



Daffodil
International
University

LAB REPORT

Course Title: Object Oriented Programming

Course Code : CSE 222

Daffodil International University

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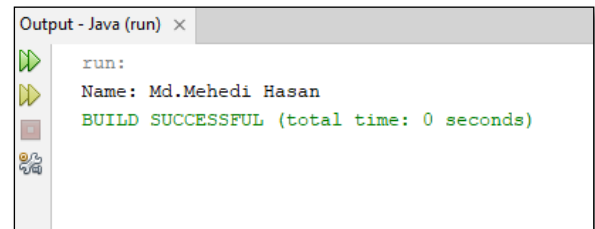
1 Java Output / Print

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class Main {  
    public static void main(String[] args) {  
        System.out.println("Name: Md.Mehedi Hasan ");  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Name: Md.Mehedi Hasan  
BUILD SUCCESSFUL (total time: 0 seconds)
```

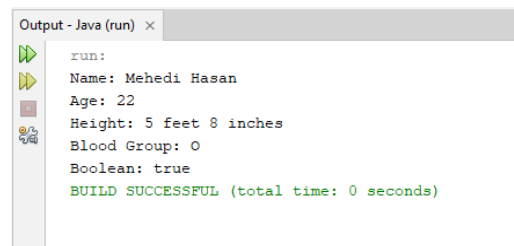
2 Java Variables: String, int, float, char, Boolean

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class Main {  
    public static void main(String[] args) {  
        String name = "Mehedi Hasan";  
        int age = 22;  
        int feet = 5;  
        int inches = 8;  
        char bloodGroup = 'O';  
        boolean booleanaver = true;  
  
        System.out.println("Name: " + name);  
        System.out.println("Age: " + age);  
        System.out.println("Height: " + feet + " feet " +  
            inches + " inches");  
        System.out.println("Blood Group: " +  
            bloodGroup);  
        System.out.println("Boolean: " + booleanaver);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Name: Mehedi Hasan  
Age: 22  
Height: 5 feet 8 inches  
Blood Group: O  
Boolean: true  
BUILD SUCCESSFUL (total time: 0 seconds)
```

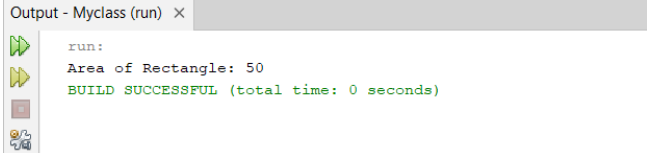
3 Calculate the area of a Rectangle

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class NewClass {  
    public static void main(String[] args)  
    {  
        int length = 10, width = 5;  
        int area = length * width;  
        System.out.println("Area of  
Rectangle: " + area);  
    }  
}
```

Output



```
Output - Myclass (run) ×  
run:  
Area of Rectangle: 50  
BUILD SUCCESSFUL (total time: 0 seconds)
```

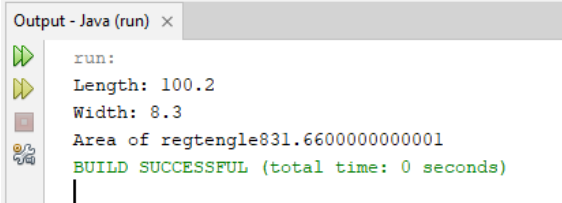
4 Java Output / Print

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class Main {  
    public static void main(String[] args) {  
        double length = 100.20;  
        double width = 8.3;  
        double area = length * width;  
        System.out.println("Length: " + length);  
        System.out.println("Width: " + width);  
        System.out.println("Area of regtengle" + area);  
    }  
}
```

Output



```
Output - Java (run) ×  
run:  
Length: 100.2  
Width: 8.3  
Area of regtengle831.66000000000001  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

4.1 Arithmetic Operators

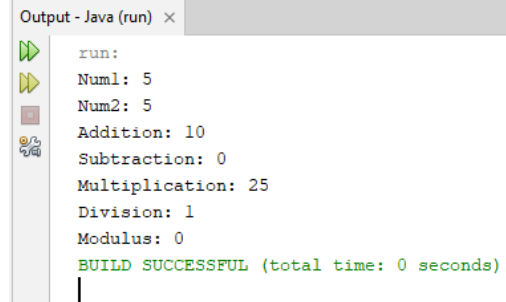
4.2 Assignment operators

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support

public class Main {
public static void assignment_operato(String[] args)
{
int num = 10;
num += 5;
System.out.println("After += 5: " + num);
num -= 3;
System.out.println("After -= 3: " + num);
num *= 2;
System.out.println("After *= 2: " + num);
num /= 4;
System.out.println("After /= 4: " + num);
num %= 5;
System.out.println("After %= 5: " + num); /
}
}
```

Output



```
Output - Java (run) x
run:
Num1: 5
Num2: 5
Addition: 10
Subtraction: 0
Multiplication: 25
Division: 1
Modulus: 0
BUILD SUCCESSFUL (total time: 0 seconds)
|
```

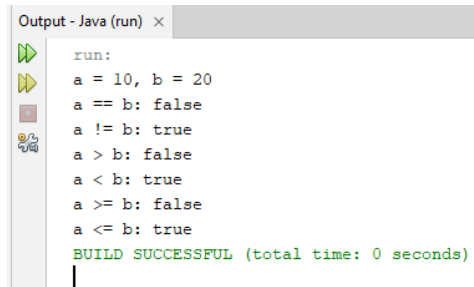
4.3 Comparison operators

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support

public class comparison_operator {
public static void main(String[] args) {
int a = 10, b = 20;
System.out.println("a = " + a + ", b = " + 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));
System.out.println("a <= b: " + (a <= b));
}
}
```

Output



```
Output - Java (run) x
run:
a = 10, b = 20
a == b: false
a != b: true
a > b: false
a < b: true
a >= b: false
a <= b: true
BUILD SUCCESSFUL (total time: 0 seconds)
|
```

4.4 Logical operators

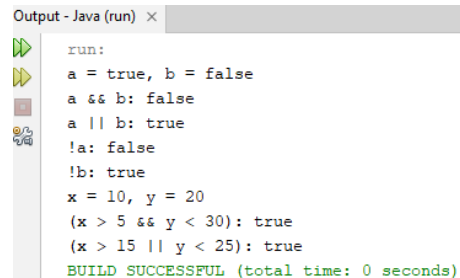
Java Code :

//Author of the code : Md.Mehedi Hasan

//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class logical_operator {
    public static void main(String[] args) {
        boolean a = true;
        boolean b = false;
        System.out.println("a = " + a + ", b = " + b);
        System.out.println("a && b: " + (a && b)); // false
        (both must be true)
        System.out.println("a || b: " + (a || b)); // true (at
        least one is true)
        System.out.println("!a: " + (!a)); // false (negation
        of true)
        System.out.println("!b: " + (!b)); // true (negation
        of false)
        int x = 10, y = 20;
        System.out.println("x = " + x + ", y = " + y);
        System.out.println("(x > 5 && y < 30): " + (x > 5 &&
        y < 30)); // true
        System.out.println("(x > 15 || y < 25): " + (x > 15 ||
        y < 25));
    }
}
```

Output



Output - Java (run) x

```
run:
a = true, b = false
a && b: false
a || b: true
!a: false
!b: true
x = 10, y = 20
(x > 5 && y < 30): true
(x > 15 || y < 25): true
BUILD SUCCESSFUL (total time: 0 seconds)
```

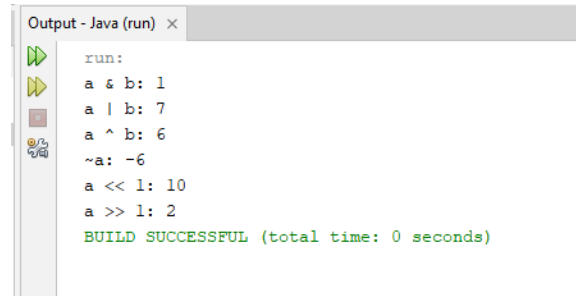

4.4 Bitwise Operator

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
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));  
    }  
}
```

Output



Output - Java (run) ×

```
run:  
a & b: 1  
a | b: 7  
a ^ b: 6  
~a: -6  
a << 1: 10  
a >> 1: 2  
BUILD SUCCESSFUL (total time: 0 seconds)
```

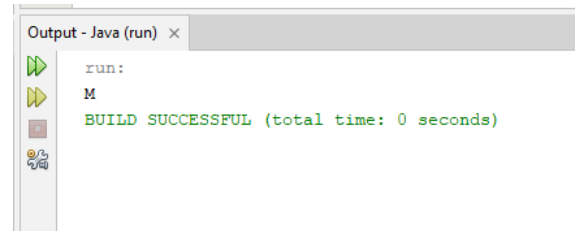
5 Java String Methods

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class stringmethod {  
    public static void main(String[] args) {  
        String myStr = "Mehedi Hasan";  
        char result = myStr.charAt(0);  
        System.out.println(result);  
    }  
}
```

Output



Output - Java (run) ×

```
run:  
M  
BUILD SUCCESSFUL (total time: 0 seconds)
```

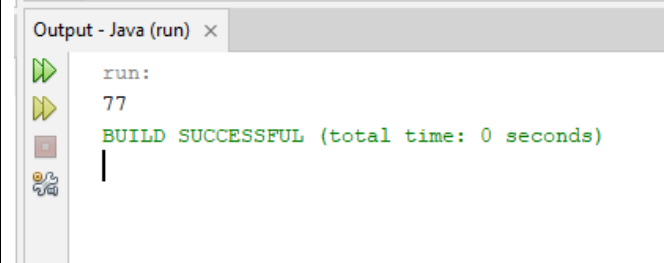
5.1 codePointAt() :

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class codePointAt {  
    public static void main(String[] args) {  
        String myStr = "Mehedi Hasan";  
        int result = myStr.codePointAt(0);  
        System.out.println(result);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
77  
BUILD SUCCESSFUL (total time: 0 seconds)
```

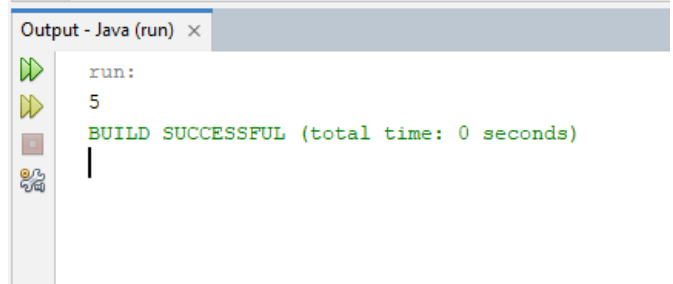
5.2 codePointCount():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class codePointCount{  
    public static void main(String[] args) {  
        String myStr = "Mehedi";  
        int result = myStr.codePointCount(0, 5);  
        System.out.println(result);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
5  
BUILD SUCCESSFUL (total time: 0 seconds)
```

