```
JAVA AND ENVIRONMENT
                                                                                    JAVA & OPERATORS
                                                                                                                                                    MAIN METHOD. public static void main(String[]
                                                                                                                                                                                                                                CLASS- OBJECT
                                                                                                                                                                                                                              What is a different CLASS vs OBJECT ???
 1) What is Java?
                                                                          8-How to EXECUTE?
        1-OO Programming Language.
                                                                               java javaProgramName
                                                                                                                                                                                                                               Class: Is a blue print like template
                                                                                                                                                    1-What is main method?
       2- JDK toolset.
                                                                                                                                                                                                                                     More general, Its store data/variables and Behaviors/Object.
                                                                          9- Class-path/Class-loader -
                                                                                                                                                          -> Entry point to the execution.
                                                                                                                                                                                                                                     Help the reuse the code
                                                                            —> When a program is executed, JVM needs to load all required classes,
   JAVA Versions?
                                                                                                                                                                                                                                     We can keep create the object.
                                                                                                                                                                                                                                                                             Exm: public class Student{
                                                                                JVM uses Class loader
     Java 8 =currently(03/18/2014 - present).
Java 7= (2011-07-28 - 03/18/2014)
                                                                                                                                                    2-Why <u>MAIN</u>?
                                                                                                                                                                                                                                                                                  String name;
                                                                            -> Looks for Classes in class-path.
                                                                                                                                                   > You can compile a class without main method but you cannot run it.
                                                                                                                                                                                                                                                                                  public void study(){}
     Java 6 = (2006-12-23 - 2011-07-28)
                                                                          10-Java is "STRONGLY TYPED LANGUAGE"?
                                                                                                                                                         -> Jdk/Jre looks for it when executing the code.
                                                                                                                                                                                                                              Object: is an instance of the class. Object comes from the class/create
                                                                                --> YES you need to pre-define the data type of a variable and declare
                                                                                                                                                    3-Why main method is STATIC?
                                                                                                                                                                                                                                      from a class/
  2) Pure 00??
                                                                                   before you can use it.
                                                                                                                                                                                                                                Exm: Scanner <u>scan</u> = new Scanner(<u>system.in</u>);
                                                                                                                                                                                                                                                                                    in HEAP memory.
    No, Primitives, Functional programming make it non-pure.
                                                                          11-Are JAVASCRIPT and JAVA the same?
                                                                                                                                                     -> is it Static -> it can be called directly.
                                                                          They are both similar and quite different depending on how you look at
                                                                                                                                                                                                                                scan is a reference to the new scanner object. 'scan' has all the power of
                                                                                                                                                     -> It must belong to the class in order to run the class.
  3) JDK vs JRE vs JVM?
                                                                         them.
                                                                                                                                                                                                                                Scanner class. Because it is object from Scan- new Class.
                                                                                                                                                     ---> Main method can hold static and non-static.
    JDK-->Java Development kit--> develop java code -> JRE and JVM
                                                                          --Java is an Object Oriented Programming (OOP) language-->run in a VM or
                                                                                                                                                       Because main method is called by JVM before any object are created.
   JRE -> Java runtime environment -> Client machines to run the java
                                                                           browser -java code needs to be compile
                                                                                                                                                       Therefore it has to be static in order to invoke main method.
                                                                           -- JavaScript is a scripting language used design website and run on a
                                                                                                                                                                                                                             _____
         It cannot be used to write java code.
                                                                         browser— scripting languages are all in text
  JVM -> Java virtual machine-> it is compiler. compilation happens at this
                                                                                                                                                     4-Can you have MULTIPLE main methods?
                                                                          12-How do you DECLARE in Java?
                                                                                                                                                     In Java, you can have just one public static void main(String[] args) per
                                                                                                                                                                                                                              STRING
         It takes Byte code and runs the instructions. Byte code needs to be
                                                                                Declaration==>String str:
                                                                                                                                                     class. Which mean, if your program has multiple classes, each class can
                                                                                                                                                                                                                               Mutable means: Once create can be modified/changeable in memory in heap pool
          tweaked for CPU to run.
                                                                                Assignment==>String str="name";
                                                                                                                                                     have public static void main(String[] args). See JLS for details.
