

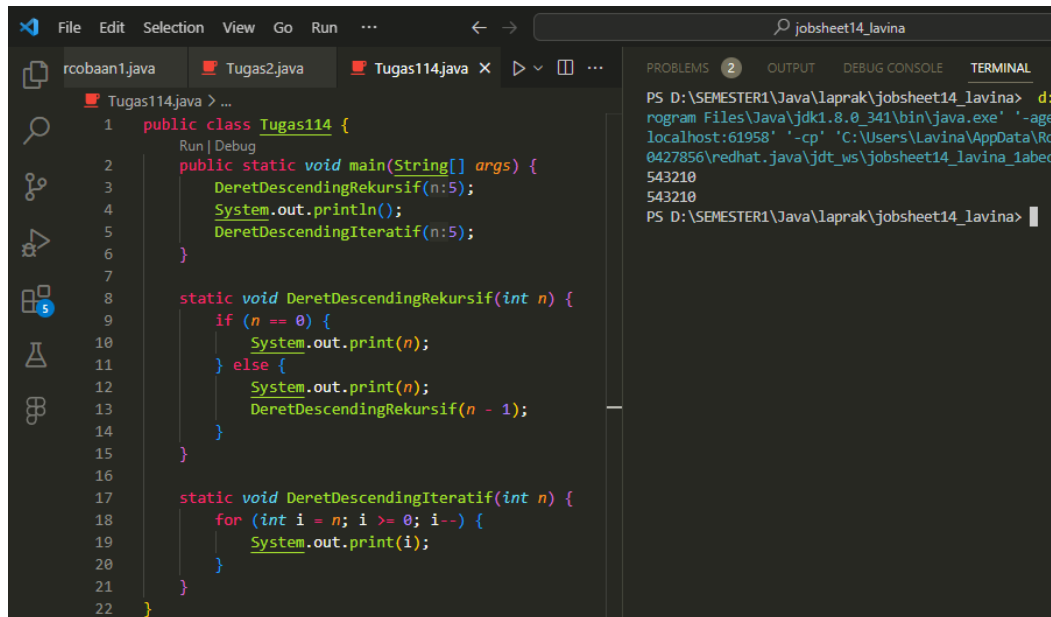
LAPORAN

Fungsi 2 Part 2

Lavina 2341760062

Tugas !

1. Buatlah program untuk menampilkan bilangan n sampai 0 dengan menggunakan fungsi rekursif dan fungsi iteratif. (DeretDescendingRekursif).

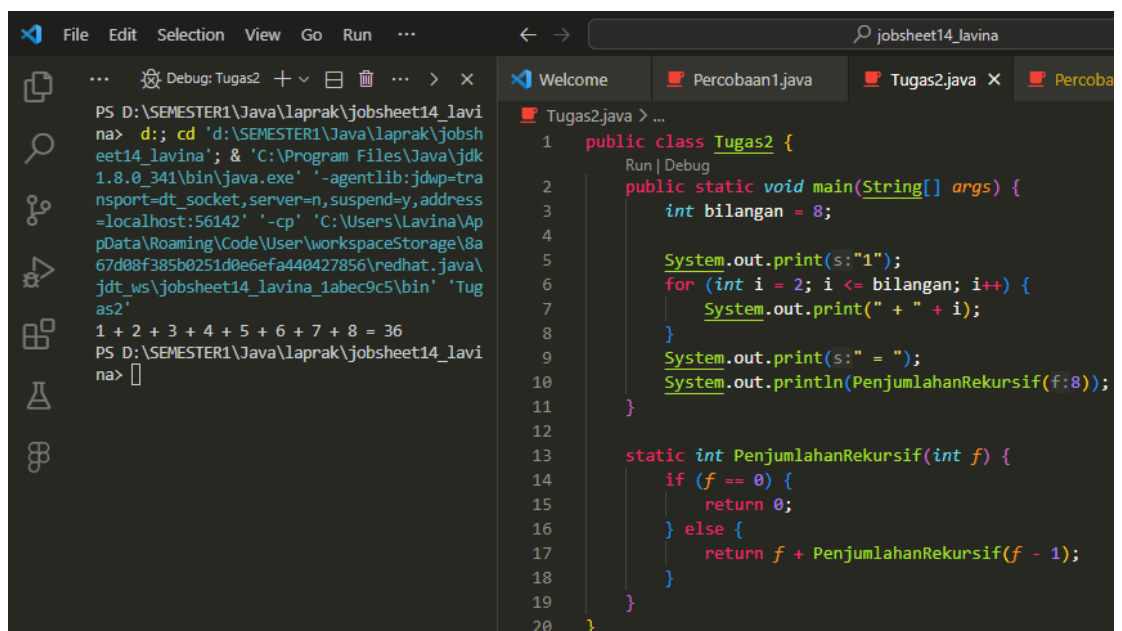


```
1 public class Tugas114 {
2     public static void main(String[] args) {
3         DeretDescendingRekursif(n:5);
4         System.out.println();
5         DeretDescendingIteratif(n:5);
6     }
7
8     static void DeretDescendingRekursif(int n) {
9         if (n == 0) {
10             System.out.print(n);
11         } else {
12             System.out.print(n);
13             DeretDescendingRekursif(n - 1);
14         }
15     }
16
17     static void DeretDescendingIteratif(int n) {
18         for (int i = n; i >= 0; i--) {
19             System.out.print(i);
20         }
21     }
22 }
```