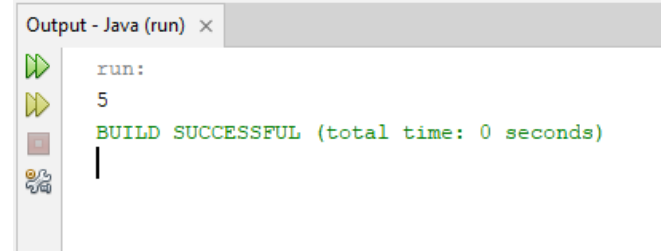
5.3 compareTo():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class compareTo {  
    public static void main(String[] args) {  
        String myStr1 = "Mehedi";  
        String myStr2 = "Hasan";  
  
        System.out.println(myStr1.compareTo(myStr2));  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
5  
BUILD SUCCESSFUL (total time: 0 seconds)
```

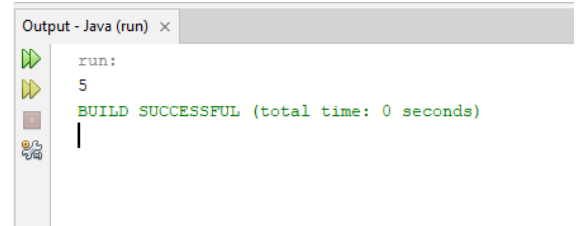
5.4compareToIgnoreCase():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class compareToIgnoreCase {  
    public static void main(String[] args) {  
        String myStr1 = "Mehedi";  
        String myStr2 = "Hasan";  
  
        System.out.println(myStr1.compareToIgnoreCase(myStr2));  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
5  
BUILD SUCCESSFUL (total time: 0 seconds)
```

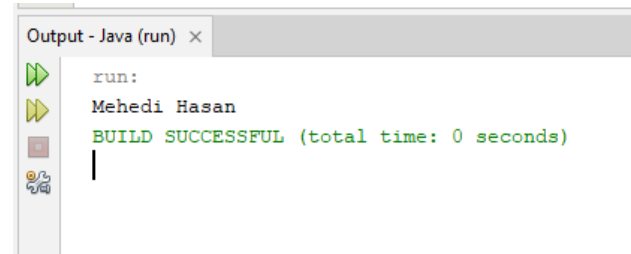
5.6concat():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class compareTolgnoreCase {  
    public static void main(String[] args) {  
        String myStr1 = "Mehedi";  
        String myStr2 = "Hasan";  
        System.out.println(myStr1.compareToIgnoreCase(myStr2));  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Mehedi Hasan  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

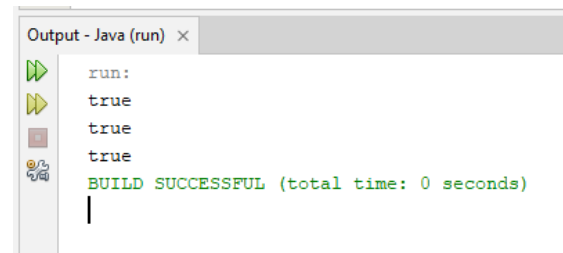
5.7 contains():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class contains {  
    public static void main(String[] args) {  
        String myStr = "Mehedi";  
        System.out.println(myStr.contains("Me"));  
        System.out.println(myStr.contains("he"));  
        System.out.println(myStr.contains("di"));  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
true  
true  
true  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

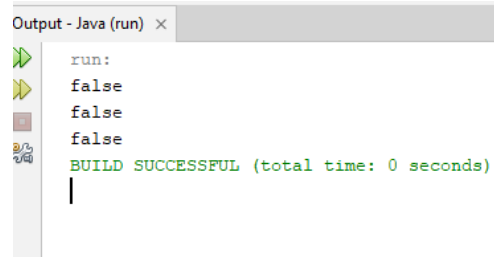
5.8 contentEquals():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class contentEquals {  
    public static void main(String[] args) {  
        String myStr = "Mehedi";  
        System.out.println(myStr.contentEquals("hasan"));  
        System.out.println(myStr.contentEquals("m"));  
        System.out.println(myStr.contentEquals("ehe"));  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
false  
false  
false  
BUILD SUCCESSFUL (total time: 0 seconds)
```

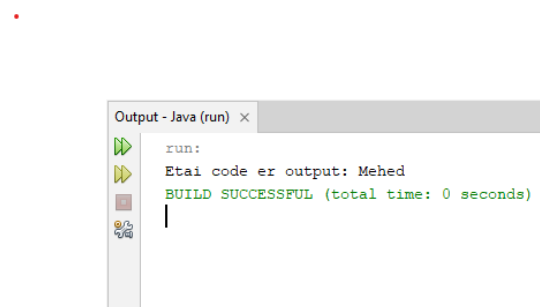
5.9 copyValueOf():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class copyValueOf {  
    public static void main(String[] args) {  
        char[] myStr1 = {'M', 'e', 'h', 'e', 'd'};  
        String myStr2 = "";  
        myStr2 = myStr2.copyValueOf(myStr1, 0, 5);  
        System.out.println("Eta code er output: " +  
            myStr2);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Eta code er output: Mehedi  
BUILD SUCCESSFUL (total time: 0 seconds)
```

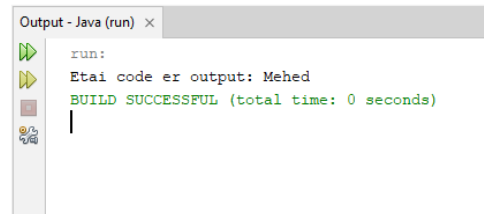
5.10 endsWith():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class copyValueOf {  
    public static void main(String[] args) {  
        char[] myStr1 = {'M', 'e', 'h', 'e', 'd'};  
        String myStr2 = "";  
        myStr2 = myStr2.copyWithOf(myStr1, 0, 5);  
        System.out.println("Etai code er output: " +  
            myStr2);  
    }  
}
```

Output



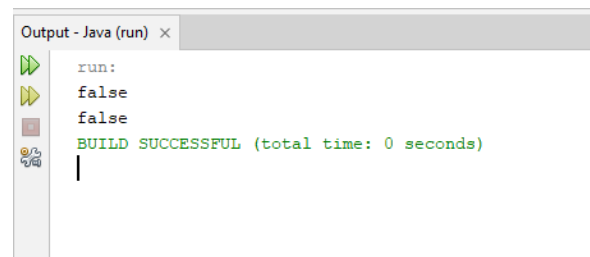
5.11 endsWith():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class endsWith {  
    public static void main(String[] args) {  
        String myStr1 = "MEHEDI";  
        String myStr2 = "HASAN";  
        String myStr3 = "ENG";  
        System.out.println(myStr1.equals(myStr2));  
        System.out.println(myStr1.equals(myStr3));  
    }  
}
```

Output



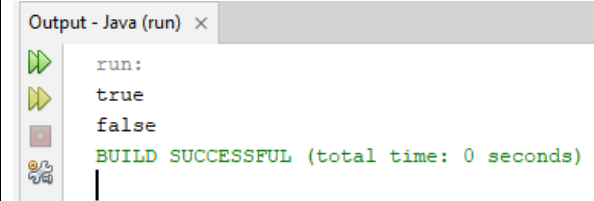
5.12 endsWith():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class endsWith {  
    public static void main(String[] args) {  
        String myStr1 = "MEHEDI";  
        String myStr2 = "HASAN";  
        String myStr3 = "ENG";  
        System.out.println(myStr1.equalsIgnoreCase(myStr2));  
        System.out.println(myStr1.equalsIgnoreCase(myStr3));  
    }  
}
```

Output



Output - Java (run) x

```
run:  
true  
false  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

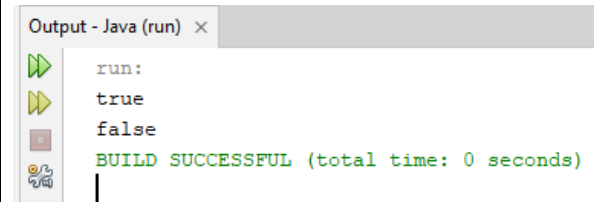
5.13 equalsIgnoreCase():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class endsWith {  
    public static void main(String[] args) {  
        String myStr1 = "MEHEDI";  
        String myStr2 = "HASAN";  
        String myStr3 = "ENG";  
        System.out.println(myStr1.equalsIgnoreCase(myStr2));  
        System.out.println(myStr1.equalsIgnoreCase(myStr3));  
    }  
}
```

Output



Output - Java (run) x

```
run:  
true  
false  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

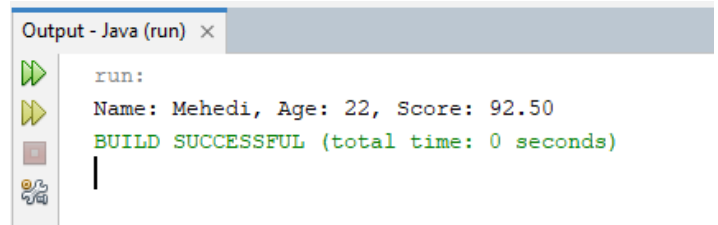
5.14 format():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class format {  
    public static void main(String[] args) {  
        String name = "Mehedi";  
        int age = 22;  
        double score = 92.5;  
        // Using format() method  
        String formattedString =  
            String.format("Name: %s, Age: %d, Score:  
%.2f", name, age, score);  
        // Printing the formatted string  
        System.out.println(formattedString);  
    }  
}
```

Output



The screenshot shows the 'Output - Java (run)' window. It contains the following text: 'run: Name: Mehedi, Age: 22, Score: 92.50' followed by 'BUILD SUCCESSFUL (total time: 0 seconds)' on a new line. There is a vertical cursor on the line following the success message.

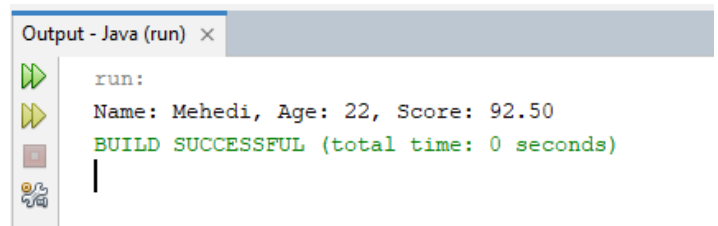
5.15 getBytes():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class format {  
    public static void main(String[] args) {  
        String name = "Mehedi";  
        int age = 22;  
        double score = 92.5;  
        // Using format() method  
        String formattedString =  
            String.format("Name: %s, Age: %d, Score:  
%.2f", name, age, score);  
        // Printing the formatted string  
        System.out.println(formattedString);  
    }  
}
```

Output



The screenshot shows the 'Output - Java (run)' window. It contains the following text: 'run: Name: Mehedi, Age: 22, Score: 92.50' followed by 'BUILD SUCCESSFUL (total time: 0 seconds)' on a new line. There is a vertical cursor on the line following the success message.

