19. Core Java Basics needed to get started with automation

1. Variables & Data types in Java
2. Working with Arrays
3. Loops & Conditions
4. Strings and its functions
5. Importance of Array Lists
6. Array list operations and conversation of Array to List
7. Declaring Methods
8. Accessing Methods in class & Static keyword

20. Introduction to java variables & Data Types with examples

DataType Variablename =

Int myNum = 5;

String website = “Rahul Shetty Academy”

Char letter = ‘r’;

Double dec = 5.99; // 2 data type – we can use any one ( float ) ( double )

Boolean myCard = true;

System.out.println(Variable name); - out you can see the output in the console if we run

System.out.println(myNum+”is the vale stored in the myNum variable”);

Notes :

When you create variable you must need to give one data type

Variable names : myNum,website,letter,dec,myCard – any name you can mention the variable name.

Int,string,char,double,Boolean these all are data types

5 values is an integer that why we put the data type as “int”

“Rahul Shetty Academy” is the collection of chars that’s why we give the data type as string

‘r’ is single char so data type is char

5.99 For decimal values we can use two data types “float”, “double” you can use any one

Usually denotes True and false – Boolean is a datatype that has one of two possible values

In java when you write a string you need to put double quotes “ .

(myNum ”is the vale stored in the myNum variable”);

So in Java you cannot directly concatenate a variable and a string.

(myNum+ ”is the vale stored in the myNum variable”);

You have to make sure you give a plus.

Operator like this plus operator separates and identifies your variable and string.

If you don't give plus operator, then Java cannot pass your string.

See, if you don't have any variable, then you need not give any plus icon.

Which plus stands for concatenation here.

But when you are mixing a variable with a string, Java confuses.

21. what are arrays in java ? How to initialize and retrive the values of array

Arrays can store multiple values in one single variable

If you have a req of storing more than one value in to a variable so that variable we call it as array

We can create array in 2 different ways

[ ] if we add this after the int data type they will understand that this is not storing one integer it is storing multiple integer values

New – operator ( memory will be assigned when we give the new operator )

Int [5] - How many values we can able to store we need to mention first. Here I mentioned 5

In an array when we storing the values value will get stored from zeroth index

Index value starts from 0,1,2,3

Arr is variable name

Int[] arr = new int[5];

Arr [0] = 1;

Arr [1] = 2;

Arr [2]=4; like this we will keep an assigning values to all the indexes of your arrays

Arr[3]=5;

Arr[4]=6;

System.***out***.println(arr[2]); - 2 is the index number

Another way

Int[] arr2 = {1,2,4,5,6}; - Here we are directly assign the values to variables

//System.out.println(arr2[4]); - 4 is the index no. in console you get vaue is 6

Arr2[0]; - If you want to access any of the variable you need to give variable name(arr2) with Index number(0);

Arr2[0] variable name with index no will help you to retrive the value present in the arrays

22. Introduction to For loop to iterate over array of Strings and Integers

How to print values present in arrays ?

Below “i” is the new variable you can put anything in instead of I like rplace I wth w,e,f,g

Note : for line in last don’t give this “;”

//for loop arr.length - 5

for(int i = 0; i< arr.length; i++)

{

System.out.println(arr[i]);

}

for (int i =0;i<arr2.length; i++)

{

System.out.println(arr2[i]);

}

String[] name = {"rahul", "shetty", "selenium"};

for(int i =0; i<name.length;i++)

{

System.out.println(name[i]);

}

“Name” is an array. There is another way to declare forloop – we call it as enhancement for loop

Every iteration one element has to picket out. Element is Rahul, Shetty, selenium

“s” is new variable created

“name” is the previous existing variable you can see in the above page

“string” is a data type

for ( string s : name)

{

System.out.println(s);

}

23. Enhanced for loop declaration & using Conditional statements inside the loops

**int**[] arr2 = {1,2,3,4,5,6,7,8,122};

//2,4,6,8,122

// check if array has multiple of 2

**for**(**int** i=0;i<arr2.length;i++)

{

**if** (arr2[i]%2==0)

{

System.***out***.println(arr2[i]);

//**break**;

}

**else**

{

System.***out***.println(arr2[i] +" is not multiple of 2");

}

}

}

Output : 1 is not multiple of 2

2

3 is not multiple of 2

4

5 is not multiple of 2

6

7 is not multiple of 2

8

122

when you want to go through and access each and every element of an array, you have to start with for loop.

So for loop only will give you that access to hydrate each and every element you can use, while loopalso that we will do later sections.

Now, if this condition is not satisfied, then immediately control will go to the else block and it will get executed that, OK, this is optional. You can write or you can skip it.

In that case, if your requirement is somehow achieved in mid of your follow up, then you can skip. You are further looping by simply writing like keyword card a break.

OK, so break is a keyword which will simply exit the for loop.

25. What is Arraylist and differences between Arraylist and Arrays

Int[] arr = new int[5];

Arr [0] = 1;

Arr [1] = 2;

Arr [2]=4;

Arr[3]=5;

Arr[4]=6;

you are getting these values from your web application in the middle of your scripting.

Then you can take these values and you can assign. But one problem here is that the memory allocation has to be done in the beginning. So that means the size of array is fixed when you are initializing. So later, when you want to increase the size of it, it's not possible.

For ex there is an e commerce app for they added 5 products we allocate the new memory again they come and added another 5 more products it will not take bcze at the intial time we fixed memory allocation as 5 to overcome this we use arraylist.

So here you can dynamically grow the size of an array – if you use arraylst instead of array

.Array list is one of the class in java

if you want to access any methods present in the class.You have to create object of that class.

And then you can access the methods(ex:get) of the class by calling object.method.

in Java, they come as a package, as each package can have hundreds of classes.