Terminal output:

```
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina> d:
rogram Files\Java\jdk1.8.0_341\bin\java.exe' '-age
localhost:61958' '-cp' 'C:\Users\Lavina\AppData\Ro
0427856\redhat.java\jdt_ws\jobsheet14_lavina_labe
543210
543210
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>
```

2. Buatlah program yang di dalamnya terdapat fungsi rekursif untuk menghitung penjumlahan bilangan. Misalnya f = 8, maka akan dihasilkan 1+2+3+4+5+6+7+8 = 36 (PenjumlahanRekursif).



```
1 public class Tugas2 {
2     public static void main(String[] args) {
3         int bilangan = 8;
4
5         System.out.print(s:"1");
6         for (int i = 2; i <= bilangan; i++) {
7             System.out.print(" + " + i);
8         }
9         System.out.print(s:" = ");
10        System.out.println(PenjumlahanRekursif(f:8));
11    }
12
13    static int PenjumlahanRekursif(int f) {
14        if (f == 0) {
15            return 0;
16        } else {
17            return f + PenjumlahanRekursif(f - 1);
18        }
19    }
20 }
```

Terminal output:

```
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina> d:
na> cd 'd:\SEMESTER1\Java\laprak\jobsheet14_lavina'; & 'C:\Program Files\Java\jdk
1.8.0_341\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address
=localhost:56142' '-cp' 'C:\Users\Lavina\AppData\Roaming\Code\User\workspaceStorage\8a
67d08f385b0251d0e6efa440427856\redhat.java\jdt_ws\jobsheet14_lavina_labe9c5\bin' 'Tug
as2'
1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>
```

3. Buat program yang di dalamnya terdapat fungsi rekursif untuk mengecek apakah suatu bilangan n merupakan bilangan prima atau bukan. n dikatakan bukan bilangan prima jika ia habis dibagi dengan bilangan kurang dari n. (CekPrimaRekursif).

```

1 public class Tugas314 {
2     public static void main(String[] args) {
3         System.out.println(CekPrimaRekursif(13, 1:2) == true ? "Bilangan Prima" : "Bukan Bilangan Prima");
4     }
5
6     static boolean CekPrimaRekursif(int n, int i) {
7         if (n <= 1) {
8             return false;
9         }
10
11         if (i < n) {
12             if (n % i == 0) {
13                 return false;
14             } else {
15                 return CekPrimaRekursif(n, i + 1);
16             }
17         }
18         return true;
19     }
20 }
21