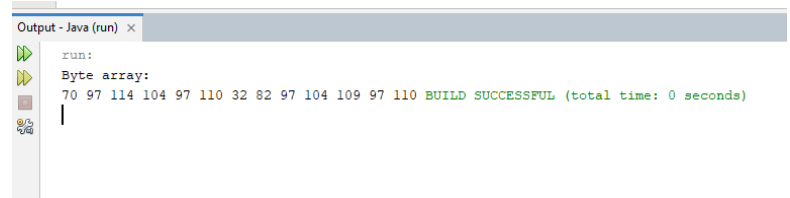
5.16 getBytes():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class GetBytes{  
    public static void main(String[] args) {  
        String str = "Mehedi Hasan";  
        byte[] byteArray = str.getBytes();  
        System.out.println("Byte array:");  
        for (byte b : byteArray) {  
            System.out.print(b + " ");  
        }  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Byte array:  
70 97 114 104 97 110 32 82 97 104 109 97 110 BUILD SUCCESSFUL (total time: 0 seconds)
```

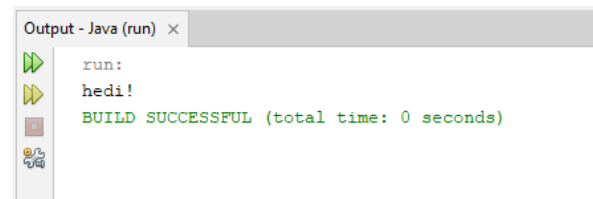
5.17 getChars():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class getChars {  
    public static void main(String[] args) {  
        String str = "Hey, Mehedi!";  
        char[] charArray = new char[5];  
        str.getChars(7, 12, charArray, 0);  
        System.out.println(charArray);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
hedi!  
BUILD SUCCESSFUL (total time: 0 seconds)
```

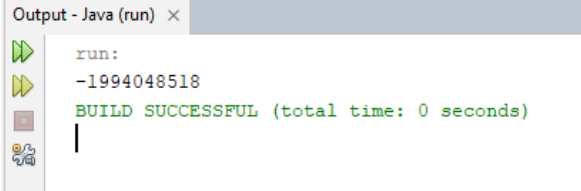
5.18 hashCode():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class hashCode {  
    public static void main(String[] args) {  
        String myStr = "Mehedi";  
        System.out.println(myStr.hashCode());  
    }  
}
```

Output



Output - Java (run) x

```
run:  
-1994048518  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

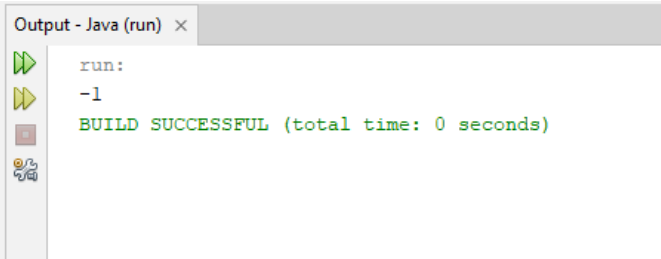
5.19 Indexof():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class indexof {  
    public static void main(String[] args) {  
        String myStr = "Hello Mehedi, How are you";  
        System.out.println(myStr.indexOf("Ossam"));  
    }  
}
```

Output



Output - Java (run) x

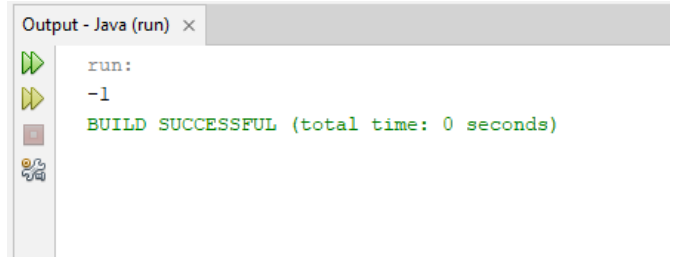
```
run:  
-1  
BUILD SUCCESSFUL (total time: 0 seconds)
```

5.20 indexOf():

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
  
public class indexof {  
    public static void main(String[] args) {  
        String myStr = "Hello Mehedi, How are you";  
        System.out.println(myStr.indexOf("Ossam"));  
    }  
}
```

Output



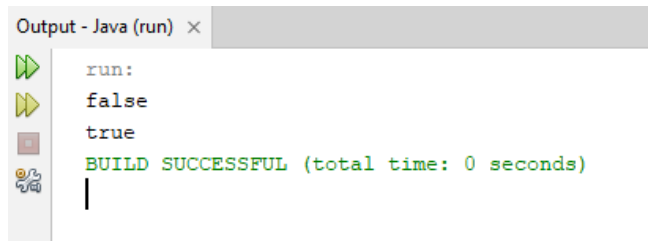
```
Output - Java (run) x  
run:  
-1  
BUILD SUCCESSFUL (total time: 0 seconds)
```

5.21 isEmpty():

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
  
public class isEmpty {  
    public static void main(String[] args) {  
        String myStr1 = "Mehedi";  
        String myStr2 = "";  
        System.out.println(myStr1.isEmpty());  
        System.out.println(myStr2.isEmpty());  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
false  
true  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

5.21 lastIndexOf():

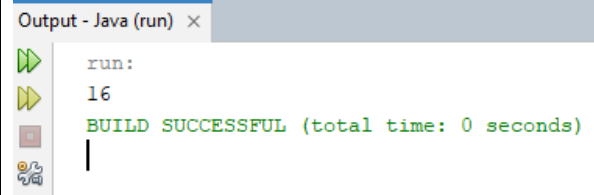
Java Code :

//Author of the code : Md.Mehedi Hasan

//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class lastIndexOf {  
    public static void main(String[] args) {  
        String myStr = "Object Oriented Program";  
        System.out.println(myStr.lastIndexOf("Program"));  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
16  
BUILD SUCCESSFUL (total time: 0 seconds)
```

5.22 length():

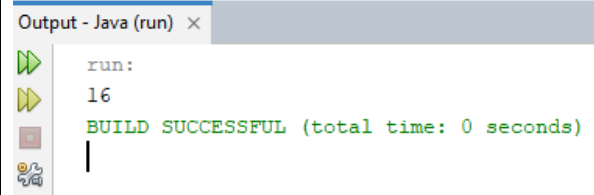
Java Code :

//Author of the code : Md.Mehedi Hasan

//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class lastIndexOf {  
    public static void main(String[] args) {  
        String myStr = "Object Oriented Program";  
        System.out.println(myStr.lastIndexOf("Program"));  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
16  
BUILD SUCCESSFUL (total time: 0 seconds)
```

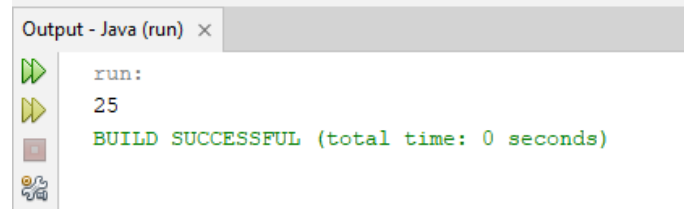
5.23 length():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class length {  
    public static void main(String[] args) {  
        String txt = "He is the most beautiful ";  
        System.out.println(txt.length());  
    }  
}
```

Output



The screenshot shows a Java IDE output window titled "Output - Java (run) x". It contains the following text: "run:", "25", and "BUILD SUCCESSFUL (total time: 0 seconds)". On the left side of the window, there are icons for running, debugging, and other IDE functions.

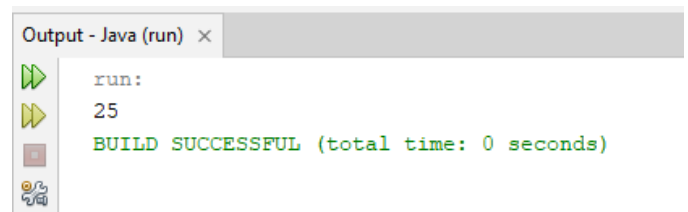
5.24 length():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class length {  
    public static void main(String[] args) {  
        String txt = "He is the most beautiful ";  
        System.out.println(txt.length());  
    }  
}
```

Output



The screenshot shows a Java IDE output window titled "Output - Java (run) x". It contains the following text: "run:", "25", and "BUILD SUCCESSFUL (total time: 0 seconds)". On the left side of the window, there are icons for running, debugging, and other IDE functions.

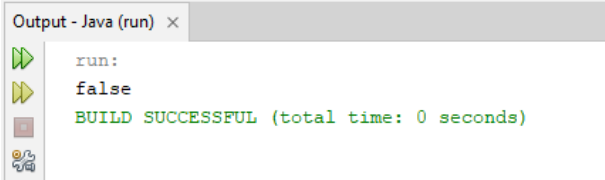
5.25 matches():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class matches {  
    public static void main(String[] args) {  
        String str = "mmmmmmmmmmmmmmmm";  
        boolean result = str.matches("[a-zA-Z]+\d+");  
        System.out.println(result);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
false  
BUILD SUCCESSFUL (total time: 0 seconds)
```

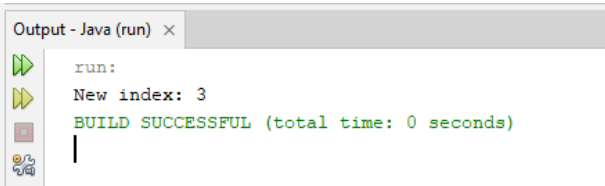
5.26 offsetByCodePoints()

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class offsetByCodePoints {  
    public static void main(String[] args) {  
        String str = "Hello, ?!";  
        int newIndex = str.offsetByCodePoints(0, 3);  
        System.out.println("New index: " + newIndex);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
New index: 3  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

5.27 regionMatches():

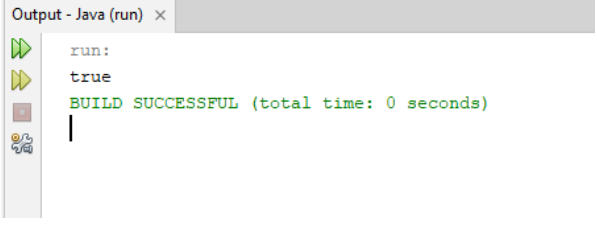
Java Code :

//Author of the code : Md.Mehedi Hasan

//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class regionMatches {  
    public static void main(String[] args) {  
        String str1 = "Hello, World!";  
        String str2 = "World";  
        boolean result = str1.regionMatches(7, str2, 0, 5);  
        System.out.println(result);  
    }  
}
```

Output



Output - Java (run) x

```
run:  
true  
BUILD SUCCESSFUL (total time: 0 seconds)
```

5.28 replace():