                                                                                                                                                                                                                               Immutable -> unchangeable in memory/Can not modified
                                                                         _____
                                                                                                                                                     A class can define multiple methods with the name main
 How to find version? Command line —>java —version =JDK 1.8.0 144
                                                                           SIMPLE ASSIGNMENT OPERATOR
                                                                                                                                                                                                                              1-Strings are mutable or immutable? ->String is IMMUTABLE/UNCHANGE
                                                                              = Simple assignment operator
                                                                                                                                                     5-Can main method be PROTECTED?
  Why are you using Java What is benefit? WHY java???
                                                                                                                                                                                                                                        String str="abc"; //unchangeable just create new one memory:(
                                                                                                                                                     Yes, but it can not be taken as entry point of your application. ... But it
  —For example Payton has so many library support and it very easy to
                                                                                                                                                                                                                                        str=str+"d";
                                                                           ARITHMETIC OPERATORS
    use and learn.
                                                                                                                                                      will not run as entry point of the program. Java
                                                                                                                                                                                                        looks for the
                                                                                                                                                                                                                                        str=str.toUpperCase();
                                                                              + Additive operator(also used for String concatenation
 —Java is used in many projects as a Backend ,API, etc development and as
                                                                                                                                                                                                                               1-abc-( unchanged still there) 2-d " 3-abcd " The last version is 4-ABCD
                                                                               - Subtraction operator
    you environment already set up for java.
                                                                                                                                                      main method signature. If any of the modifiers is different, then it will
                                                                              * Multiplication operator
  —Automation as well selenium+Java combination is popular there is many
                                                                                                                                                      assume it as some other
                                                                                                                                                                                   method.
                                                                              / Division operator
                                                                                                                                                                                                                              NOT: If we are going to create more String for the memory management we
                                                                              % Remainder operator. MODUELE
                                                                                                                                                                                                                               use . They change by updating object String str="ab"; String str="cd; "ab"
  —Java +Selenium is popular and lots of community support
                                                                                                                                                     6-Can you CALL a main method from a different class?
                                                                           UNARY OPERATORS
                                                                                                                                                      Yes-only if main public we can call it
                                                                                                                                                                                                                              String BUILDER: it is new -fast - no synchronized
 4) Java is platform independent-> Write once-run everywhere.
                                                                              + Unary plus operator; indicates positive value
                                                                              - Unary minus operator; negates an expression
                                                                                                                                                                                                                              String BUFFER: is old-Thread Safe—synchronized-
      In Mac- I have JDK -> write .iava code -> javac ->
      .class file ,ByteCode-> JRE+JVM in Any machine can run it.
                                                                              ++ Increment operator; increments a value by 1
                                                                                                                                                    7-Can you <u>OVERRIDE</u> a main method?
                                                                              -- Decrement operator; decrements a value by 1
                                                                                                                                                                                                                              2- String Builder, String Buffer. (Those are classes) =>MUTABLE/CHANGBL
                                                                                                                                                         No we can not, main method is static and cannot be overridden.
                                                                                Logical complement operator opposite the value of a
 5-What is java Execution Process:
                                                                                                                                                                                                                                    StringBuilder sb=new StringBuilder("abc");
      JAVA CODE --> COMPILE --> EXECUTE
                                                                                                                                                                                                                                    sb.append("def");
                                                                            EQUALITY AND RELATIONAL OPERATORS
                                                                                                                                                                                                                                    String str=sb.toString();
                                                                                                                                                     public static void main(String... args[]){. }
                                                                              == Equal to
 6-What is minimum requirement to write a runnable java code?
                                                                                                                                                                                                                                    str.equals(sb);
                                                                                                                                                     ? public – it is the access specifier.
                                                                              != Not equal to
      --> main method
                                                                                Greater than
                                                                                                                                                     ? static it allows main() to be called without instantiating its belong the
                                                                                                                                                                                                                              NOT:StringBuilder is mutable so whenever there is lots of string manipulation,
                                                                             >= Greater than or equal to
      --> save file as .java
                                                                                                                                                                                                                                 this is better choice.
                                                                             < Less than
         java program.
