In this article, we will demonstrate the use of `printf()` method in Java.

Java printf() method overview

Well, the `printf()` method is not only there in C, but also in Java. This method belongs to the `PrintStream` class. It's used to print formatted strings using various format specifiers.

Syntax

Following are the syntaxes available for the `printf()` method:

```
System.out.printf(string);
System.out.printf(format, arguments);
System.out.printf(locale, format, arguments);
```

Format Specifiers

Let's look at the available format specifiers available for `printf()` method:

```
%c character
%d decimal (integer) number (base 10)
%e exponential floating-point number
%f floating-point number
%i integer (base 10)
%o octal number (base 8)
%s String
%u unsigned decimal (integer) number
%x number in hexadecimal (base 16)
%t formats date/time
%% print a percent sign
\% print a percent sign
```

Note: %n or \n are used as line separators in `printf()`.

Escape Characters

Following are the escape characters available in `printf()`:

```
\b backspace
\f next line first character starts to the right of current line last character
\n newline
\r carriage return
\t tab
\\ backslash
```

Number Formatting Example

```
public class Main{

    public static void main(String []args){
        int x = 20;
        System.out.printf("Formatted output is: %d %d%n", x, -x);
```

```java
        float y = 2.28f;
        System.out.printf("Precision formatting upto 4 decimal places %.4f\n",y);
        float z = 3.147293165f;
        System.out.printf("Precision formatting upto 2 decimal places %.2f\n",z);
    }
}
```

Output:

```
Formatted output is: 20 -20
Precision formatting upto 4 decimal places 2.2800
Precision formatting upto 2 decimal places 3.15
```

String Formatting Example

```java
public class Main{

    public static void main(String []args){
      System.out.printf("%s %s!%n","Hello","World");
      System.out.printf("%s\f%s!%n","Hello","World!");
      System.out.printf("%s\\%s!%n","Hello","World!");
      System.out.printf("%s %S!%n","Hello","World");
    }
}
```

Output:

```
Hello World!
HelloWorld!!
Hello\World!!
Hello WORLD!
```

Boolean Formatting Example

```java
public class Main{

    public static void main(String []args){
       System.out.printf("%b%n", false);
       System.out.printf("%b%n", 0.5);
       System.out.printf("%b%n", "false");
    }
}
```

Output:

```
false
true
true
```

Time Formatting Example

```java
import java.util.Date;

public class Main{

    public static void main(String []args){
        Date date = new Date();
        System.out.printf("%tT%n", date);
        System.out.printf("H : %tH, M: %tM, S: %tS%n",date,date,date);
    }
}
```

Output:

```
13:48:39
H : 13, M: 48, S: 39
```

Date Formatting Example

```java
import java.util.Date;

public class Main{

    public static void main(String []args){
        Date date = new Date();
        System.out.printf("%s %tB %<te, %<tY", "Current date: ", date);
        System.out.printf("%1$td.%1$tm.%1$ty %n", date);
        System.out.printf("%s %tb %<te, %<ty", "Current date: ", date);
    }
}
```

Output:

```
Current date:  April 24, 202224.04.22
Cur
```