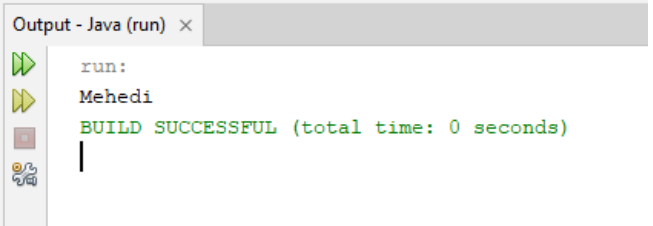
Java Code :

//Author of the code : Md.Mehedi Hasan

//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class replace {  
    public static void main(String[] args) {  
        String myStr = "Mehedi";  
        System.out.println(myStr.replace('b', 'e'));  
    }  
}
```

Output



Output - Java (run) x

```
run:  
Mehedi  
BUILD SUCCESSFUL (total time: 0 seconds)
```

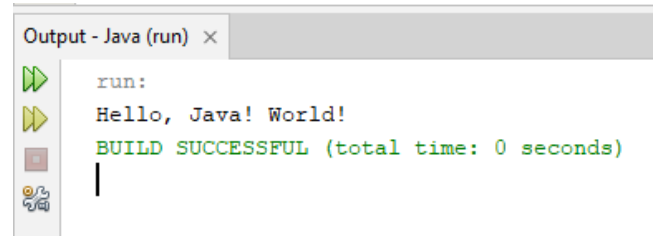
5.29 replaceFirst():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class replaceFirst {  
    public static void main(String[] args) {  
        String str = "Hello, World! World!";  
        String result = str.replaceFirst("World", "Java");  
        System.out.println(result);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Hello, Java! World!  
BUILD SUCCESSFUL (total time: 0 seconds)
```

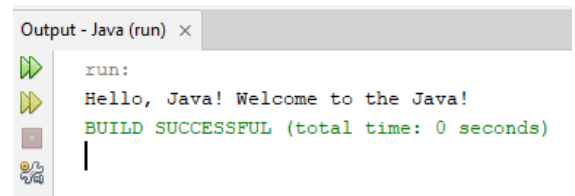
5.30 replaceAll():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class replaceAll {  
    public static void main(String[] args) {  
        String str = "Hello, World! Welcome to the World!";  
        String result = str.replaceAll("World", "Java");  
        System.out.println(result);  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Hello, Java! Welcome to the Java!  
BUILD SUCCESSFUL (total time: 0 seconds)
```

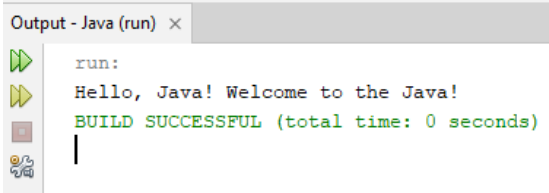

5.31 Split():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class Split {  
    public static void main(String[] args) {  
        String str = "apple,banana,cherry";  
        String[] fruits = str.split(",");  
        for (String fruit : fruits) {  
            System.out.println(fruit);  
        }  
    }  
}
```

Output



Output - Java (run) x

```
run:  
Hello, Java! Welcome to the Java!  
BUILD SUCCESSFUL (total time: 0 seconds)
```

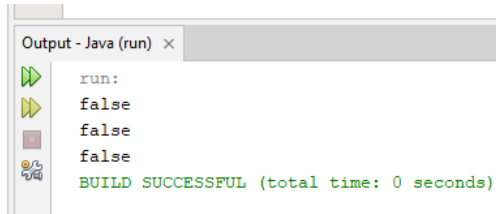
5.32 startsWith():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class startsWith {  
    public static void main(String[] args) {  
        String myStr = "mehedi";  
        System.out.println(myStr.startsWith("M"));  
        System.out.println(myStr.startsWith("e"));  
        System.out.println(myStr.startsWith("hedi"));  
    }  
}
```

Output



Output - Java (run) x

```
run:  
false  
false  
false  
BUILD SUCCESSFUL (total time: 0 seconds)
```

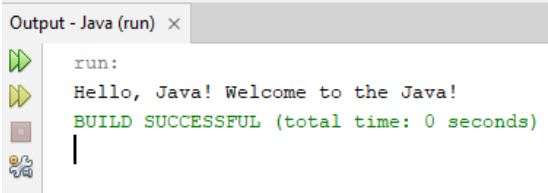
5.33 subSequence():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class Split {  
    public static void main(String[] args) {  
        String str = "apple,banana,cherry";  
        String[] fruits = str.split(",");  
        for (String fruit : fruits) {  
            System.out.println(fruit);  
        }  
    }  
}
```

Output



Output - Java (run) ×

run:
Hello, Java! Welcome to the Java!
BUILD SUCCESSFUL (total time: 0 seconds)

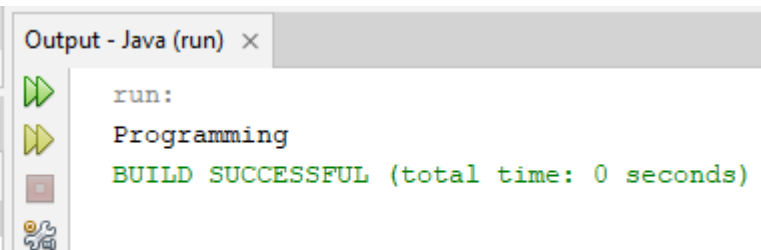
5.34 subString():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class substring {  
    public static void main(String[] args) {  
        String str = "Java Programming";  
        String sub = str.substring(5);  
        System.out.println(sub);  
    }  
}
```

Output



Output - Java (run) ×

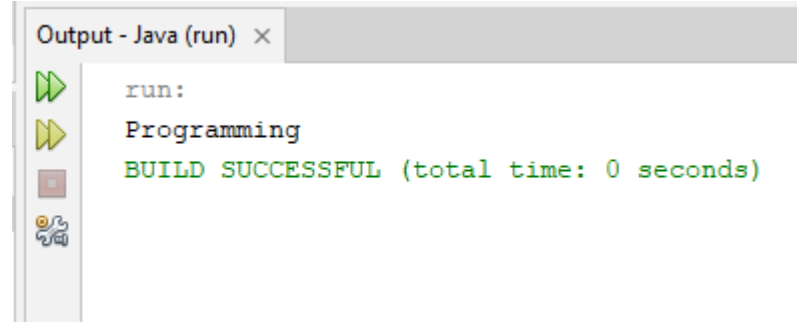
run:
Programming
BUILD SUCCESSFUL (total time: 0 seconds)

5.35 subString():

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
  
public class substring {  
    public static void main(String[] args) {  
        String str = "Java Programming";  
        String sub = str.substring(5);  
        System.out.println(sub);  
    }  
}
```

Output



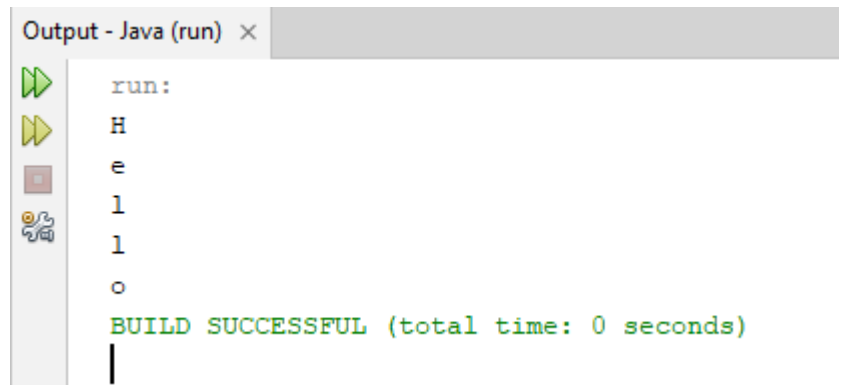
The screenshot shows the 'Output - Java (run)' window. It displays the output of the program: 'run: Programming' followed by 'BUILD SUCCESSFUL (total time: 0 seconds)'. The output is shown in a monospaced font with green text on a white background.

5.36 subString():

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
  
public class ToCharArray{  
    public static void main(String[] args) {  
        String str = "Hello";  
        char[] charArray = str.toCharArray();  
        for (char c : charArray) {  
            System.out.println(c);  
        }  
    }  
}
```

Output



The screenshot shows the 'Output - Java (run)' window. It displays the output of the program: 'run: H e l l o' followed by 'BUILD SUCCESSFUL (total time: 0 seconds)'. The output is shown in a monospaced font with green text on a white background.

5.37 toLowerCase():

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
  
public class ToLowerCase {  
    public static void main(String[]  
args) {  
        String str = "Mehedi , Hasan";  
        String lowerCaseStr =  
str.toLowerCase();  
        System.out.println(lowerCaseStr);  
    }  
}
```

Output

Output - Java (run) x

```
run:  
mehedi , hasan  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

5.38 toString():

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
  
public class toString {  
    public static void main(String[] args) {  
        Integer num = 100;  
        String str = num.toString();  
        System.out.println(str);  
    }  
}
```

Output

Output - Java (run) x

```
run:  
100  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

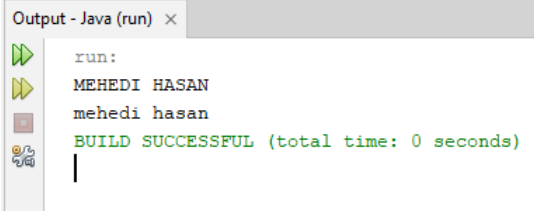
5.39 toString():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class toUpperCase {  
    public static void main(String[] args) {  
        String txt = "Mehedi Hasan";  
        System.out.println(txt.toUpperCase());  
        System.out.println(txt.toLowerCase());  
    }  
}
```

Output



Output - Java (run) ×

```
run:  
MEHEDI HASAN  
mehedi hasan  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

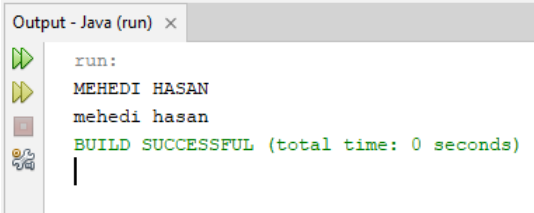
5.40 toUpperCase():

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class toUpperCase {  
    public static void main(String[] args) {  
        String txt = "Mehedi Hasan";  
        System.out.println(txt.toUpperCase());  
        System.out.println(txt.toLowerCase());  
    }  
}
```