                                                                                                                                                                                                                             Code --> Running in 10 instances/threads at same time. When an object is
                                                                                                                     CONDITIONAL OPERATORS
                                                                              <= Less than or equal to
                                                                                                                                                     void – it affirms the compiler that no value is returned by main().
 7-What is command to compile:
                                                                                                                  && Conditional-AND TT->T
                                                                                                                                                                                                                              Thread-Safe - it means that particular instance will not be disturbed
         javac javaProgramName.java
                                                                                                                                                     main() – this method is called at the beginning of a Java program.
                                                                                                                  || Conditional-OR. FF->F
      --> it will generate byte code
                                                                                                                                                                                                                                           by other threads. And it guarantees independent execution.
                                                                                                                                                     ? String args[] – args parameter is an instance array of class String
                                                                                               Exclamation mark! Not Opposite
      --> into .class file
                                                                                                                                                                                                                              Code/Objects --> Thread1. Like --> Thread2 --> --> Thread3 --->
                                                                           PRIMITIVES
  PRIMITIVES 1
                                                                                                                                                     STRING & MANUPULATION
                                                                                                                                                                                                                                STRING METHODS
                                                                           6) Auto-boxing/unboxing (Wrapper classes)
  1) Java is strongly types language:
                                                                                                                                                     String str = "This is the test string";
                                                                                                                                                                                                                               1-String Class: comes Java.lang.String.import automatically thats way
                                                                            Auto-boxing -> primitive— to—> object taking primitive value and
                                                                                                                                                                                                                                                                     we don't import strings libraries
      Whenever you want to use a variable -
                                                                                                                 assigning to Wrapper class obj
      you need to predefine the datatype and declare it.
                                                                                                                                                                                                                              2-How to create String object?
                                                                                                                                                     Sys.out(str.length()). //gives the size
                                                                                            Integer intVal=44; //new Integer(44);
                                                                                                                                                                                                                               -String str="abc"; Store in String pool in Heap.
                                                                           Auto-boxing --> is a process when you take a prmtv value and
                                                                                                                                                     Sys.out(str.charAt(3));//returns char of given index-Opzt indexOf
      boolean b;
                                                                         assign
                                                                                                                                                                                                                                  If "abc" already exists, it will reuse, if not it will create in String pool
      in BB Script ==> dim num=you can write all type of variable,
                                                                                             into wrapper class obj
                                                                                                                                                                                                                               -String str=new String("abc");
                                                                                                                                                     Sys.out(str.concat(" ---sonuna ek--- "));//merges to string
                    but in java you should predefine like string int
                                                                                             int i=10;
Boolean ..
                                                                                                                                                     Sys.out(str.contains("t")); //is it contain t inside
                                                                                             Integer n=i;
                                                                                                                                                                                                                              3-String --->TO ---> int?
                                                                                             Integer num=200:
                                                                                                                                                     Sys.out(str.startsWith("This")); //CASE SENSITIVE\
  2) Primitives vs non-primitives?
                                                                                             Integer num2=new Integer(400);//NO BOXING
                                                                                                                                                                                                                                 - valueOf this method converts different datatypes into String.
                                                                                                                                                     Sys.out(str.endsWith("ing")); //true
                                                                           Unboxing -> Object-to->primitive taking wrapper class instance
      Primitives-> only data/value, no actions/ no behavior
                                                                                                                                                                                                                                           Integer x = Integer.valueOf(str);
                                                                         and
      Where in memory? stack
                                                                                                                                                                                                                                 -parseInt returns primitive int
                                                                                                             assigning to primitive type
                                                                                                                                                         String str1 = "Hello";
      Objects->Can hold data, process the data, perform some actions etc.
                                                                                                                                                                                                                                           int y = Integer.parseInt(str);
                                                                                          int i=intVal;
                                                                                                                                                         String str2 = "Hello"
                                                                                                                                                         String str3 = "Welcome";
  3) Primitives: How many types? 8 types
                                                                           Un-boxing -> is a process when you take Wrapper class object and
                                                                                                                                                                                                                              4- int --> TO--->String?
      Integers numbers: byte, short, int, long
                                                                                       convert to primitive.
                                                                                                                                                                                                                                 -String.valueOf: The method converts int to String.