So if you want to use any class first, you have to import that the class package.

ArrayList a = new Arraylist();

Class your objectname it can be anything = new of classname again

Arraylist is a class

“a” is a object name

New is a operator it allocate some memory to that object.

Arraylist(); - creating object

For arraylist class we are creating the object ( arraylist(); )

add, extract and remove values from the ArrayList.

ArrayList<String> a = new ArrayList<String>();

a.add(“Rahul”);

a.add(“shetty”);

a.add(“academy”);

a.add(“selenium”);

system.out.println(a.get(3));

a.remove(2);

system.out.println(a); - retrive

2 is the index number. Index number starts with zero then here the 2 is academy

3 is the index number if we execute in the cosole output you get selenium

26. Iterating over Arrays and Arraylists and its related methods

For (int i=0;i<a.size();i++)

{ system.out.println(a.get(i));

}

// If you want to write, enhance the for loop,

for (string val ; a)

{ system.out.println(val);

}

//if you want to know any item is present in the array list

System.out.println(a.contains(“selenium”));

So to get the size of ArrayList, we have to use size method.

If it is normal array, you have to use length method.

There is a method called contains.So this method will tell you that the text, what you are searching is present in the array list or not.

“val” is a new created variable.

So I want to have utilize this contains method for this “name”array

 you can convert this “name” array to array list for that. In Java there is one class called arrays dot. Then you see there is a method called as list.

So you pass your traditional “name” array inside this so that this method will convert this normal array to other list.

String[] name = {“Rahul”,”Shetty”,”selenium”};

List<string> namearraylist = Arrays.asList(name);

System.***out***.println(namearraylist.contains("selenium"));

Namearraylist (leftside) is a variable

List is a datatype

So now successfully, this traditional name is converted to the ArrayList and still it have same values. And now you can on this new ArrayList, now you can write that method DOT contains and here you can check selenium.

So this is the shortcut if you have normal array in place and if you really want to check if something is present in that array, then fast convert that into ArrayList with arrays dot as list method and then apply this traditional one.

27. Strings in Java - How to declare Strings & Important String methods

What is string - string is an object that represents sequence of characters.

How many ways you can define string – 2 ways – one is string literal

another one is using new memory allocate operator.

there are two ways to create the string object.

One we have already seen - string s = “Rahul,Shetty,academy”;

“Rahul,Shetty,academy” this string value I’m storing in one variable called “s”

So basically, this creates one object in the Java memory space called S

In that S object it will store all the values

String s1 = “Rahul,shetty,academy”

If we declare another variable but you keep the same content

at that time, Java will not create another object.

First, it will check if this the academy is already present in my memory for any variable.

Yes, it's already present for “s” Object,

So what it will do for this is what object also, instead of creating, again, a new object memory allocation. It will point this S1 to this value only.

If you want to access the methods present in the class? - You have to create object of that string.

//String literal

// String s1 = "Rahul Shetty Academy";

String s5 = "hello";

//string object

//new

String s2 = **new** String("Welcome");

String s3 = **new** String("Welcome");

String s = "Rahul Shetty Academy";

String[] splittedString = s.split(" "); - output is 1st line rahul 2nd line shetty 3rd line academy

String[] splittedString = s.split("Shetty"); - out put is 1st line Rahul 2nd line one space academy

System.out.println(splittedString[0]); // rahul

System.out.println(splittedString[1]); // Academy

System.out.println(splittedString[1].trim());

For (int i=0;i<s.length();i++)

{

system.out.println(s.charAt(i));

}

**for**(**int** i =s.length()-1;i>=0;i--)

{

System.out.println(s.charAt(i));

}

}

Output : R a h u l S h e t t y A c a d e m y

You know now how to create string in two different type string literal string object.

And how do you split?

How do you trim how do you access each and every character in the reverse?

28. How to create methods and access methods using Java class objects

So instead of repeating the lines again and again, whenever you think that there is some lines of code can be reused in many places, then you will create a method for it and wrap all that lines of code into that method.

if you want to create any method in class, you should not create method inside

this main block. so this is reserved for execution.

So here we are declaring a method, but we are not telling to run that method.

It can be run on demand, so it might or might not need it for your execution.

Outside the method only u have to write any method

Getdata is a method name

when I give public as an access modifier, then this getdata method can be accessed by another classes also.

void means what this method returns.

let's say if this method returns integer, then the return type will be int and

if that method returns string, then you can write string as a return type.

If that method do not return anything, simply put, void.

So that means this method is returning nothing.

And now if you want to call that method inside your execution block, how do you do that?

if you wantto access any methods of the class, you have to create first object of that class. Using that object only you can call methods present in that class.

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Methods Code \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**public** **class** MethodsDemo {

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

// **TODO** Auto-generated method stub

MethodsDemo d = **new** MethodsDemo(); - class name = new of that class name, d is object

Using d object we can access the class methods ( d.getData(); )

String name = d.getData();

System.**out**.println(name);

MethodsDemo2 d1 = **new** MethodsDemo2(); - created in new class one new object created

d1.getUserData();

getData2();

}

**public** String getData()

{

System.**out**.println ("hello world");

**return** "rahul shetty";

}

**public** **static** String getData2()

{

System.**out**.println ("hello world");

**return** "rahul shetty";

}

}

your current class methods(MethodsDemo), your another class methods (MethodsDemo2) also you can access by simply creating object for those classes in your own class and call them see you can restrict accessing them by changing it to private.

When you mark your method as a static, then this method will get belong to class, not object.

 you mark your method with a static keyword, static will move your method to class level. so class level access is now provided to your method by giving static keyword.

You can directly write the method and and call it ( getdata2(); ) without object