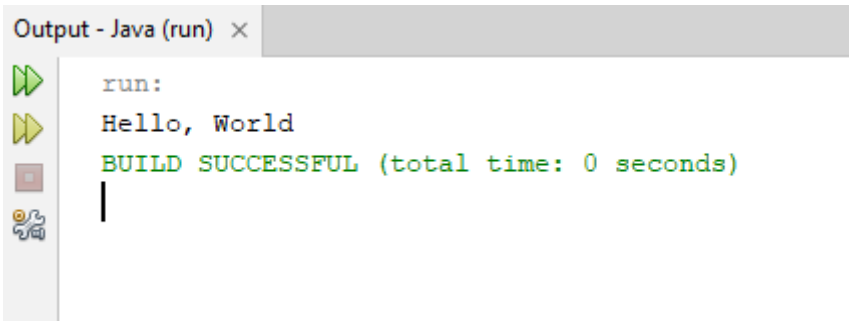
Output



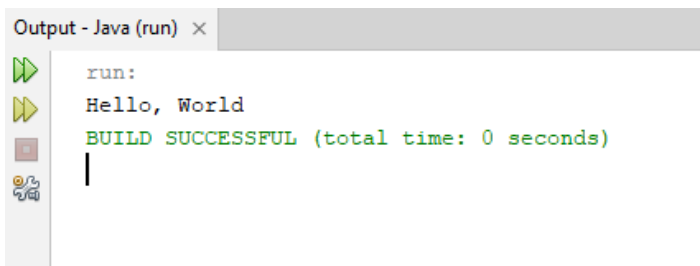
Output - Java (run) ×

```
run:  
MEHEDI HASAN  
mehedi hasan  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

5.41 trim():

Java Code : //Author of the code : Md.Mehedi Hasan //Github link: https://github.com/Mehedi-Hasan-soft-web-support <pre>public class trim { public static void main(String[] args) { String str = " Hello, World "; String trimmedStr = str.trim(); System.out.println(trimmedStr); } }</pre>	Output  <p>The screenshot shows the 'Output - Java (run)' window. It contains the text: 'run: Hello, World' followed by 'BUILD SUCCESSFUL (total time: 0 seconds)' on a new line. There is a vertical cursor at the end of the second line.</p>
--	---

5.42 valueOf():

Java Code : //Author of the code : Md.Mehedi Hasan //Github link: https://github.com/Mehedi-Hasan-soft-web-support <pre>public class valueOf { public static void main(String[] args) { int num = 10; double price = 19.99; char letter = 'A'; boolean isValid = true; String strNum = String.valueOf(num); String strPrice = String.valueOf(price); String strLetter = String.valueOf(letter); String strIsValid = String.valueOf(isValid); System.out.println(strNum); System.out.println(strPrice); System.out.println(strLetter); System.out.println(strIsValid); } }</pre>	Output  <p>The screenshot shows the 'Output - Java (run)' window. It contains the text: 'run: 10', '19.99', 'A', and 'true' on four separate lines. There is a vertical cursor at the end of the fourth line.</p>
---	---

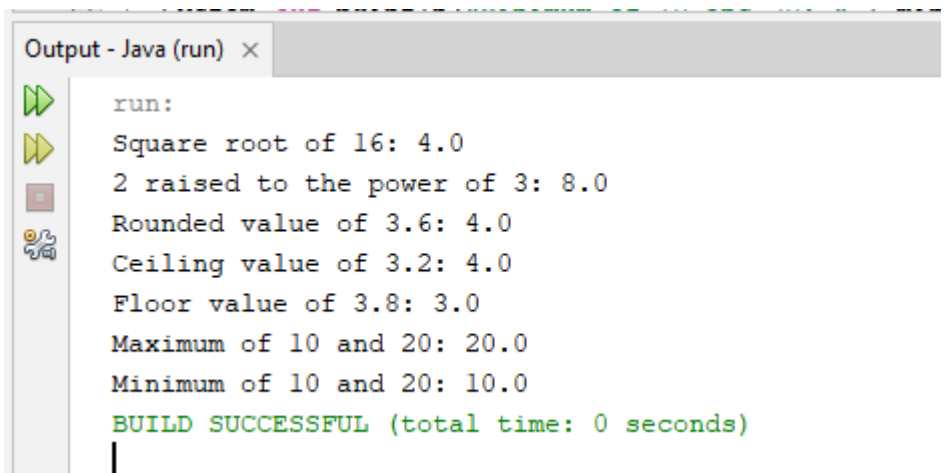
6 Java Math

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link:  
https://github.com/Mehedi-Hasan-soft-web-support
```

```
public class JavaMath  
{  
    public static void  
    main(String[] args) {  
        double sqrtValue =  
        Math.sqrt(16);  
        System.out.println("Square  
root of 16: " + sqrtValue);  
        double powerValue =  
        Math.pow(2, 3);  
        System.out.println("2 raised  
to the power of 3: " +  
        powerValue);  
        double roundedValue =  
        Math.round(3.6);  
        System.out.println("Rounded  
value of 3.6: " +  
        roundedValue);  
        double ceilingValue =  
        Math.ceil(3.2);  
        System.out.println("Ceiling  
value of 3.2: " + ceilingValue);  
        double floorValue =  
        Math.floor(3.8);  
        System.out.println("Floor  
value of 3.8: " + floorValue);  
        double maxValue =  
        Math.max(10, 20);  
        System.out.println("Maximum  
of 10 and 20: " + maxValue);  
        double minValue =  
        Math.min(10, 20);  
        System.out.println("Minimum  
of 10 and 20: " + minValue);  
    }  
}
```

Output



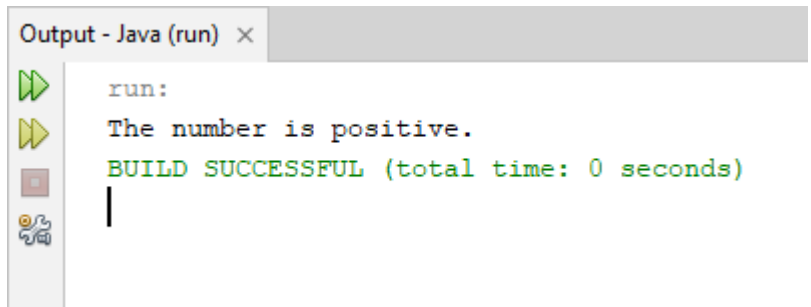
```
Output - Java (run) x  
run:  
Square root of 16: 4.0  
2 raised to the power of 3: 8.0  
Rounded value of 3.6: 4.0  
Ceiling value of 3.2: 4.0  
Floor value of 3.8: 3.0  
Maximum of 10 and 20: 20.0  
Minimum of 10 and 20: 10.0  
BUILD SUCCESSFUL (total time: 0 seconds)
```

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class ifelse {  
    public static void main(String[] args)  
    {  
        int number = 10;  
        if (number > 0) {  
            System.out.println("The number is  
positive.");  
        } else if (number < 0) {  
            System.out.println("The number is  
negative.");  
        } else {  
            System.out.println("The number is  
zero.");  
        }  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
The number is positive.  
BUILD SUCCESSFUL (total time: 0 seconds)
```

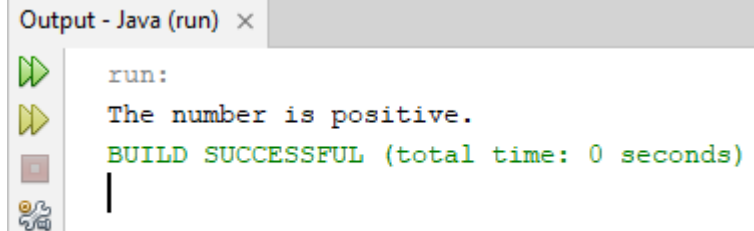

6.1 if, else, else if

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class ifelse {  
    public static void main(String[] args)  
    {  
        int number = 10;  
        if (number > 0) {  
            System.out.println("The number is  
positive.");  
        } else if (number < 0) {  
            System.out.println("The number is  
negative.");  
        } else {  
            System.out.println("The number is  
zero.");  
        }  
    }  
}
```

Output



The screenshot shows a window titled "Output - Java (run) x". On the left side of the window, there is a vertical toolbar with icons for running (a green play button), stepping through (a yellow play button), stopping (a red square), and debugging (a magnifying glass over a bug). The main area of the window displays the output of the program: "run:" followed by "The number is positive." and "BUILD SUCCESSFUL (total time: 0 seconds)". A vertical cursor is positioned at the end of the output text.

```
run:  
The number is positive.  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

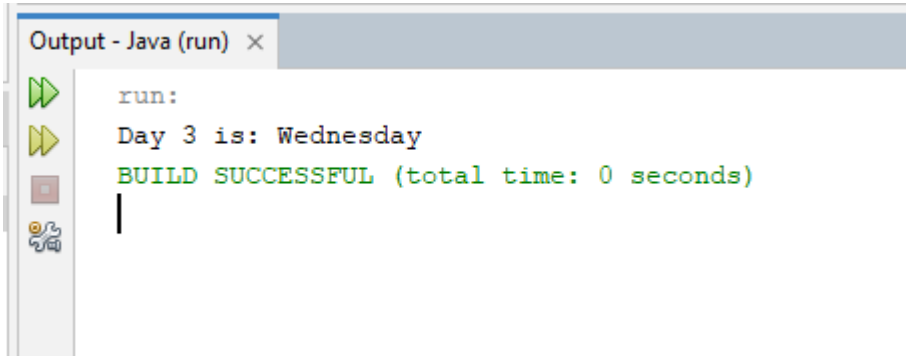
6.2 switch-case

Java Code :

```
//Author of the code : Md.Mehedi  
Hasan  
//Github link:  
https://github.com/Mehedi-Hasan-  
soft-web-support
```

```
public class switch_case {  
    public static void  
main(String[] args) {  
    int day = 3;  
    String dayName;  
  
    switch (day) {  
        case 1:  
            dayName =  
"Monday";  
            break;  
        case 2:  
            dayName =  
"Tuesday";  
            break;  
        case 3:  
            dayName =  
"Wednesday";  
            break;  
        case 4:  
            dayName =  
"Thursday";  
            break;  
        case 5:  
            dayName =  
"Friday";  
            break;  
        case 6:  
            dayName =  
"Saturday";  
            break;  
        case 7:  
            dayName =  
"Sunday";  
            break;  
        default:  
            dayName =  
"Invalid day";  
            break;  
    }  
}
```

Output



```
Output - Java (run) x  
run:  
Day 3 is: Wednesday  
BUILD SUCCESSFUL (total time: 0 seconds)
```

