Keypoints in Java Constructor:

- 1) Constructor name should be same as class name.
- 2) Constructor should not be having any return type.
- 3) We need to initialize a class object with the available constructors present in our program.
- 4) In a Java program if we are not writing any constructors i.e, either parameterized constructor or non-parameterized constructor, then Java compiler is going to provide our program with a default constructor.
- 5) default constructor is same like non parameterized constructor.

- 6) The access modifier for the default constructor provided by the compiler will be SAME as the access modifier of class. (If the class is public then constructor is also public OR If the class is default then constructor is also default).
- 7) If we declare a constructor as 'private' then we can restrict the object creation of our class in other classes.
- 8) Just like void methods inside a constructor also we can write a return statement without returning anything.
- Onstructor Overloading is Possible

 Constructor Overridding is NOT Possible

 Constructor Overridding is NOT Possible

Key points:

- Constructor can have all '4' access modifiers (public, protected, private, default).
- If there is no constructor in a class, compiler automatically creates a default constructor.
- The access modifier for the default constructor provided by the compiler will be SAME as the access modifier as class. (If the class is public then constructor is also public OR If the class is default then constructor is also default).
- The default constructor given by the compiler will have only '2' access modifiers ie., public & default.
- Compiler will provide a default constructor when there are no constructors in the class.

- We can code/write default constructor (or) parameterized constructor basing upon our programming requirements.
- If we declare a constructor as 'private' then we can restrict the object creation of our class in other classes.
- A Constructor is called simultaneously at the time of object creation by using 'new' keyword.
- In constructor we can write a 'return' statement without returning any value (Just like void method).
- We can create a class object by using "new" keyword and "available constructor".
- CONSTRUCTOR OVERLOADING IS POSSIBLE OVERRIDDING IS NOT POSSIBLE.

Constructor Vs Method

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

***We need to initialize a class object with the available constructors present in our program otherwise we will be getting a compile time error.

```
package com.pack1;
                                                           package com.pack1;
   public class ClassA
                                                           public class ClassB
 5e
       void meth1()
                                                         50
                                                               void meth2()
 6
                                                         6
          System.out.println("meth1() called");
                                                                   System.out.println("meth2() called");
 8
                                                         8
98
       public static void main(String[] args)
                                                         9e
                                                               ClassB(String s)
                                                        10
          ClassA aobj=new ClassA();
                                                                  System.out.println("s: "+s);
11
                                                        11
          aobj.meth3();
                                                        12
                                                        139
13
                                                               public static void main(String[] args)
                                                        14
14
                                                                  ClassB bobj=new ClassB(); here error because we are
                                                       15
  in this we are not having any construtor
                                                        16
if we are not having any construcor the
                                                        17
                                                                                           having parameterized
default constructor provided by the
                                                        18
                                                                                           constructor
                                                        19
20 compiler
                                                        20
21
                                                        21
```

```
1 package com.pack1;
                                                               1 package com.pack1;
3 public class ClassA
                                                                  public class ClassB
4 {
                                                               4 {
       void meth1()
                                                                      void meth2()
           System.out.println("meth1() called");
                                                               7
                                                                          System.out.println("meth2() called");
 8
                                                               8
 90
       public static void main(String[] args)
10
                                                               10
           ClassA aobj=new ClassA();
                                                                          System.out.println("Default constructor");
11
                                                               11
12
                                                              12
                                                                      ClassB(String s)
13
                                                              13≈
14
15 }
                                                                          System.out.println("s: "+s);
                                                              15
16
                                                              16
17
                                                              17e
                                                                      public static void main(String[] args)
                                                              18
                                                                          ClassB bobj=new ClassB("Java");
19
                                                             219
20
                                                              20
21
                                                              21
                                                                      }
                                                              22 }
```

