

```
1  //Here's an example Java code that demonstrates the flow of Static Class, Static
   Variables, Static Methods, Instance Blocks, Instance Variables, Instance Methods, and
   Constructors:
2
3  class Outer {
4
5      // Static Variable
6      static int staticVar = 10;
7
8      // Static Method
9      static void staticMethod() {
10         System.out.println("Static Method executed");
11     }
12
13     // Static Block (executed once when class is loaded)
14     static {
15         System.out.println("Static Block executed");
16         staticVar = 100;
17     }
18
19     // Instance Variable
20     int instanceVar;
21
22     // Instance Block (executed when an object is created)
23     {
24         System.out.println("Instance Block executed");
25         instanceVar = 200;
26     }
27
28     // Constructor
29     Outer() {
30         System.out.println("Constructor executed");
31     }
32
33     // Instance Method
34     void instanceMethod() {
35         System.out.println("Instance Method executed. Instance variable: " + instanceVar
36             );
37     }
38
39     // Static Nested Class
40     static class Inner {
41         static void innerMethod() {
42             System.out.println("Static method inside Static Nested Class executed");
43         }
44     }
45
46     public static void main(String[] args) {
47         System.out.println("Main method starts");
48
49         // Static method can be called without an object
50         Outer.staticMethod();
51         System.out.println("Static variable: " + Outer.staticVar);
52
53         // Create object to invoke instance-related elements
```

```

53     System.out.println("\nCreating first object...");
54     Outer obj1 = new Outer(); // Constructor & Instance Block executed here
55     obj1.instanceMethod(); // Instance method execution
56
57     System.out.println("\nCreating second object...");
58     Outer obj2 = new Outer(); // Constructor & Instance Block executed here
59     obj2.instanceMethod(); // Instance method execution
60
61     // Calling Static Nested Class method
62     System.out.println("\nStatic Nested Class method call...");
63     Outer.Inner.innerMethod(); // Calling static method from static nested class
64
65     System.out.println("\nMain method ends");
66 }
67 }
68 =====
69 //Expected Output:
70
71 Main method starts
72 Static Block executed
73 Static Method executed
74 Static variable: 100
75
76 Creating first object...
77 Instance Block executed
78 Constructor executed
79 Instance Method executed. Instance variable: 200
80
81 Creating second object...
82 Instance Block executed
83 Constructor executed
84 Instance Method executed. Instance variable: 200
85
86 Static Nested Class method call...
87 Static method inside Static Nested Class executed
88
89 Main method ends
90 =====
91 //Explanation:
92 Static Variable (staticVar): Initialized when the class is loaded into memory. It is
93 shared by all instances of the class.
94 Static Method (staticMethod()): Called using the class name (Outer.staticMethod())
95 without the need to create an object.
96 Static Block: Executed once when the class is loaded, even before the main() method or
97 any object creation. It is used for initializing static variables.
98 Instance Variable (instanceVar): Each object has its own instance variable. It is
99 initialized in the instance block before the constructor.
100 Instance Block: Executed every time an object is created, right before the constructor.
101 It is useful for instance-level initialization.
102 Constructor: Called after the instance block when creating an object. It completes the
103 object initialization.
104 Instance Method (instanceMethod()): Requires an object to be called. It can access
105 instance variables and methods.
106 Static Nested Class: Defined within the outer class and marked with static. It can have
107 static methods and can be called without an object of the outer class.

```

```
100
101 //Flow Summary:
102 Main method initialized first.
103 Static Block is executed once when the class is loaded.
104 Static Method is called directly using the class name without object creation.
105 Instance Block and Constructor are executed each time an object is created.
106 Instance Methods and Instance Variables are specific to each object.
107 Static Nested Class can have its own static methods and be invoked without an instance of
    the outer class.
108 Main method ends.
```