```
System.out.println("Day " +  
day + " is: " + dayName);  
}  
}
```

7 Java Loop:

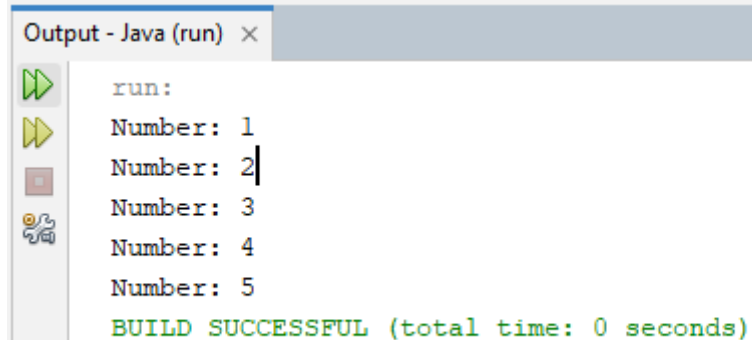
7.1 For-Loop

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link:
<https://github.com/Mehedi-Hasan-soft-web-support>

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

Output



Output - Java (run) x

run:
Number: 1
Number: 2
Number: 3
Number: 4
Number: 5
BUILD SUCCESSFUL (total time: 0 seconds)

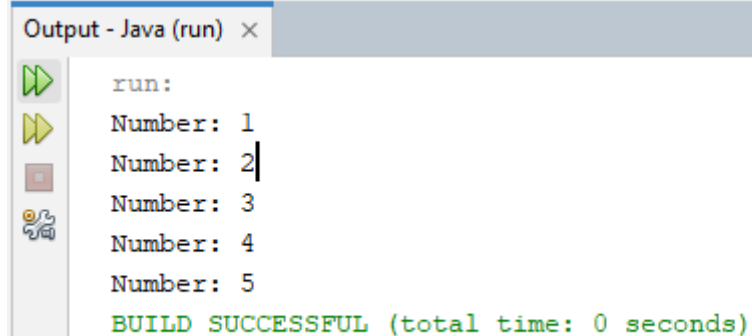
8.1 For-Loop

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link:
<https://github.com/Mehedi-Hasan-soft-web-support>

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

Output



Output - Java (run) x

run:
Number: 1
Number: 2
Number: 3
Number: 4
Number: 5
BUILD SUCCESSFUL (total time: 0 seconds)

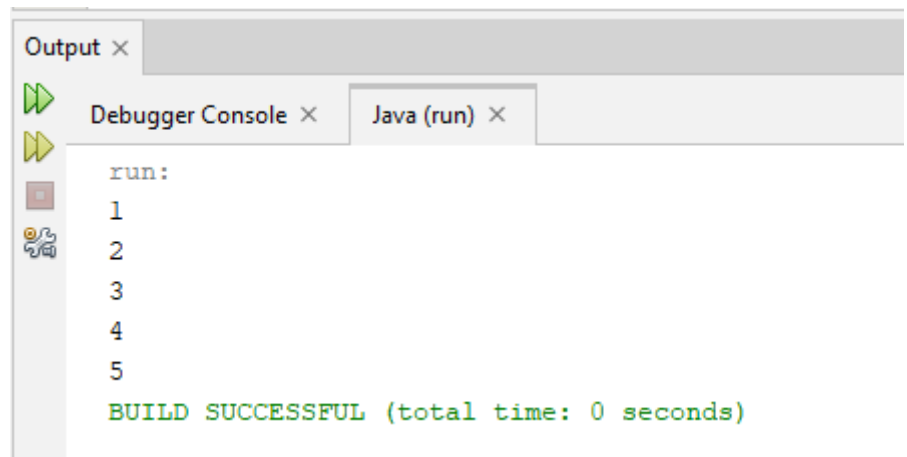
8.2 While Loop

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

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

Output



```
Output x  
Debugger Console x Java (run) x  
run:  
1  
2  
3  
4  
5  
BUILD SUCCESSFUL (total time: 0 seconds)
```

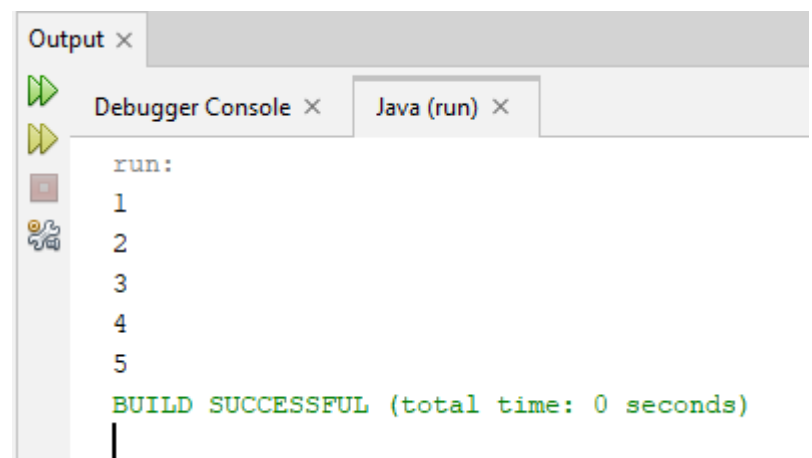
8.3 Do While Loop

Java Code :

//Author of the code : Md.Mehedi Hasan
//Github link: <https://github.com/Mehedi-Hasan-soft-web-support>

```
public class dowhile{  
    public static void main(String[] args)  
    {  
        int i = 1;  
        do {  
            System.out.println(i);  
            i++;  
        }  
        while (i <= 5);  
    }  
}
```

Output



```
Output x  
Debugger Console x Java (run) x  
run:  
1  
2  
3  
4  
5  
BUILD SUCCESSFUL (total time: 0 seconds)
```

9 java break continue

Java Code :

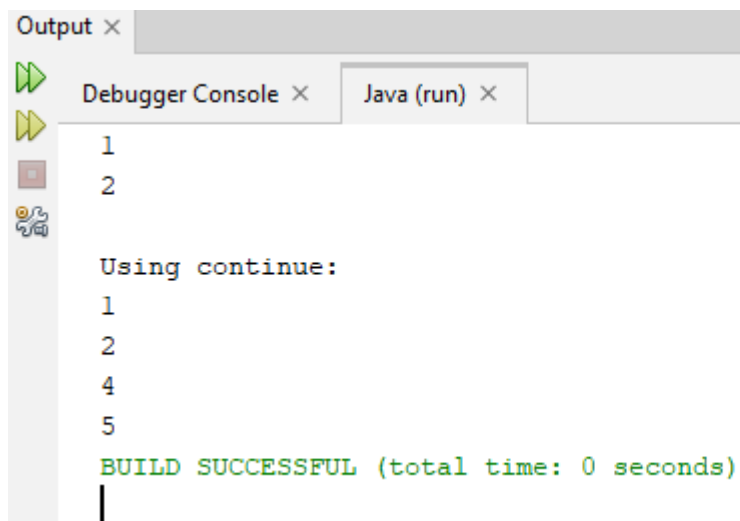
```
//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-web-support

public class breakcont{
    public static void
    main(String[] args) {

        System.out.println("Using
        break:");
        for (int i = 1; i <= 5; i++)
        {
            if (i == 3) {
                break; // loop
                stops when i == 3
            }
            System.out.println(i);
        }

        System.out.println("\nUsing
        continue:");
        for (int i = 1; i <= 5; i++)
        {
            if (i == 3) {
                continue; // skips
                the rest of the loop body
                when i == 3
            }
            System.out.println(i);
        }
    }
}
```

Output



```
Output x
Debugger Console x  Java (run) x
1
2
Using continue:
1
2
4
5
BUILD SUCCESSFUL (total time: 0 seconds)
```

10 Java Array: 1D Array, 2D Array

Java Code :

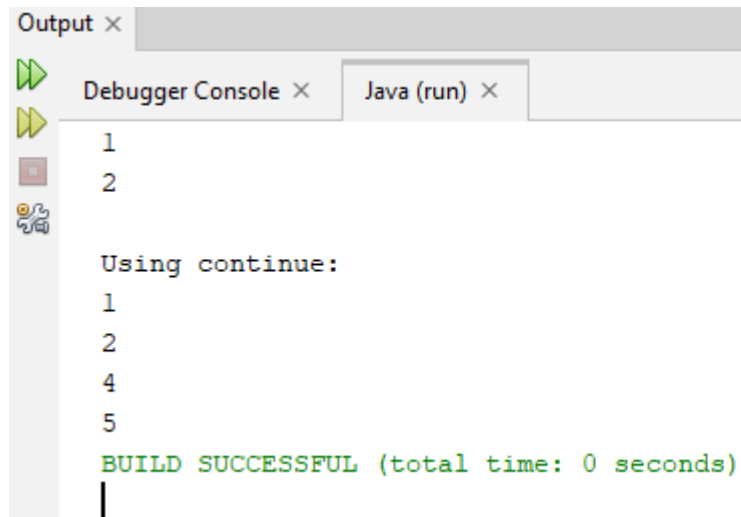
```
//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-web-support

public class breakcont{
    public static void
    main(String[] args) {

        System.out.println("Using
        break:");
        for (int i = 1; i <= 5; i++)
        {
            if (i == 3) {
                break; // loop
                stops when i == 3
            }
            System.out.println(i);
        }

        System.out.println("\nUsing
        continue:");
        for (int i = 1; i <= 5; i++)
        {
            if (i == 3) {
                continue; // skips
                the rest of the loop body
                when i == 3
            }
            System.out.println(i);
        }
    }
}
```

Output



```
Output x
Debugger Console x Java (run) x
1
2
Using continue:
1
2
4
5
BUILD SUCCESSFUL (total time: 0 seconds)
```

11 java break continue

Java Code :

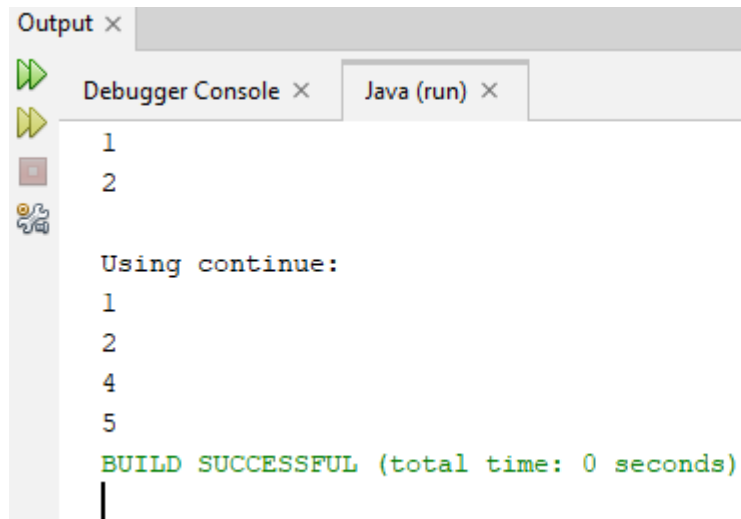
```
//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-web-support

public class breakcont{
    public static void
    main(String[] args) {

        System.out.println("Using
        break:");
        for (int i = 1; i <= 5; i++)
        {
            if (i == 3) {
                break; // loop
                stops when i == 3
            }
            System.out.println(i);
        }

        System.out.println("\nUsing
        continue:");
        for (int i = 1; i <= 5; i++)
        {
            if (i == 3) {
                continue; // skips
                the rest of the loop body
                when i == 3
            }
            System.out.println(i);
        }
    }
}
```

Output