                                                                                                   Integer num2=new Integer(400);
      Floating point: float ,double
                                                                                                                                                                      // compares values of strings ignoring the case
                                                                                                   Integer num=200;
      Boolean: True False
                                                                                                                                                     Sys.out(str1.equalsIgnoreCase(str2));
                                                                                                   int i=num2;
      Character: char. 'a' also can have "45543" and see the by one buy
                                                                                                                                                     Sys.out(str1.equals(str2)); //HELLO HELLO --->true
                                                                                                                                                                                                                                                 String s=String.valueOf(i); //Now it will return "10"
                                                                          7-CASTING types.
                                                                                                                                                     Sys.out(str.indexOf("h")); //returns index of given char //1
                                                                                                                                                                                                                                 -Integer.toString() method converts int to String
                                                                                                      nden olan normal kuralla
 4) primitives to WRAPPER classes?
                                                                                            short j=343;
                                                                                                                                                     Sys.out(str.isEmpty()); //false
                                                                                                                                                                                                                                          int i=10;
         int > Integer
                                                                                                                                                                                                                                                String s=Integer.toString(i); //Now it will return "10"
         short > Short
                                                                                            byte>short>int>long>float>double
                                                                                                                                                      String str5= " Here is a empty space";
                                                                            Explicit casting
         double > Double
                                                                                                                                                      Sys.out(str5.trim()); Cuts off empty spaces on both sides
                                                                                                                                                                                                                              5-Convert String Array --> to --> String?
                                                                                            short sh=550;
                        int i=10;
                                                                                                                                                                        // Here is a empty space
                                                                                            byte bt=(byte)sh;
                                                                                                                                                                                                                                          String[] testArray = {"Apple", "Banana", "Mango"};
                        Integer n=i;
                                                                                           byte>short>int>long
                                                                                                                                                                                                                                         String testString = Arrays.toString(testArray);
                        Integer num=200;
                                                                                                                                                      Sys.out(str.toUpperCase());
                                                                                                                                                                                                                                         System.out.println(testString);//[Apple,Banana,Mango]
        boolean—>Boolean,
                                                                           What is casting? is taking an Object of one particular type and
                                                                                                                                                      Sys.out(str.toLowerCase());
                                                                          "turning
        Character, Long
                                                                                                                                                                                                                              6-Convert Array List To String comma separeted ??
                                                                                           it into" another Object type.
        Integer i = Integer.valueOf("123");
                                                                                                                                                      Sys.out(str.replace("t", "k"));Replaces with givencharString
                                                                                                                                                                                                                                   List<String> cities = Arrays.asList("Milan", "London", "New York" );
       Byte b=new Byte(12);
                                                                           8-How do you swap values? Write notes .....
                                                                                                                                                                                                                                  String citiesCommaSeparated = String.join(",", cities);
                                                                                                                                                                                                                                   Sys.out(citiesCommaSeparated);
                                                                                                                                                     Sys.out(str.substring(2)); Cuts the string, returns string
 5-What is casting? is taking an Object of one particular type and
                                                                          Java passes stuff by value, which means the variable your function gets
                                                                                                                                                                                                                                    //Output: Milan, London, New York,
                     "turning
                                                                          passed is a copy of the original, and any changes you make to the copy
                                                                                                                                                                              starts zero // "his is the test string"
                                                                                                                                                                                                                              7-How to <u>reverse</u> String?
                                                                          won't affect the original.
                                                                                                                                                     Sys.out(str.substring(5, 10)); //cuts between index
                   it into" another Object type.
                                                                                                                                                                                                                                         String s = "Sevil";
                                                                                          Exm: void swap(int a, int b) { int temp = a; a = b; b =
       int n=100:
                                                                                                                                                       IndexOutOfBoundsException
                                                                                                                                                                                                                                           for(int i = s.length() -1; i >= 0; i—) {
                                                                         temp;
                                                                                                                                                      -If the beginIndex is less than zero OR beginIndex > endIndex OR
       double d=n;
                        //implicit casting
                                                                                                                                                                                                                                         System.out.print(s.charAt(i)); }
                                                                                          // a and b are copies of the original values.
