static keyword in java?

- Static keyword means that the variable or method belongs to class and shared between all instances.
- we can call static members by using class name or object
- static methods can not call/refer Non Static members
- Static can be: variables, method, block, inner class

```
public class Computer{
private String brand;
public Computer(){
this("Apple");
}
public Computer(String brand) {
this.brand = brand; }
```

```
public static class Memory{
  private int ramsize;
}
}
Memory c = new Computer().new Memory();
```

* Static block and instance initializer block?

- the static initializer block will be called on loading of the class and code will run only once in the begining
- instance initializer block execute every time you create an object for a class. before any constructor.

Example:

```
public class programer{
System.out.println("constructor")
}
static{
System.out.println("static")
}
{
System.out.println("instance ")
}
```

* pass by value or pass by reference?

- Java is a “pass-by-value” language. This means that a copy of the variable is made and the method receives that copy. Assignments made in the method do not affect the caller.

* final vs finally vs finalize()

- Final:
- final is a keyword
- final is used to apply restriction on class method and variable
- if a class is marked as final then this class can not be inherited by any other class
- finally:

- finally is a block
- finally is a block which is used for exception handling along with try and catch blocks
- Finalize:
- finalize() method is protected method of java.lang.object class it is inherited to every class you create in java
- finalize() methos id used to perform some clean up operations on a object before it is removed from memory

* where did you use static in your framework?

- I normally write utility classes for better reusability and make all methods in my utilities as static methods so that i can easily call them by class name.
- dataseUtil class has static methods to connect and run queries and get data

* difference between equals method and "==" operator in java?

- "==":
reference and address comparison
== in case of primitives it is checking the value. as primitives are single value without any behavior.
- equals()
content comparison

* what is String pool?

- String Pool in java is a pool of Strings stored inJava Heap Memory. Used to save space in memory.

* how to reverse String in java?

1:
```
String string="whatever";
String reverse = newStringBuilder(string).reverse().toString();
System.out.println(reverse);
```
2:
```
String result="";
```

```
        for(int i = string.length()-1; i>=0; i--){
        result = result+ string.charAt(i);
        }
    System.out.println(result);
```

* how to reverse a sentence word by word?

```
        StringBuilder stringBuilder = new StringBuilder();
        String [] words = string.split(" ");
        for(int j = words.length-1; j>=0; j--){
    stringBuilder.append(words[j].append("");
        }
 System.out.println("reverse Words "+ stringBuilder.toString().trim());
```

* String vs StringBuilder vs StringBuffer?

	STRING	STRINGBUFFER	STRINGBUILDER
Storage Area	constant String pool	HEAP	Heap
Modifiable	no(inmutable)	YES(mutable)	YES(mutable)
Thread Safe	YES	YES	NO
Performance	FAST	VERY SLOW	FAST

Immutable means values can not be changed once its created:

* what is Tread-safe or Synchronized?

- what is tread: A sequential or single threaded program has single flow
- synchronized: Means that two threads can not execute the method or access the variables at the same time and the JVM takes care of enforcing that. it is used to achieve thread-safety

* how to check if String is palindrome?

- civic = civic <- is a palindrome
- public static boolean isPalindrome(String str){
if(str==null)
return false;
StringBuilder strBuilder = new StringBuilder(str);
strBuilder.reverse();
return strBuilder.toString().equals(str);
}

* what is singleton class and how can we make a class singleton?

- Ensures that a class has only one instance and provide a global point of access to it
public class SingletonExample{
// static member holds only one instance of the singleton class
private static singletonExample singletonInstance;

// singleton prevents any other class from instantiating
private SingletonExample(){
}
}

Example:

- Singleton Example in Java
public class dbaseConnector{
private static final dbaseConnector instance = new DbaseConnect();

private dbaseConnector(){
//construction code ....
}
public static DbaseConnector getInstance(){
return(instance);
}
}

* how to prevent Instantiation of a class?

- private constructor
- abstract class

* what are OOP concepts in Java?