If we declare a constructor as 'private' then we can restrict the object creation of our class in other classes.

```
1 package com.pack1;
                                                      package com.pack1;
 3 public class ClassA
                                                    3 public class ClassB
                                                    4 {
 5=
       void meth1()
                                                           public static void main(String[] args)
 6
                                                    6
 7
            System.out.println(10);
                                                    7
                                                               ClassA aobj1=new ClassA();
 8
                                                    8
                                                               aobj1.meth1();
 98
       void meth2()
                                                    9
                                                               aobj1.meth2();
                                                   10
                                                               aobj1.meth3();
10
       {
            System.out.println(20);
11
                                                   11
12
                                                   12 }
13=
       void meth3()
                                                   13
14
                                                   14
                                                   15
15
            System.out.println(30);
16
                                                   16
17=
       private ClassA()
                                                   17
18
                                                   18
19
                                                   19
20
                                                   20
21 }
                                                   21
22
                                                   22
                                                                     Ι
23
                                                   23
```

```
1 package com.pack1;
                                                        package com.pack1;
 3 public class ClassA
                                                      3
                                                        public class ClassB
 4 {
                                                      4
 58
                                                      5
       void meth1()
                                                            public static void main(String[] args)
 6
       {
                                                      69
 7
           System.out.println(10);
                                                      7
                                                                ClassA aobj1=new ClassA();
                                                              I aobj1.meth1();
 8
                                                      8
 98
       void meth2()
                                                      9
                                                                aobj1.meth2();
                                                     10
                                                                aobj1.meth3();
10
                                                    11
           System.out.println(20);
11
12
                                                     12 }
13°
       void meth3()
                                                     13
14
       {
                                                     14
15
           System.out.println(30);
                                                     15
16
                                                     16
17=
       public ClassA()
                                                     17
                                                     18
18
19
                                                     19
20
       }
                                                     20
21 }
                                                     21
```

```
3 public class ClassA
                                                      1 package com.pack1;
 4 {
 58
       void meth1()
                                                      3
                                                        public class ClassB
 6
                                                      4 {
 7
            System.out.println(10);
                                                            public static void main(String[] args)
 8
                                                      6
 9⊕
        void meth2()
                                                                ClassA aobj1=new ClassA();
                                                      7
10
                                                                aobj1.meth1();
                                                      8
            System.out.println(20);
11
                                                      9
                                                                aobj1.meth2();
12
        }
                                                     10
                                                                 aobj1.meth3();
138
       void meth3()
                                                     11
14
                                                     12
15
            System.out.println(30);
                                                     13
16
                                                     14
170
        private ClassA()
                                                     15
18
                                                     16
19
                                                     17
20
                                                     18
218
       ClassA(int i)
                                                     19
22
                                                     20
23
                                                     21
24
        }
                                                     22
25 }
                                                     23
```

```
3 public class ClassA
                                                     1 package com.pack1;
4 {
5⊕
       void meth1()
                                                       public class ClassB
                                                     3
6
                                                     4 {
7
           System.out.println(10);
                                                   5e
                                                           public static void main(String[] args)
8
                                                     6
98
       void meth2()
                                                     7
                                                               ClassA aobj1=new ClassA(100);
10
                                                     8
                                                               aobj1.meth1();
11
           System.out.println(20);
                                                     9
                                                                aobj1.meth2(); I
12
                                                    10
                                                                aobj1.meth3();
138
       void meth3()
                                                    11
14
                                                    12 }
15
           System.out.println(30);
                                                    13
16
                                                    14
178
       private ClassA()
                                                    15
18
                                                    16
19
                                                    17
20
                                                    18
        ClassA(int i)
218
                                                    19
22
                                                    20
23
                                                    21
                                                    22
25
```

```
3 public class ClassA
                                                     1 package com.pack1;
4 {
50
       void meth1()
                                                     3 public class ClassB
 6
 7
           System.out.println(10);
                                                            public static void main(String[] args)
 8
90
       void meth2()
                                                                ClassA aobj1=new ClassA(100);
10
                                                                aobj1.meth1();
           System.out.println(20);
11
                                                                aobj1.meth2();
12
                                                    10
                                                                aobj1.meth3();
       void meth3()
139
14
                                                    12 }
           System.out.println(30);
15
                                                    13
16
                                                    14
17⊜
       private ClassA()
                                                    15
18
                                                    16
19
                                                    17
20
                                                    18
      Iprivate ClassA(int i)
219
                                                    19
22
                                                    20
23
                                                    21
       }
24
                                                    22
25 }
                                                    23
```

Just like void methods, inside a constructor also we can write a return statement without returning anything.

```
1 package com.pack1;
 3 public class ClassA
 4 {
 59
       void meth1()
 6
 7
            return 700;
 8
 98
       ClassA()
10
11
            return 800;
12
13
14 }
```

Home work

- 1) Create a class named 'Programming'. While creating an object of the class, if nothing is passed to it, then the message "I love programming languages" should be printed. If some String is passed to it, then in place of "programming languages" the name of that String variable should be printed. For example, while creating object if we pass "Java", then "I love Java" should be printed.
- 2)Write a program to print the name of a student by creating a Student class. If no name is passed while creating an object of Student class, then the name should be "Unknown", otherwise the name should be equal to the

String value passed while creating object of Student class.

- 3) Suppose you have a Bank Account with an initial amount of 500 and you have to add some more amount to it. Create a class 'AddAmount' with a data member named 'amount' with an initial value of 500. Now make two constructors of this class as follows:
- 1 without any parameter no amount will be added then just display your balance with out updating
- 2 having a parameter which is the amount that will be added to the account & display the final amount.