                                                                                                                                                                                                                                                                             // liveS
                                                                                                                                                                                                                              8-Splitting the string and printing it as a list ??
                                                                           Swaping Value exm
                                                                                                                                                       is greater than the length of String.
       short sh=(short)d; //explicit casting
                                                                                int a=10;
                                                                                                                                                                                                                                         String s = "Cybertek";
       byte > short > int > long
                                                                                                                                                   char[]charArray=str.toCharArray();it gonna take all chrcter & give it Array.
                                                                                int b=5;
                                                                                                                                                                                                                                          String [] arr = s.split("b");
       short sh2=35;
                                                                                                                                                           for(int i=0; i<charArray.length; i++) {</pre>
                                                                                a= a+b; 10+5-->15
                                                                                                                                                                                                                                          System.out.println(Arrays.asList(arr));
       int n2=sh2;
                                                                                                                                                            Sys.out("This is : " + i + charArray[i] );
                                                                                b= a-b; 15-5->10
                                                                                                                                                                                                                                             s.indexOf('e',s.indexOf('e')+1);
       byte b=(byte)n2;
                                                                                                                                                                                                            //This is : 3s
                                                                                                                                                     //This is : 0T- //This is : 1h- //This is : 2i-
                                                                                a= a-b; 15-10—->5.
                                                                                                                a=5.
                                                                                                                        b=10
 CONTROL STATEMENTS —> CONDITIONS
                                                                                                                                                       MODIFIERS
                                                                          CONTROL STATEMENTS —->LOOPS
                                                                                                                                                                                                                              STATIC. Shared members.
                                                                           LOOPS: While, do while, for, foreach (enhanced for loop)
                                                                                                                                                                                                                             1- What Static keyword/Members? Belongs to class directly and can be called
 How many different ways to check conditions in java?
                                                                                                                                                     1-How many acres modifier?? 4
                                                                           While→ Runs according to condition
 1- If ConditionsStatement: if-else if-else if -else-Logical operators: &&
                                                                                                                                                                                                                              with class name, without creating an object. Does not depend on object
                                                                                                                                                      private >default > protected > public >
                                                                           Do while → Runs at least once
                                                                                                                                                      Not: instance and class(static) variables, non-abstract methods,
                                                                                                                                                                                                                              -Static can only refer to static members. Non-static can refer to both static
                                                                           For → When know how many times we are going to loop,can handle
 2- Switch Statement: Switches from one condition to another
                                                                                                                                                            abstract methods can have public, protected and default
                                                                                                                                                                                                                               -A class can have multiple Static blocks, which will execute in the same
                                                                               collections except fews
                                                                                                         Map<String,String>
  Support: switch(num) Strings, Enums, int, chars,, short, byte
                                                                                                                                                      All 4 access modifiers - instance variable, methods
                                                                                                                                                                                                                                sequence in which they have been written into the program.
                                                                                For loop. Can backwards as well 10 to 1
  Test equality. We use switch If there is a multiple things to check is it
                                                                                                                                                      Can't apply to local variables
                                                                                                                                                                                                                               -They can be called through classname without creating object.
                                                                           Foreach→ Loops through all elements of collection we passed.
  equal or not .Default is not mandatory. And it can be anywhere in switch block.
                                                                                      Support only works forward iteration. 1—-to —10
                                                                                                                                                                                                                              -Objects of a Class also can call Static members
                                                                                                                                                    2-Non-Acces Modifiers?
                                                                                                                                                                                                                              -Local variables cannot be static
 3- Operator: Condition ? true: false; boolean b=false; string str= b? "yes": "no";
                                                                                                                                                       static- final- abstract -syncronized,
                                                                                         Iterator vs
                                                                                                                                                                                                                               TIPS: In test automation, we will store our helper methods in one class
                                                                                                                                                       Not:Local variables cannot have access modifiers
                                                                           ** iterator can modify original collection.

    whereas foreach cannot.

                                                                                                                                                                                                                               and mark them as static. It is a idea to keep them under utilities package.
                                                       Switch
                                                                                                                 for Each?
                                                                                                                                                                                                                            2-What can be static?