- encapsulation
- inheritance
- abstraction
- polymorphism

* what is encapsulation and how did you use it?

- data: hiding by making variables private and providing public getter and setter methods.
- in my project i created multiple POJO/BEAN classes in order to manage test data and actual data.

EX: I take JSON from API response and convert to object of my POJO class all variables are private with getters and setter.

* What is inheritance and benefits of it?

- inheritance is a process when a sub class inherits members from super class. All public and protected and sometimes default members are inherited to sub class.
- we will achieve code re-usability and code organization with it. also very useful for polymorphic programing.
- test base is super class and other test classes are sub classes.

EX: we had a page object for one page and as another page contained same elements i used inheritance in order to reuse the elements defined in super page object class in selenium webdriver.

* what is abstraction in java and purpose?

- in General using abstraction in programing we can create a base/blueprint for our code and let sub classes implement as needed according to requirements

hiding the implementation and showing only behavior

2 ways to achieve abstraction in JAVA:
1) Abstract Classes
2) interfaces

* difference between Abstract class and interface?

- difference between abstract class and interface in java
- types of methods: interface can have only abstract methods. abstract class can have abstract and non abstract methods. from java 8 it can have default and static methods also.
- final variables: variables declared in ajva interface are by default final. an abstract class may contain non final variables
- a class can implement multiple interfaces, but it can exted only single abstract class. java does not support multiple inheritance
- methods
- in interface: abstract static defaults,
- in abstract class: abstract non-abstract static
- abstract class can have a constructor
interface can not have a constructor
- interface can extend other interfaces(multiple)

* Difference between overloading and overriding?

1: overloading = same method name but different parameters
overriding = same method name and same parameters

2: overloading = return type can be different
overriding = same type or sub type

* Can you override a static method?

- No static methods can not be overridden, they can only be

hidden.

* What is static binding vs dynamic/runtime binding?

- Static binding is overloading and
- dynamic binding is method overriding.

* What is polymorphism ? where did we use it on framework?

- Polymorphism is the ability of an object to take on many forms.
The most common use of polymorphism in OOP occurs when a parent class reference is used to refer to a child class object.

- DYNAMIC POLYMORHISM - OVERRIDING
- STATIC POLYMORHISM - OVERLOADING

* Data Structures and Why we need it

- Data structures are way of organizing data for efficient manipulation: Insertion , searching, reading , deletion of data.

- I always use java data structures for reading data and storing data from our application , database, or API.

* How do you create an Array or dynamic array?

- int [] nums = new int [7];
nums [0] = 100;
nums [1] = 100;
nums [2] = 100;
nums [3] = 100;
nums [4] = 100;
nums [6] = 100;

- Java does not support dynamic Arrays
You have to use ArrayList for dynamism.

* How to read unique values from Array?

```
        - int [] nums = new int [7];
        nums [0] = 44;
        nums [1] = 32;
        nums [2] = 100;
        nums [3] = 100;
        nums [4] = 7;
        nums [5] = 7;

        public static void main (String[] args){
// 1st way
        int [] nums = new int [6];
        nums [0] = 44;
        nums [1] = 32;
        nums [2] = 100;
        nums [3] = 100;
        nums [4] = 7;
        nums [5] = 7;

    Set<Integer> set = new HashSet<>();
        for (int i = 0; i < nums.length; i++) {
       set.add(nums[i]);
        }
    System.out.println(set);
// 2nd way
        String uniqNums="";
        for (int n:nums) {
        if (!uniqNums.contains(String.valueOf(n)))
          uniqNums = uniqNums+n+" ";
        }
    System.out.println(uniqNums);
        }
```

* How to print unique values from String?

```
        -
        public static void main (String[] args){

        String str = "aaabbcccdddeereeegggg";
        // 1st print only unique values from string
    Set<Character> setC = new HashSet<>();
        for (int i = 0; i < str.length(); i++) {
       setC.add(str.charAt(i));
        }
    System.out.println(setC);
```

```
        // 2nd print only unique values from string
        String unique ="";
        for (int i = 0; i < str.length(); i++) {
       if(!unique.contains(str.charAt(i)+"")) {
        unique += str.charAt(i);
        } }
    System.out.println(unique);
        }
}
```

* difference between array and arraylist?