```
Output x
Debugger Console x  Java (run) x

1
2

Using continue:
1
2
4
5

BUILD SUCCESSFUL (total time: 0 seconds)
```


12 Java User Input (Scanner): nextLine(), nextBoolean(), nextByte(), nextDouble(), nextFloat(), nextInt(), nextLong(), nextShort()

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
import java.util.scanner

public class UserInputExample{
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
System.out.print("Enter a string: ");
String text = scanner.nextLine();
System.out.print("Enter a boolean (true/false): ");
boolean boolVal = scanner.nextBoolean();
System.out.print("Enter a byte: ");
byte byteVal = scanner.nextByte();
System.out.print("Enter a short: ");
short shortVal = scanner.nextShort();
System.out.print("Enter an integer: ");
int intVal = scanner.nextInt();
System.out.print("Enter a long: ");
long longVal = scanner.nextLong();
System.out.print("Enter a float: ");
float floatVal = scanner.nextFloat();
System.out.print("Enter a double: ");
double doubleVal = scanner.nextDouble();
System.out.println("\nYou entered:");
System.out.println("String: " + text);
System.out.println("Boolean: " + boolVal);
System.out.println("Byte: " + byteVal);
System.out.println("Short: " + shortVal);
System.out.println("Integer: " + intVal);
System.out.println("Long: " + longVal);
System.out.println("Float: " + floatVal);
System.out.println("Double: " + doubleVal);
scanner.close();
}
}
```

Output

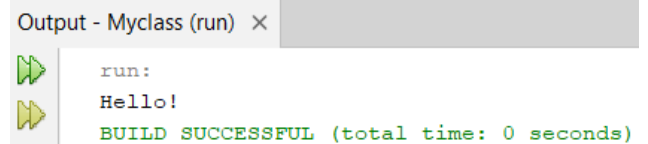
```
Enter a string: Hello
Enter a boolean (true/false): true
Enter a byte: 10
Enter a short: 100
Enter an integer: 5000
Enter a long: 123456789
Enter a float: 5.5
Enter a double: 10.25
You entered:
String: Hello
Boolean: true
Byte: 10
Short: 100
Integer: 5000
Long: 123456789
Float: 5.5
Double: 10.25
```

13 Java Methods

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
import java.util.scanner
public class NewClass {
static void greet() {
System.out.println("Hello!");
}
public static void main(String[] args) {
greet();
}
}
```

Output



```
Output - Myclass (run) ×
run:
Hello!
BUILD SUCCESSFUL (total time: 0 seconds)
```

13.1 Method with arguments but no return value

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
public class NewClass {
static void printName(String name) {
System.out.println("My Name: " + name);
}
public static void main(String[] args) {
printName("Mehedi Hasan");
}
}
```

Output

My Name :Mehedi Hasan

13.2 Method with arguments but no return value

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
public class NewClass {  
    static void printName(String name) {  
        System.out.println("My Name: " + name);  
    }  
    public static void main(String[] args) {  
        printName("Mehedi Hasan");  
    }  
}
```

Output

My Name :Mehedi Hasan

13.3 Method with arguments but no return value

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support  
public class NewClass {  
    static String getName() {  
        return "Mehedi Hasan";  
    }  
    public static void main(String[] args) {  
        String name = getName();  
        System.out.println("My Name: " + name);  
    }  
}
```

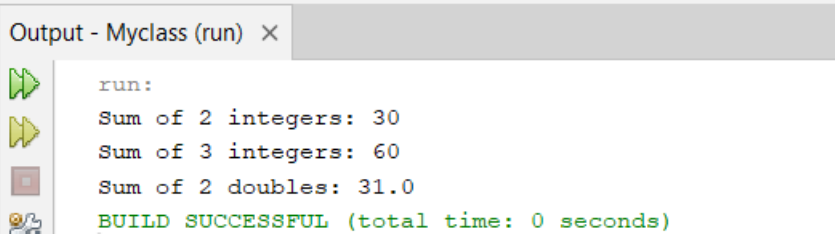
Output

My Name :Mehedi Hasan

13.4 Method with arguments and return value.

Java Code : //Author of the code : Md.Mehedi Hasan //Github link: https://github.com/Mehedi-Hasan-soft-web-support public class NewClass { static String greetPerson(String name) { return "Hello, " + name + "!"; } public static void main(String[] args) { String greeting = greetPerson("Mehedi"); System.out.println(greeting); } }	Output Hello Mehedi
---	--------------------------------------

14. . Java Method Overloading

Java Code : //Author of the code : Md.Mehedi Hasan //Github link: https://github.com/Mehedi-Hasan-soft-web-support public class NewClass { static int add(int a, int b) { return a + b; } static int add(int a, int b, int c) { return a + b + c; } static double add(double a, double b) { return a + b; } public static void main(String[] args) { System.out.println("Sum of 2 integers: " + add(10, 20)); System.out.println("Sum of 3 integers: " + add(10, 20, 30)); System.out.println("Sum of 2 doubles: " + add(10.5, 20.5)); } }	Output 
---	---

14. Problem Solving with User Input

14.1 Check Leap Year

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
package leapyearcheck;

import java.util.Scanner;

public class LeapYearCheck {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a year: ");
        int year = scanner.nextInt();

        boolean isLeapYear = (year % 4 == 0 && (year % 100 != 0 || year % 400 == 0));

        if (isLeapYear) {
            System.out.println(year + " is a Leap Year.");
        } else {
            System.out.println(year + " is not a Leap Year.");
        }

        scanner.close();
    }
}
```

Output

Output - LeapYearCheck (run) ×

```
run:
Enter a year: 2025
2025 is not a Leap Year.
BUILD SUCCESSFUL (total time: 7 seconds)
```

14.2 BMI Calculator

Java Code :

```
//Author of the code : Md.Mehedi Hasan  
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
```

```
package bmi.calculator;  
  
import java.util.Scanner;  
  
public class BMICalculator {  
    public static void  
    main(String[] args) {  
        Scanner scanner = new  
        Scanner(System.in);  
  
        System.out.print("Enter  
your weight (in kilograms): ");  
        double weight =  
        scanner.nextDouble();  
  
        System.out.print("Enter  
your height (in meters): ");  
        double height =  
        scanner.nextDouble();  
  
        double bmi = weight /  
(height * height);  
        System.out.println("Your  
BMI is: " + bmi);  
  
        if (bmi < 18.5) {  
            System.out.println("You  
are underweight.");  
        } else if (bmi >= 18.5 &&  
bmi < 24.9) {  
            System.out.println("You  
have a normal weight.");  
        } else if (bmi >= 25 && bmi  
< 29.9) {  
            System.out.println("You  
are overweight.");  
        } else {  
            System.out.println("You  
are obese.");  
        }  
  
        scanner.close();  
    }  
}
```

Output

```
Output - BMI Calculator (run) ×  
  
run:  
Enter your weight (in kilograms): 65  
Enter your height (in meters): 1.524  
Your BMI is: 27.986167083445277  
You are overweight.  
BUILD SUCCESSFUL (total time: 41 seconds)
```

--	--

14.2 Calculate the Area of Triangle

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
import java.util.Scanner;

public class BMICalculator {
    public static void main(String[] args) {
        Scanner scanner = new
Scanner(System.in);
System.out.print("Enter the base of the
triangle (in meters): ");
double base = scanner.nextDouble();
System.out.print("Enter the height of the
triangle (in meters): ");
double height = scanner.nextDouble();
double area = 0.5 * base * height;
System.out.println("The area of the
triangle is: " + area + " square meters.");
scanner.close();
}
}
```

Output

Output - BMI Calculator (run) ×

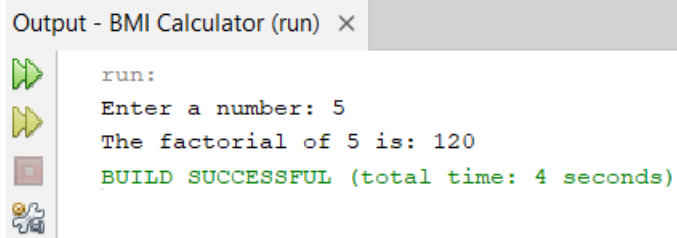
```
run:
Enter the base of the triangle (in meters): 10
Enter the height of the triangle (in meters): 20
The area of the triangle is: 100.0 square meters.
BUILD SUCCESSFUL (total time: 37 seconds)
```

14.2 Calculate Factorial

Java Code :

```
//Author of the code :  
Md.Mehedi Hasan  
//Github link:  
https://github.com/Mehedi-Hasan-soft-web-support  
package  
bmi.calculator;  
  
import  
java.util.Scanner;  
  
public class  
BMICalculator {  
    public static void  
    main(String[] args) {  
        Scanner scanner = new  
        Scanner(System.in);  
        System.out.print("Enter  
a number: ");  
        int num =  
        scanner.nextInt();  
        long factorial = 1;  
        for (int i = 1; i <= num;  
        i++) {  
            factorial *= i;  
        }  
        System.out.println("The  
factorial of " + num + "  
is: " + factorial);  
        scanner.close();  
    }  
}
```

Output



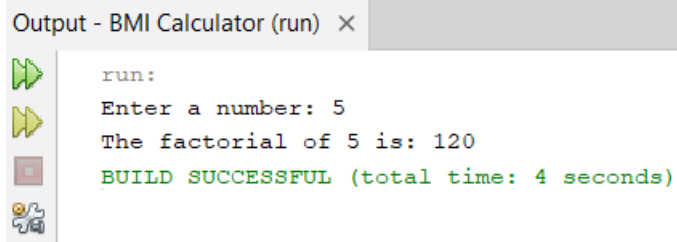
```
run:  
Enter a number: 5  
The factorial of 5 is: 120  
BUILD SUCCESSFUL (total time: 4 seconds)
```


14.3 Calculate Factorial

Java Code :

```
//Author of the code :  
Md.Mehedi Hasan  
//Github link:  
https://github.com/Mehedi-Hasan-soft-web-support  
package  
bmi.calculator;  
  
import  
java.util.Scanner;  
  
public class  
BMICalculator {  
    public static void  
    main(String[] args) {  
        Scanner scanner = new  
        Scanner(System.in);  
        System.out.print("Enter  
a number: ");  
        int num =  
        scanner.nextInt();  
        long factorial = 1;  
        for (int i = 1; i <= num;  
        i++) {  
            factorial *= i;  
        }  
        System.out.println("The  
factorial of " + num + "  
is: " + factorial);  
        scanner.close();  
    }  
}
```

Output



```
run:  
Enter a number: 5  
The factorial of 5 is: 120  
BUILD SUCCESSFUL (total time: 4 seconds)
```