 -If condition check by one by,

    Switch go and find

                                                                                                                                                                                          Between Package
                                                                          -Used when we know how many time —Only use with some sort of
                                                                                                                                                                                                                               -static variables/Class variable: Can be accesses without an object by
directly
                                                                                                                                                               in class In Package
                                                                                                                                                                                           Sub Class
                                                                                                                                                     <u>Type</u>
                                                                         collection.
                                                                                                                                                                                                                                                              using the classname
-Can test for any kind of comparison.
                                             -Read easy and fast :)
                                                                          -Can also handle collections.
                                                                                                              & it ll iterate each item one by one
                                                                                                                                                                                                                              -static methods: Static methods can be called using a classname and an object
                                                                                                                                                      Private
                                            -Only check == condition
                                                                                                                                                      Default.
                                                                           Map<String,String>
                                                                                                                                                                                                                                        ex: ClassName.StaticMethodName();
    SWITCH STATEMENT
                                                                                                                                                      Protected.
                                                                          —Can loop backwards as well.
                                                                                                               —is only forward iteration
                                                                                                                                                                                                                               -static blocks:Code in static block runs only once whenever you try to use
public class Test {. main method
                                           IF CONDITION
                                                                                                                                                      Public.
                                                                                                                                                                                                                                            the class. Its run before everything else. before any constructor.
                                                                          1-How would you print odd numbers from array?
    // char grade = args[0].charAt(0);
                                           int a = 10:
                                                                             int[] nums=\{1,2,3,45,5,6,784,523,34\};
                                                                                                                                                                                                                               -static inner classes (java 8)
                                           int b = 5:
char grade = 'C';
                                                                                                                                                   _____
                                                                                                                                                                                                                             -----
                                                                          for( int num : nums ){
switch(grade) {
                                        if (a > b){
                                                                            if(num \% 2 > 0){
                                                                                                                                                        FINAL VS FINALLY VS FINALIZE
                                                                                                                                                                                                                                                 FINAL VS FINALLY VS FINALIZE
                                           Sys.out.("a is greater than b");
 case 'A'
    Sys.out("Excellent!");
                                                                             print num; }. }
                                                                                                                                                    FINAL -> When applied to something it means value can not be
                                                                                                                                                                                                                              -FINALIZE() GC (Garbage Collector)
                                           Sys.out.("b is greater than a");
    break;
                                                                          2-How do you end the loop, before condition is met? By Break;
                                                                                                                                                                                                                              -In java, we don't have to worry about cleaning up the object from memory.
                                           Output is // a is greater than b
  case 'B'
                                                                                int[] nums={2,3,45,5,6,784,523,34};
                                                                                                                                                       if its final class: cannot be extended / inherited
  case 'C'
                                                                                                                                                       final variable: value cannot be changed. When declaring final variable
                                                                              for( int num : nums ){
      Sys.out("Well done");
                                                                                                                                                                                                                              -JVM automatically cleans up the created object. Whenever object does not
                                                                                 if(num \% 2 > 0){
                                                                                                                                                                       you must initialize it.
_____
                                                                                 print num;
                                                                                                                                                      final method: cannot be overrides. Implementation can't be changed.
                                                                                                                                                                                                                               point to any reference anymore then JVM calls finalize() method to delete
                                          Continue vs. Break
      break;
                                                                              break;
                                                                                                                                                   FINALLY BLOCK -> it is inside the exception handling.
                                                                                                                                                                                                                               that object to clean up memory.
 case 'D':
                                Continue→Skips current iteration
                                                                                                                                                      -Finally block will be executed no matter what happens in try/ catch block.
                                                                           Continue: Continue to next iteration of loop.

    method is defined in java.lang.Object

                                Break → Exits the loops/ breaks the loop
      Sys.out("You passed");
                                                                                                                                                      -Exception handled or not handled finally() block will be executed.
                                                                                      for( int num : nums ){
 case 'F':
                                                                                                                                                      -Only way not to run finally() block is

    !!! If you are overriding finalize method then it's your responsibility to call

                                                                                      if(num \% 2 == 0){
                                                                                                                                                      System.exit(1) This statement terminates the program.