- Array is fixed size ArrayList is dynamic
- Array can store primitive type ArrayList only wrapper types and Objects
- Array can be multi-dimensional ArrayList is not
- Array is faster and ArrayList is slower

* what is Iterator and difference between for each loop?

- Iterator works with arrayList and not array. It will help us
Iterate through the elements.
- Difference is with iterator you can make changes(remove item)
to the list while iterating.
within for each loop we can not make changes to our list

```
// for each loop:

        int arr[] = {23,54,6,56,76,878,9};
        for(int n : arr) {
          System.out.println(n);
}
      System.out.println("================");

      List<Integer> list = new ArrayList<>();
      list.add(23);
      list.add(2323);
      list.add(2312);
      list.add(2343);
            list.add(2553);
```

```
// Iterator loop:

        Iterator<Integer> it = list.iterator();
        while(it.hasNext()) {
            Integer n = it.next();
            System.out.println(n);
            it.remove();
          }
            System.out.println(list);
        System.out.println("================");
          for(Integer n : list) {
            System.out.println(n);
            //list.remove(n);
}
```

* How to join 2 arrays into single array?

- I am sure there are different ways to solve this solution I am coming up at at this point is:

1. I would create a thrid a array with the size of
2. other other arrays and assign each value from Both arrays into a 3rd array using a loop.
3. I can create an array list and loop through each Item in 2 arrays and add them to arraylist,
Then I can convert Arraylist into array if needed.

* List vs Set vs Map interfaces

- LIST: - can store duplicate values,
- maintains /keeps the insertion order
- list allows any number of null values
- Comes from collection interface
- from list we can read a certain value by index
- SET : - can only store unique values.
- set does not maintain order
- set allows only 1 null

- Comes from collection interface
- set doesn't allow that

- MAP : is a key+value format and keys are always unique
- map read value by passing key
- map can have single null key but multiple null values

* what is hashcode and equals method used for?

- I created multiple POJO(Plain old Java object) classes
to store data that came from different sources.
Like Database, API JSon format, Excel, CSV file, Webtable.

- And whenever I needed unique set of pojos, I had to override
hashCode and equals methods, that by storing into HASHSET ,
I was sure that only unique objects are being stored.

- Any challenges you had and how did you solve them?
When did you have to override hashCode and equals methods?
In my project, I had to validate data from web-tables, database, JSON ,
Excels etc. As they all come in different formats, It was challenging
to work with them and assert that they are correct and exptected.
So What I did was I created multiple POJOs to match my app data.
And sometimes, I need unique POJO objects, I override hashCode and equals methods.

- How did you use data structures in automation?
In my project, I had to validate data from web-tables, database, JSON ,
Excels etc. As they all come in different formats, It was challenging to
work with them and assert that they are correct and exptected.
So I stored all data from different sources into Java Data structures.
like Lists, Maps etc. and compared/asserted to expected.

= Example:

```
Employee emp1 = new Employee(100);
Employee emp2 = new Employee(100);
Employee emp3 = new Employee(110);
System.out.println(emp1.equals(emp2));

Integer i1 = new Integer(100); Integer i2 = new Integer(100);
System.out.println(i1.hashCode());
System.out.println(i2.hashCode());
Set<Employee> set = new HashSet<>(); set.add(emp1);
set.add(emp2);
```

```
    set.add(emp3);
System.out.println(set.size());

    class Employee {
    private int id;
    public Employee(int id) { this.id=id;
    }
    public int getId() {
    return id;
    public void setId(int id) {
    this.id = id;
    } }
    @Override
    public int hashCode() { return id;
    }
    @Override
    public boolean equals(Object other) {
    return this.id == ((Employee)other).id;
    }
```

* How do you sort an object that you created?