```

```

:62888" "-cp" "C:\Users\Lavina\AppData\Roaming
\Code\User\workspaceStorage\8a67d88f385b0251d0
e5efaf448427856\redhat.java\jdt_ws\jobsheet14_1
avina_1abec9c5\bin" Tugas314
Bukan Bilangan Prima
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>
-agentlib:jdwp=transport=dt_socket,server=n
,suspend=y,address=localhost:62888" "-cp" "C:\
Users\Lavina\AppData\Roaming\Code\User\workspa
ceStorage\8a67d88f385b0251d0e5efaf448427856\red
hat.java\jdt_ws\jobsheet14_lavina_1abec9c5\bin
" Tugas314
Bukan Bilangan Prima
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>
d; cd "d:\SEMESTER1\Java\laprak\jobsheet14_
lavina"; & "C:\Program Files\Java\jdk1.8.0_341
\bin\java.exe" "-agentlib:jdwp=transport=dt_so
cket,server=n,suspend=y,address=localhost:6288
8" "-cp" "C:\Users\Lavina\AppData\Roaming\Code
\User\workspaceStorage\8a67d88f385b0251d0e5efaf
448427856\redhat.java\jdt_ws\jobsheet14_lavina
_1abec9c5\bin" Tugas314
Bukan Bilangan Prima
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>
d; cd "d:\SEMESTER1\Java\laprak\jobsheet14_
lavina"; & "C:\Program Files\Java\jdk1.8.0_341
\bin\java.exe" "-agentlib:jdwp=transport=dt_so
cket,server=n,suspend=y,address=localhost:6288
8" "-cp" "C:\Users\Lavina\AppData\Roaming\Code
\User\workspaceStorage\8a67d88f385b0251d0e5efaf
448427856\redhat.java\jdt_ws\jobsheet14_lavina
_1abec9c5\bin" Tugas314
Bilangan Prima
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>

```

4. Sepasang marmut yang baru lahir (jantan dan betina) ditempatkan pada suatu pembiakan. Setelah dua bulan pasangan marmut tersebut melahirkan sepasang marmut kembar (jantan dan betina). Setiap pasangan marmut yang lahir juga akan melahirkan sepasang marmut juga setiap 2 bulan. Berapa pasangan marmut yang ada pada akhir bulan ke-12? Buatlah programnya menggunakan fungsi rekursif! (Fibonacci). Berikut ini adalah ilustrasinya dalam bentuk tabel.

Bulan ke-	Jumlah Pasangan		Total Pasangan
	Produktif	Belum Produktif	
1	0	1	1
2	0	1	1
3	1	1	2
4	1	2	3
5	2	3	5
6	3	5	8
7	5	8	13
8	8	13	21
9	13	21	34
10	21	34	55
11	34	55	89
12	55	89	144

The image shows a screenshot of an IDE with a dark theme. The main editor window displays a Java file named `Tugas414.java`. The code defines a `Tugas414` class with a `main` method that calls `Fibonacci(12)` and prints the result. The `Fibonacci` method is a recursive function that returns the n -th Fibonacci number. The IDE interface includes a menu bar (File, Edit, Selection, View, Go, Run, ...), a toolbar with icons for file operations and running, and a sidebar with icons for Explorer, Search, Run and Debug, and Extensions. The right sidebar contains three panels: PROBLEMS (showing 2 errors), OUTPUT, and TERMINAL. The TERMINAL panel shows the execution of the program in a Windows PowerShell window, displaying the output `144`.

```
1 public class Tugas414 {
2     public static void main(String[] args) {
3         System.out.println(Fibonacci(12));
4     }
5
6     static int Fibonacci(int n) {
7         if (n <= 1) {
8             return n;
9         } else {
10            return Fibonacci(n - 1) + Fibonacci(n - 2);
11        }
12    }
13 }
```

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features.

PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>
;jdbwp-transport=dt_socket,server=n,suspend=y,ad
ode\User\workspaceStorage\8a67d08f385b0251d0e6e
'Tugas414'
144
PS D:\SEMESTER1\Java\laprak\jobsheet14_lavina>