      Sys.out("Better try again");
                                                                                                                                                                                                                               finalize() method of the superclass,
                                                                                        continue:}
                                                                                                                                                    Why Usefull: I use because it allows the programmer to avoid having
      break;
                                                                                                                                                                                                                               -if you forgot to call then finalize of super class will never be called.
  default:
                                                                                                                                                                 code accidentally bypassed by a return, continue, or break.
      Sys.out("Invalid grade");}
                                                                                                                                                    *****It must be with associate with try block- it is optional for try-catch block
  Sys.out("Your grade is " + grade){}
                                                                              CONSTRUCTOR (yapilandiricilar)
OOP
             OVERLOADING - OVERRIDING
                                                                                                                                                   OOP
                                                                                                                                                             ENCAPTULATION — — INHERITANCE
                                                                                                                                                                                                                                       OOP ABSTRACTION ---POLIMORFIZIM
                                                                           onstructer-- Special kind of method, used to create and object.
  1- Method Overloading: 2 method with Same method name
                                                                                                                                                                                                                              ABSTRACT CLASS VS INTERFACE
                                                                            -Every time we use new keyword constructor is called.
                          different parameters, signature must be different
                                                                                                                                                   ENCAPSULATION: Hiding the data. The data will be hidden from
                                                                                                                                                                                                                               Abstract class: Can have both abstract and non-abstract methods.
                                                                            -It has the same name as the class
  Also call Ad-Hock polymorphism
                                                                           - It should not return a value not even void
                                                                                                                                                                                                                                              Or can have pure abstract or pure non-abstract methods.
  Return type can be different (void int boolean string)
                                                                                                                                                     other classes. Can be accessed with getters and setters.
                                                                            - Every class will have default constructor by JVM.(No argument cnst
  Access modifier can be different
                                                                                                                                                                                                                              Interface → can have abstract - default- static method
                                                                            -once constructor created manually default one is not there anymore
                                                                                                                                                     private variable declaration
 Q- Is return type part of method signature?
                                                                                                                                                                                                                              java 8: <u>Default</u> and <u>static</u> methods have method body
                                                                           Q-Why can't this() and super() both be used together in a constructor?
    No return type is not part of it. That's why we cannot overload the
                                                                                                                                                    INHERITANCE => using some other classes members.
                                                                                                                                                                                                                              → Both abstract classes and interfaces cannot be instantiated.
                                                                            -this(...) will call another created constructor in the same class
     method just changing the return type.
                                                                                                                                                     => Why we use? Reusing ready methods/ behaviors / actions.
                                                                            -super() will call a super constructor . If there is no super() in a
                                                                                                                                                                                                                                Because they might have methods without bodies (implementations)
  Q-Example Selenium Method??
                                                                                                                                                    => If you don't like the behavior then we are able to provide with our
                                                                            constructor the compiler will add one implicitly.
    elementToBeClickable(By locator) (WebElement element)
                                                                                                                                                                                                                               → Abstract classes => we use extends keyword →
                                                                                                                                                      own implementation as well.
                                                                           Q-Constructor chaining?Consider a scenario where a base class is
              wait(timeout), wait(timout,nanos)
    wait(),
                                                                                                                                                                                                                              -->Interfaces => we use implements keyword
                                                                           extended by a child .Whenever an object of the child class is created
                                                                                                                                                    =>Using 'extends' keyword we can inherit other classes members.
  2-Method overriding:
                                                                           the constructor of the parent class is invoked first. This is called
                                                                                                                                                                                                                                 ** Interface can extend to another interface.
                                                                                                                                                    =>Can we inherit more than one —> yes
      -Method signature must be same, name+paramaters
                                                                            -Constructer always call the base class contractor
                                                                                                                                                                                                                                ** Concrete class(class that is extending to abstract class or
                                                                                                                                                    =>public-protected all can inherit,
      -Return type must be same, only narrower types are allowed
                                                                            Q- Why When do we invoke? learn
                                                                                                                                                    =>default only can inherit if sub&super class are in the same package
      -Access modifiers -> can be same or more accessible
                                                                                                                                                                                                                                 implementing interface) must provide with an implementation
                                                                            if super class could have private fields which need to be initialized.