- I implement Comparable interface and override compareTo method.
Then whenever I store my objects into a List then use Collections.Sort
it will be able to sort. Also I can store my objects into a TreeSet or TreeMap.

```
    public static void main (String[] args){

    Employee emp1 = new Employee(500);
    Employee emp2 = new Employee(100);
    Employee emp3 = new Employee(110);
    List list = new ArrayList<>();
list.add(emp1);
list.add(emp2);
list.add(emp3);
Collections.sort(list);
    for (Object object : list) {
   System.out.println(object);
    }
    }

}
```

```
class Employee implements Comparable<Employee>{
        private int id;
        public Employee(int id) {
        this.id=id;
        }
        public int getId() {
        return id; }
        public void setId(int id) {
        this.id = id;
        }
        @Override
        public int hashCode() {
        return id;
        }
        @Override
        public boolean equals(Object other) {
        return this.id == ((Employee)other).id;
        }
        @Override
        public int compareTo(Employee emp) {
        if(this.id > emp.id) {
        return 1;
        }else if(this.id < emp.id) {
        return -1;
        }
        return 0; }
        @Override
        public String toString() {
        return id+"";
        }
}
```

* ArrayList vs LinkedList

- Arraylist is ordered collection like array.
- linkedList consists of nodes:
1: Singly Linked Linked List
value + pointer to next node
2: doublyLinked LinkedList:
Value + pointer to previous node and pointer to next node

* ArrayList vs Vector?

- They both implement List Interface and maintains insertion order
- ArrayList
- is not synchronized
- its fast because its not synchronized
- Vector
- is synchronized
- slow because its synchronized

* HashSet vs HashMap

- HashSet stores unique elements
- HashSet implements Set
- HashSet stores Single Objects

- HashMap stores unique keys, and duplicated values
- HashMap implements Map
- HashMap stores Key, Value paired objects

* Hashtable vs HashMap

- Both key + value
- both implement MAP
- HashMap: Not Synchronized, only 1 null key and multiple null values
- Hashtable: its synchronized, no null keys or values

* Stack vs Queve

- queve: first in first out
- Stack: last in first out

* treeset vs TreeMap

- TreeSet: Can contain only unique values
- is sorted in ascending order
- TreeMap: can contain only unique keys.
- keys are sorted in ascending order

* Exception handling in java?

- Depending on situation, we can use try catch finally blocks.

TRY : Code that might throw some exception

CATCH: We define exception type to be caught
And what to do if exception happens in TRY block code

FINALLY: Code that always runs , regardless if there is Exception or no.

FINALLY block: WILL NOT RUN if JVM crashes, or System.exit(0) Is present in try or catch blocks. Clean up code, to close some connections, close open files etc

example:

```
 public static void testCatch() {
try {
int i = 4/0;
}catch(Exception e) {
return;
}finally {
  System.out.println("FINALLY!");//will run
}
}
```

* What is the parent of all exceptions?

- Throwable class is parent

* What types of Exception do you know?

- CHECKED -> You handle or declare, otherwise will Not compile.
- UNCHECKED -> Subclasses of RUNTIMEEXCEPTION. And optional to handle or no.

* what is throw vs throws

-THROW VS THROWS:

THROW : -> CREATES AN EXCEPTION OBJECT

throw new RuntimeException();

THROWS -> goes to method signature, And declares that a method might throw And exception

* Types of exceptions you faced in your project

-

JAVA : NULLPOINTER EXCEPTION, ILLEGALARGUMENT, CLASSNOTFOUND, FILENOTFOUND, CLASSCAST, ARITHMETIC, INDEXOUTOFBOUNDS,.. SQLEXCEPTION, IOEXCEPTION

SELENIUM: NOSUCHELEMENT, STALEELEMENT, NOTCLICKABLE, NOTVISIBLE, TIMEOUTEXEPTION, WEBDRIVER, ILLEGALSTATE EXP, NO SUCHWINDOW, ALERTNOTFOUND...

CUCUMBER: PENDINGEXCEPTION, DUPLICATE METHOD IMPLEMENTATION EXP,