1)Hello World

```java
public class hello {
     public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
}
```

2)ASSIGNMENT

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

        int a = 100;
        int b = 200;
        a += b;
        System.out.println("The value of a is: " + a);

        int c = 50;
        c %= 2;
        System.out.println("The value of c is: " + c);

    }
}
```

3)OPERATORS

I)Arithmetic and increment &decrement

```java
public class ArithmeticDemo {
    public static void main(String[] args) {
        int a = 10;
        int b = 20;

        // Arithmetic Operations
        System.out.println("Addition: " + (a + b));
        System.out.println("Subtraction: " + (a - b));
```

```
        System.out.println("Multiplication: " + (a * b));
        System.out.println("Division: " + (a / b));
        System.out.println("Modulus: " + (a % b));

        // Post-increment
        int x = 10;
        System.out.println(" increment, a: " + a);
        System.out.println("x++: " + (x++));
        System.out.println(" increment, a: " + x);
        // Post-decrement
        System.out.println("x--: " + (x--));
        System.out.println(" decrement,a : " + x);
           }
}
```

II)Logical

```
public class logical {
    public static void main(String[] args) {
        int  a  =  10;
        int b = 20;

        // Logical AND (&&)
        System.out.println((a < b) && (b > 15));

        // Logical OR (||)
        System.out.println((a > b) || (b == 20));

        // Logical NOT (!)
        boolean result = (a > b);
        System.out.println(!result);
}
```

III)Relational

```
public class relational {

    public static void main(String[] args) {
        int a = 10;
        int b = 20;

        System.out.println("a == b: " + (a == b));
        System.out.println("a != b: " + (a != b));
        System.out.println("a > b: " + (a > b));
        System.out.println("a < b: " + (a < b));
        System.out.println("a >= b: " + (a >= b));
        System.out.println("a <= b: " + (a <= b));
```

```
 }


}
```

IV)Bitwise

```
public class Bitwise {
     public static void main(String[] args) {
        int a = 5; int b = 3; System.out.println("a
        & b: " + (a & b)); System.out.println("a |
        b: " + (a | b)); System.out.println("a ^ b:
        " + (a ^ b)); System.out.println("~a: " +
        (~a)); System.out.println("a << 1: " + (a
        << 1)); System.out.println("a >> 1: " + (a
        >> 1));


    }
}
```

4)Ternary

```
public class Ternary {

    public static void main(String[] args) {
        int age = 18;
        String result = (age >= 18) ? "You are an adult" : "You are a minor";

        System.out.println(result);
    }

}
```

5)Instance

```
public class Instance {
    public static void main(String[] args) {
        String name =
        "Samruddh";
        System.out.println("name instanceof String: " + (name instanceof
String));
```

```
        System.out.println("name instanceof Object: " + (name instanceof
Object));
    }

}
```

6)String Concatenation

```
public class Concatenation {
public static void main(String[] args) { String
a="Samruddhi"; String b="Mhaske"; String c;
c=a+b; System.out.println("The value of c is: "
+ c);



 }

}
```

7)Conditional

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

        int a=45;
         even or odd
        if(a % 2 == 0) {
            System.out.println("a is even");
        } else {
            System.out.println("a is odd");
        }
    }
}
```

i)for loop

```
public class forloop {

    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            System.out.println("Samruddhi"
        }
            );
    }
```

```
}
```

ii)While loop

```
public class whileloop {
    public class WhileLoopSaaili {
            public static void main(String[] args) {
        int i = 1;

        while (i <= 5) {
            System.out.println("Samruddhi"
            );
            i++;
        }
    }

}
```

iii)Do while loop

```
public class Dowhile {
    public static void main(String[] args) {
        int i = 1;

        do {
            System.out.println("Samruddhi");
            i++;
        } while (i <= 5);
    }

}
```

iv)Switch case

```
public class Switchcase {

    public static void main(String[] args) {
        String name = "Samruddhi";

        switch (name) {
            case "Samruddhi":
             System.out.println("Hello,Samruddhi!");
             break;

            case "Harsh":
```

```
                System.out.println("Hi, Harsh!");
                break;

            case "Arjun":
                System.out.println("Hey, Arjun!");
                break;

            default:
                System.out.println("Name not found.");
        }
    }
}
```

8)Functions

I)Subtraction

```
public class Function {

    public static int subtract(int x, int y) {
        return x - y;
    }

    public static void main(String[] args) {
        int a = 8;
        int b = 3;

        int result = subtract(a, b);

        System.out.println("Result: " + result);
    }
}
```

II)Addition

```
public class Function {

    public static int Addition(int x, int y) {
        return x + y;
    }

    public static void main(String[] args) {
        int a = 8;
        int b = 3;
```

```
        int result = Addition(a, b);

        System.out.println("Result: " + result);
    }
}
```

III)Multiplication

```
public class Function {


    // Function to multiply two numbers
    static int multiply(int a, int b) {
        return a * b;
    }

    public static void main(String[] args) {
        int result = multiply(4, 5);
        System.out.println("Multiplication is: " + result);
    }
}
```

9)Function Recursion

```
public class Recursion {

    // Recursive function to find factorial
    static int factorial(int n) {
    if (n == 0 || n == 1)
            return 1;
        else
            return n * factorial(n - 1);
    }

    public static void main(String[] args) {
        int result = factorial(10);
        System.out.println("Factorial of 10 is: " + result);
    }
}
```

10)Factorial Function

```
public class factorial {
    static int fact(int n) {
```

```
        int f = 1;
        for(int i = 1; i <= n; i++)
            f *= i;
        return f;
    }

    public static void main(String[] args) {
        System.out.println(fact(5));
    }
}
```

11)Build In Function

```
public class Builtinfun {

    public static void main(String[] args) {
        String name=”Samruddhi";

        // Built-in string functions
        System.out.println("Name: " + name);
        System.out.println("Length: " + name.length());
        System.out.println("Uppercase: " + name.toUpperCase());

        // Built-in math function
        System.out.println("Max of 5 and 10: " + Math.max(5, 10));

}

}
```

12)Array Function

```
public class arrayfun {

    public static void main(String[] args) {
        String[] names = {"Saaili", "Riya", "sai"};

        System.out.println(names[0]);
        System.out.println(names[1]);
        System.out.println(names[2]);
    }

}
```