                                                                                                                                                    =>private members are NEVER inherited need to import if different package
      -Static methods cannot be overridden - they can be hidden. and
                                                                            by its constructor.
                                                                                                                                                                                                                                 for abstract methods.
                                                                                                                                                    =>Final class- Contractor con not be inherited
depending on where it is called, it will call that version
                                                                          ______
                                                                                                                                                                                                                                *****A class can only extend to one class NO MULTIPLE INHERIT
                                                                          ABSTRACTION: Defining only behavior but without implementation.we hide
      -Variables cannot be overridden - they can be hidden.
               Overriding --> in SUB Class
                                                                                                                                                                                                                                    but can implement multiple interfaces.
                                                                                                                                                     Q-Can a super class referenced variable hold an object of sub class?
                                                                          We don't need to see the implementation just we need to see functionality.
 When a class inherits a method from a super class and changes
                                                                                                                                                         A var = new C(); yes through polymorphism
                                                                                                                                                                                                                              POLYMORPHISM
                                                                          public abstract void execute();
method
                                                                                                                                                         var.m1();
                                                                          We don't need to see the implementation just we need to see functionality. I know there is some method available to use, I don't need and care details.
                                                                                                                                                                                                                              → one object having different forms. Cell phone ex/ driver ex
 implementation by keeping same signature and return type.
                                                                                                                                                                                    B b = (B)new A(); ClassCastException.
                                                                                                                                                                                                                                   Left side is reference type =Right side is object type
1. Happens between sub and super classes. inheritance
                                                                          For the reading the this method there is 2 way
                                                                                                                                                                                     new C()
 2. Method <u>signature</u> must be same
                                                                         1) ABSTRACT classes: Start to key word abstract. When we put abstract key in
                                                                                                                                                       this() vs this
                                                                                                                                                                                                                                   Eat h = new HumanEat();
 3. if return type is primitive, must be same. if return type is object, it
                                                                                                                                                     this()->constructor for current class /kind if overloading constructer
                                                                                                                                                                                                                                   h.eat() → This will execute humanEat implementation of eat() method.
must
                                                                           name it will be abstract class exam: public abstract class AbstractCars {}
                                                                                                                                                         →used to call another constructor from a constructor in same class
                                                                                                                                                                                                                                   Ex: must give example
    be same or sub type
                                                                          2) INTERFACES—>collection of abstract method
  4. Access modifier cannot become more restrictive
                                                                                                                                                     this → representing the object of current class
                                                                         Implement the interface they are actually signing a contract with underpays that I
                                                                                                                                                                                                                                   List< String> li = new ArrayList<>();
                                                                         am going to implement all those methods that you define in yourself.java not support multiple inheritance and INTERFACE comes because by using multiple
  5. Override: throws Exception is not allowed.
                                                                                                                                                          → used for refer to instance variables and methods ***
                                                                                                                                                                                                                                   List → is reference type ArrayList → is object type
    -If a method in Super class throws exception, you cannot make that
                                                                                                                                                                                                                                   *** Object type has to have is-a relationship with reference type.
                                                                         interface one class can implement all those interfaces, and can define all the
    exception type broader.
                                                                                                                                                      Super. vs super()
                                                                                                                                                                                                                                   ** UPCASTING happens automatically
                                                                         methods of relabeling multiple interfaces
  6. final method can not override
                                                                                                                                                                                                                                   *** DOWNCASTING must be explicitly written.
                                                                                                                                                       super() will call parent class constructor-Call base class constructor
                                                                          INTERFACE can not implement methods!!!!!
 7. Static methods cannot be overridden. They can be hidden. and
                                                                          Interface can also contain the variable the constant and all. (We will cover java 7)
                                                                                                                                                       calling the super class's default constructor can be used only inside the
                                                                                                                                                                                                                              Static polymorfizm: Compile time—> overloading in same class
    depending on where it is called, it will call that version.
                                                                          (no default and static method)
                                                                                                                                                       constructor.
                                                                                                                                                                                                                              Dynamic polymorfizm: Run time —> Overriding. in different class
  8. Constructor methods cannot be overrated.
  9. Only methods that are successfully inherited can be overridden
                                                                                                                                                       super is representing the object of superclass
                                                                                                                                                                call parent members
```