Tugas Praktikun Pemrograman Berorientasi Objek

Disusun Oleh :

Agil Deriansyah Hasan
4522210125

Dosen Pengampu :

Adi Wahyu Pribadi , S.Si., M.Kom
Prak. Pemrograman Berorientasi Objek - A

S1-Teknik Informatika
Fakultas Teknik
Universitas Pancasila 2023/2024

Laporan

Bagian 1: Pengenalan Variabel static dalam Kelas

```java
public class Book {
    private String title;
    private String author;
    private String isbn;
    public static int totalBooks = 0;

    public Book(String title, String author, String isbn){
        this.title = title;
        this.author = author;
        this.isbn = isbn;
        totalBooks++;
    }

    public static void displayTotalBooks(){
        System.out.println("Total Books : " + totalBooks);
    }

    public static void main(String[] args){
        Book book1 = new Book("Judul 1", "Author 1", "ISBN001");
        Book book2 = new Book("Judul 2", "Author 2", "ISBN002");

        displayTotalBooks();
    }
}
```

```
Command Prompt

D:\Tugas_4522210125_AgilDeriansyahHasan\TugasPrakPBO8\src>java Book.java
Total Books : 2
```

Bagian 2: Metode static dan Blok Inisialisasi static

```java
public class Library {
    static {
        System.out.println("Library System initialized");
    }

    public static String convertToUpperCase(String str) {
        return str.toUpperCase();
    }
}
```

```java
    public static void main(String[] args) {
        String result = Library.convertToUpperCase("hello library");
        System.out.println(result);
    }
}
```

Command Prompt

```
D:\Tugas_4522210125_AgilDeriansyahHasan\TugasPrakPBO8\src>java Library.java
Library System initialized
HELLO LIBRARY
```

Bagian 3: Kelas static Bersarang (Static Nested Class)

```java
public class User {
    private String name;

    public User(String name) {
        this.name = name;
    }

    public static class Address {
        private String city;
        private String state;
        private String zipCode;

        public Address(String city, String state, String zipCode) {
            this.city = city;
            this.state = state;
            this.zipCode = zipCode;
        }

        public void displayAddress() {
            System.out.println("City: " + city + ", State: " + state + ",
Zip Code: " + zipCode);
        }
    }

    public static void main(String[] args) {
        User.Address address = new User.Address("Jakarta", "DKI Jakarta",
"10110");
        address.displayAddress();
    }
}
```

```
D:\Tugas_4522210125_AgilDeriansyahHasan\TugasPrakPBO8\src>java User.java
City: Jakarta, State: DKI Jakarta, Zip Code: 10110
```

Bagian 4: Pola Desain Singleton Menggunakan static

```java
public class DatabaseConnection {
    private static DatabaseConnection instance = null;

    private DatabaseConnection() {
        System.out.println("Database Connection Created");
    }

    public static DatabaseConnection getInstance() {
        if (instance == null) {
            instance = new DatabaseConnection();
        }
        return instance;
    }

    public static void main(String[] args) {
        DatabaseConnection connection1 =
DatabaseConnection.getInstance();
        DatabaseConnection connection2 =
DatabaseConnection.getInstance();

        System.out.println(connection1 == connection2);
    }
}
```

```
D:\Tugas_4522210125_AgilDeriansyahHasan\TugasPrakPBO8\src>java DatabaseConnection.java
Database Connection Created
true
```

Bagian 5: Studi Kasus dan Latihan Akhir
Tugas Latihan 8

```java
public class LibraryManager {
    private static int totalBooksAvailable = 100;

    public static void addBooks(int count) {
        totalBooksAvailable += count;
        System.out.println(count + " books added.");
    }

    public static void removeBooks(int count) {
        if (count <= totalBooksAvailable) {
            totalBooksAvailable -= count;
            System.out.println(count + " books removed.");
        } else {
            System.out.println("Not enough books available to
remove.");
        }
    }

    public static void displayTotalBooks() {
        System.out.println("Total books available: " +
totalBooksAvailable);
    }

    public static void main(String[] args) {
        addBooks(10);
        removeBooks(5);
        displayTotalBooks();
    }
}
```

```
D:\Tugas_4522210125_AgilDeriansyahHasan\TugasPrakPBO8\src\tugas>java LibraryManager.java
10 books added.
5 books removed.
Total books available: 105
```