14.4 Counting Vowels in a String

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
import java.util.Scanner;

public class NewClass {
    public static void main(String[]
args) {
Scanner scanner = new
Scanner(System.in);
System.out.print("Enter a string: ");
String str = scanner.nextLine();
int count = 0;
str = str.toLowerCase();
for (int i = 0; i < str.length(); i++) {
char ch = str.charAt(i);
if (ch == 'a' || ch == 'e' || ch == 'i' ||
ch == 'o' || ch == 'u') {
count++;
}
}
System.out.println("Number of
vowels: " + count);
scanner.close();
}
```

Output

Output - Myclass (run) ×



```
run:
Enter a string: Hi
Number of vowels: 1
BUILD SUCCESSFUL (total time: 11 seconds)
```

14.5 Prime Factorization

Java Code :

```
//Author of the code : Md.Mehedi Hasan
//Github link: https://github.com/Mehedi-Hasan-soft-web-support
import java.util.Scanner;

public class NewClass {
    public static void main(String[]
args) {
Scanner scanner = new
Scanner(System.in);
System.out.print("Enter a
number: ");
int num = scanner.nextInt();
System.out.print("Prime factors
of " + num + " are: ");
while (num % 2 == 0) {
System.out.print(2 + " ");
num /= 2;
}
// Check for odd factors starting
from 3
for (int i = 3; i * i <= num; i += 2) {
while (num % i == 0) {
System.out.print(i + " ");
num /= i;
}
}
if (num > 2) {
System.out.print(num);
}
System.out.println();
scanner.close();
}
}
```

Output

Output - Myclass (run) ×



```
run:
Enter a number: 100
Prime factors of 100 are: 2 2 5 5
BUILD SUCCESSFUL (total time: 7 seconds)
```

14.6 Reverse a Number

Java Code :

```
//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-
web-support
import java.util.Scanner;

public class NewClass {
    public static void
    main(String[] args) {
        Scanner scanner = new
        Scanner(System.in);
        System.out.print("Enter a
        number: ");
        int num = scanner.nextInt();
        int reversed = 0;
        while (num != 0) {
            int digit = num % 10;
            reversed = reversed * 10 +
            digit;
            num /= 10;
        }
        System.out.println("Reversed
        number: " + reversed);
        scanner.close();
    }
}
```

Output

Output - Myclass (run) ×

```
run:
Enter a number: 123456
Reversed number: 654321
BUILD SUCCESSFUL (total time: 6 seconds)
```

14.8 Fibonacci Series

Java Code :

```
//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-web-support
import java.util.Scanner;

public class NewClass {
    public static void
    main(String[] args) {
        Scanner scanner = new
        Scanner(System.in);
        System.out.print("Enter the
        number of terms in the
        Fibonacci series: ");
        int terms =
        scanner.nextInt();
        int first = 0, second = 1;
        System.out.print("Fibonacci
        Series: ");
        for (int i = 1; i <= terms; i++)
        {
            System.out.print(first + " ");
            int nextTerm = first +
            second;
            first = second;
            second = nextTerm;
        }
        System.out.println();
        scanner.close();
    }
}
```

Output

Output - Myclass (run) ×



run:

```
Enter the number of terms in the Fibonacci series: 5
Fibonacci Series: 0 1 1 2 3
BUILD SUCCESSFUL (total time: 7 seconds)
```

14.9 Sum of Natural Numbers (1 to 100)

Java Code :

//Author of the code : Md.Mehedi
Hasan
//Github link:
<https://github.com/Mehedi-Hasan-soft-web-support>

```
import java.util.Scanner;  
  
public class NewClass {  
    public static void  
main(String[] args) {  
int sum = 0;  
for (int i = 1; i <= 100; i++)  
{  
sum += i;  
}  
System.out.println("The  
sum of natural numbers  
from 1 to 100 is: " + sum);  
}  
}
```

Output

Output - Myclass (run) ×



run:

The sum of natural numbers from 1 to 100 is: 5050
BUILD SUCCESSFUL (total time: 0 seconds)

15 Java Constructors & Constructor Overloading

Java Code :

//Author of the code :
Md.Mehedi Hasan
//Github link:
<https://github.com/Mehedi-Hasan-soft-web-support>

```
import  
java.util.Scanner;
```

```
public class NewClass {  
    public static void  
    main(String[] args) {  
        int sum = 0;  
        for (int i = 1; i <= 100;  
            i++) {  
            sum += i;  
        }  
        System.out.println("The  
        sum of natural  
        numbers from 1 to 100  
        is: " + sum);  
    }  
}
```

Output



```
run:  
Name: Unknown, Age: 0  
Name: Maria, Age: 21  
BUILD SUCCESSFUL (total time: 0 seconds)
```

16 . Encapsulation in Java

Java Code :

```
//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-web-support

class Person {
    private String name;
    private int age;

    public void
setName(String name) {
    this.name = name;
}

    public String getName() {
    return name;
}

    public void setAge(int
age) {
    if (age > 0) {
        this.age = age;
    } else {

System.out.println("Invalid
age");
    }
}


    public int getAge() {
    return age;
}

    public void display() {

System.out.println("Name:
" + name + ", Age: " + age);
    }
}

public class Mehedi {
    public static void
main(String[] args) {
        Person person = new
Person();
```

Output



```
run:
Name: Unknown, Age: 0
Name: Maria, Age: 21
BUILD SUCCESSFUL (total time: 0 seconds)
```



```

person.setName("Mehedi");
    person.setAge(20);
    person.display();

System.out.println("Name:
" + person.getName());

System.out.println("Age: " +
person.getAge());
    }
}

```

17 Inheritance and Polymorphism in Java

Java Code :

```

//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-web-support

class Animal {
    public void sound() {

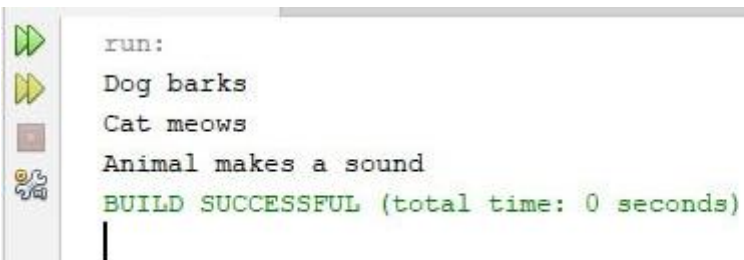
System.out.println("Animal
makes a sound");
    }
}

class Dog extends Animal {
    @Override
    public void sound() {

System.out.println("Dog
barks");
    }
}

```

Output



```

run:
Dog barks
Cat meows
Animal makes a sound
BUILD SUCCESSFUL (total time: 0 seconds)

```

```
class Cat extends Animal {
    @Override
    public void sound() {

System.out.println("Cat
meows");
    }
}

public class Mehedi {
    public static void
main(String[] args) {
    Animal myDog = new
Dog();
    Animal myCat = new
Cat();
    Animal genericAnimal
= new Animal();

    myDog.sound();
// Calls Dog's version
    myCat.sound();    //
Calls Cat's version

genericAnimal.sound(); //
Calls Animal's version
    }
}
```

18 Abstraction in Java

Java Code :

```
//Author of the code : Md.Mehedi
Hasan
//Github link:
https://github.com/Mehedi-Hasan-soft-web-support

abstract class Animal {
    public abstract void
    sound();
    public void sleep() {
        System.out.println("This
        animal is sleeping");
    }
}

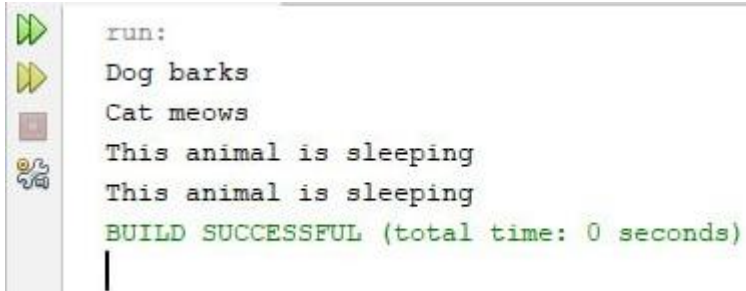
class Dog extends Animal {
    @Override
    public void sound() {
        System.out.println("Dog
        barks");
    }
}

class Cat extends Animal {
    @Override
    public void sound() {
        System.out.println("Cat
        meows");
    }
}

public class Mehedi {
    public static void
    main(String[] args) {
        Animal myDog = new
        Dog();
        Animal myCat = new Cat();
        myDog.sound();
        myCat.sound();
        myDog.sleep();
        myCat.sleep();
    }
}

        myCat.sound();    //
Calls Cat's version
```

Output



```
run:
Dog barks
Cat meows
This animal is sleeping
This animal is sleeping
BUILD SUCCESSFUL (total time: 0 seconds)
|
```

```
genericAnimal.sound(); //  
Calls Animal's version  
}  
}
```

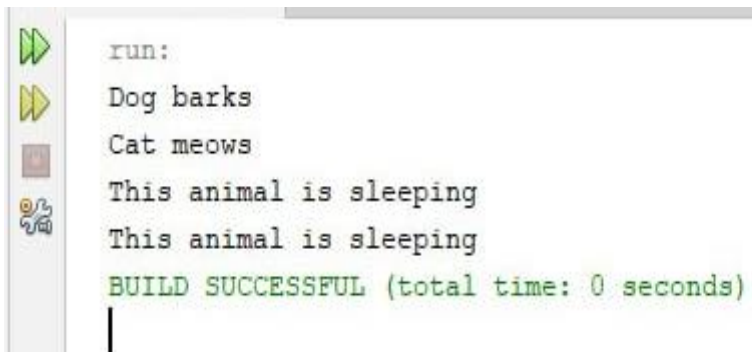
19 Java ArrayList

Java Code :

```
//Author of the code : Md.Mehedi  
Hasan  
//Github link:  
https://github.com/Mehedi-Hasan-  
soft-web-support
```

```
abstract class Animal {  
    public abstract void  
    sound();  
    public void sleep() {  
        System.out.println("This  
animal is sleeping");  
    }  
}  
class Dog extends Animal {  
    @Override  
    public void sound() {  
        System.out.println("Dog  
barks");  
    }  
}
```

Output



```
run:  
Dog barks  
Cat meows  
This animal is sleeping  
This animal is sleeping  
BUILD SUCCESSFUL (total time: 0 seconds)  
|
```

```
}  
}  
class Cat extends Animal {  
    @Override  
    public void sound() {  
        System.out.println("Cat  
meows");  
    }  
}  
  
public class Mehedi {  
    public static void  
    main(String[] args) {  
        Animal myDog = new  
        Dog();  
        Animal myCat = new Cat();  
        myDog.sound();  
        myCat.sound();  
        myDog.sleep();  
        myCat.sleep();  
    }  
}  
    myCat.sound();    //  
Calls Cat's version  
  
genericAnimal.sound(); //  
Calls Animal's version  
    }  
}
```